International Journal for Housing Science and Its Applications
Publish August 4, 2025. Volume 46, Issue 3 Pages 3046-3055

https://doi.org/10.70517/ijhsa463255

A Study on Evaluating the Effectiveness of Flipped Classroom in English Translation Teaching Based on Big Data Analysis

Liuying Zhou[1] and Yuanyuan Wang[2,*]
[1] School of Foreign Language, Yancheng Institute of Technology, Yancheng, Jiangsu, 224051, China
[2] School of Information Technology, Yancheng Institute of Technology, Yancheng, Jiangsu, 224051, China
Corresponding authors: (e-mail: linda7575@126.com).

Abstract Utilizing the flipped classroom to improve the quality of English translation courses is one of the key points to promote the reform of English teaching. This paper constructs a flipped classroom English translation teaching evaluation index system based on the feasibility of flipped classroom in English translation teaching. A comprehensive indicator system with comprehensive connotation is established from the three dimensions of teacher teaching, student learning and platform environment, and the indicators are optimized according to the experts' consultation. After obtaining the relevant evaluation index data through the questionnaire survey, the entropy weight method was chosen to calculate and analyze the data to judge the influence of each index on teaching. The results show that the weight of platform environment among the first-level indicators is the largest, reaching 38.97%. The weight of learning resources is the largest among the secondary indicators, which is 15.18%. Combined with the positive and negative ideal solutions and the relative closeness calculation results, it is found that the learning resources indicator is the indicator with the greatest influence on the teaching of English translation in the flipped classroom, and the relative closeness is 0.8128. Optimizing the learning resources of the platform can improve the students' motivation to participate in the flipped classroom of English translation and the level of learning.

Index Terms flipped classroom, English translation teaching, entropy weight method, relative closeness, data analysis

I. Introduction

In recent years, under the rapid economic development, the development of international exchanges is getting closer and closer, and English as the world's first universal language, under the mode of high-speed development of the industry, the social demand for English translation talents is also gradually increasing. From an educational point of view, all kinds of colleges and universities have also opened professional English translation, in order to supplement the shortage of professional talents, but in terms of the amount of complementary talents, the number of specialized talents can't support the demand of the development of the industry as a whole, which also requires some non-foreign language majors, should take up the important task of training English translation talents [1]-[4]. From the perspective of the specific practice of translation teaching, the teaching mode of the course can't achieve the preset goals, and there are serious deficiencies in the actual teaching process, such as single teaching content, single theoretical teaching method, disjointed practice, backward teaching evaluation and other phenomena, which can't satisfy the cultivation needs of English translation talents [5]-[8]. For this reason, in the teaching of English translation, educational concepts should be introduced, educational methods should be reformed, and the classroom should be re-optimized, so that the teaching content can be adapted to the learning needs of the students and the syllabus of the course, and a high-quality teaching scenario can be formed, so as to cultivate more high-quality professionals for the society [9], [10].

The flipped classroom takes offline time as a supplement to classroom education, allowing students to learn independently, and then applying the time in class to practical teaching, which can maximize the efficiency of classroom teaching in terms of the integration of educational resources and the transformation of teaching structure. Students in the process of learning new knowledge, according to their own understanding, make notes, analyze the focus of the learning process, in the classroom communication, can be more effective to focus on the difficult knowledge, and then promote the communication and interaction between teachers and students, truly internalize the knowledge into practical ability, in order to practically solve the real problem [11]-[14]. On the other hand, the flipped classroom is also called the inverted classroom, which is driven by students' self-study and classroom teaching to create a top-bottom docking, internal and external combination of the educational environment, so that students can really take their own learning needs as the driving force of the English classroom teaching, and to improve students' English translation skills [15]-[17]. In this way, students are also able to learn more about their

own learning problems during the study period, and boost the landing of personalized teaching by complementing the strengths and weaknesses of their classmates.

At present, although the flipped classroom has made certain achievements in English translation teaching, there are still some problems. First of all, the design of classroom practice activities is poorly targeted and lacks novelty, with the translation of designated texts as the main focus, which does not reflect the effect of practice too much. Secondly, among the non-English majors and students who are not interested in English, the completion of the video learning before class is low. Furthermore, the evaluation of teaching effect is dominated by human subjective consciousness and lacks the support of objective data, exposing the lack of accuracy of evaluation and hindering further optimization of teaching [18]-[21]. Updating teaching evaluation indexes and methods provides reference for the improvement of English translation teaching mode under flipped classroom.

By analyzing the association between flipped classroom and English translation course, this paper establishes a multi-dimensional flipped classroom English translation teaching evaluation index system to comprehensively measure the factors influencing the teaching effect. Combined with experts' solicitations, the rationality of the selected indicators is assessed in 3 aspects, namely, the mean value of importance, standard deviation and coefficient of variation. Analyze the specific steps of calculating the ranking of influence indicators by entropy weight method. Obtain the index evaluation data on English translation teaching in flipped classroom through questionnaires and other surveys, and carry out standardized preprocessing. Calculate the weight of each indicator, the distance between positive and negative ideal solutions, the relative closeness, rank the degree of influence of the indicators, and obtain the final ranking of the influence indicators of the effect of teaching English translation in flipped classroom.

II. Establishment of an assessment system and elaboration of analytical methods

This chapter constructs a flipped classroom English translation teaching index evaluation system, and introduces the entropy weight method to calculate the related teaching effect and excavate the teaching effect influencing factors.

II. A. The Feasibility of Flipped Classroom in English Translation Courses in Colleges and Universities

II. A. 1) The Flipped Classroom Matches the Characteristics of English Translation Teaching

In the English translation class, in order to improve the students' English translation level, it is necessary to cultivate the students' ability of application and practice. The improvement of English translation level can not be realized instantly, but requires a long-term accumulation process of English translation knowledge, and should also strengthen the translation training, in the practice of translation inadvertently on the translation skills to achieve the expected results. In terms of the status quo of English translation teaching in Chinese colleges and universities, English translation courses are usually carried out in the traditional teaching mode, and teachers only focus on telling students about English translation skills and their own years of experience in teaching translation, which greatly discourages students from being creative. However, applying the flipped classroom strategy to English translation teaching activities can give students more opportunities to translate and express themselves, and ensure that students have enough opportunities to practice and exercise, which in turn can maximize the level of English translation.

II. A. 2) Flipped classroom strategy is compatible with the current English translation teaching environment

In this era of informationization, Internet technology is more developed, and many schools have applied Internet technology in teaching, usually through wireless network equipment and multimedia equipment for teaching, and equipped with some microcomputer room, which provides a powerful network technical support for students' English translation learning. Teachers through the Internet technology to carry out micro-teaching of students, can provide students with a richer learning resources, students can learn English translation related knowledge through the network independently, to promote the improvement of the level of English translation.

II. B. Indicator system construction and validation optimization

II. B. 1) Results of the construction of the evaluation indicator system

As can be seen from 2.1, applying the flipped classroom to English translation classes in colleges and universities involves relevant factors such as teachers' teaching, students' learning and platform environment. According to the above research work, in order to facilitate the subsequent evaluation indexes' rationality, importance and the establishment of evaluation indexes' weights, each index is numbered, and the complete flipped classroom teaching evaluation index system is finally obtained. Table 1 shows the evaluation index system of flipped classroom teaching. The evaluation index system contains three first-level indicators of teacher teaching, student learning and platform environment, as well as 12 second-level indicators from A1-C3. Each of these secondary indicators is defined

accordingly through 1-4 connotations, which can show the influencing factors of flipped classroom in English translation teaching in a more comprehensive way.

Table 1: Evaluation Index System of Flipped Classroom Teaching

First-level indicator	Secondary indicators	Evaluation Details
Teacher's Teaching A	Teaching Objective A1	A11: Teachers objectives follow the curriculum standards, are clear and specific in content, and are measurable
	Teaching Attitude A2	A21: Teachers are conscientious and responsible in their teaching work and care for and love students
	Teaching Content A3	A31: The teaching content arranged by the teacher is in line with the teaching objectives. It is in line with the cognitive level of students
	Teaching Process A4	A41: Teachers actively and proactively help students understand the course content during the teaching process
		A42: Teachers can provide positive feedback and guidance on classroom issues and after-class homework
		A43: In the classroom, the teacher encourages students to practice hands-on and discuss cooperatively
	Teaching Organization A5	A51: The teacher clearly conveys the teaching activity arrangements to the students
Student studies B	Learning Objective B1	B11: Students can clearly understand the learning objectives
	Learning Content B2	B21: The learning content is adapted to the current cognitive level of the students
	Learning Process B3	B31: Students can make good use of online learning platforms to solve learning problems
		B32: The rich teaching activities arranged by teachers can stimulate students' interest in learning
		B33: Through learning, discussion and thinking in the course, most students can understand the course knowledge
	Learning Effect B4	B41: Under the guidance of the teacher, the students actively engaged in cooperation and discussion
		B42: Students can complete practical learning tasks quite well
		B43: After completing the course, students can accomplish the assigned tasks quite well
		B44: Through the study of the course, students can solve problems related to the course content quite well
Platform Environment C	Learning Experience C1	C11: Students and teachers are willing to use the online learning platform for teaching activities, and the overall user experience is good
		C12: Online learning platforms can provide a comfortable and relaxed communication environment, ensuring good interaction among students and between students and teachers
	Learning Resource C2	C21: Online learning platforms can offer a rich variety of learning resources to meet students' personalized learning needs
	Teaching Platform C3	C31: The online learning platform is fully functional, has a simple and understandable interface, is easy to operate and runs stably

II. B. 2) Selection of the target group for consultation

In order to verify whether the indicators of the evaluation index system of flipped classroom teaching are set up reasonably and the importance of the indicators at all levels, it is necessary to adopt the Delphi method to consult experts. According to the previously constructed evaluation index system, expert questionnaires are designed, and the experts need to make their own judgments on the reasonableness of the evaluation index system and the importance of each level of indexes based on their own professional knowledge and experience, and feedback the information into the questionnaires. The researcher puts forward the required information from the questionnaire and integrates and summarizes the experts' opinions in a scientific way, so as to further revise and optimize the evaluation index system.

The selection of consultants is extremely important in home consulting because their professional knowledge and experience can ensure the authority and reliability of the opinions provided. The opinions and suggestions provided by authoritative experts have high credibility, thus providing strong support for the formulation of the evaluation

index system. Under comprehensive consideration, this paper mainly favors two types of consultants: one is experts and scholars with research on the theoretical aspects of flipped classroom teaching, usually professors in higher education units, who can suggest modifications on the theoretical aspects; the other is teachers who have long-time frontline teaching work and experience in flipped classroom teaching, who can suggest modifications and suggestions from the teaching practice. In addition, in order to ensure the authority of the results, it is necessary to set up conditions to screen the subjects of the solicitation to ensure that the experts have professional knowledge and rich experience in the relevant fields and can provide valuable insights and suggestions to support the rationality and effectiveness of the evaluation index system.

After discussion and research, the consultants invited in this paper need to meet the following criteria:

(1) Have teaching experience or research experience in flipped classroom;

(2) Having a title of intermediate or above;

(3) Have more than five years of teaching experience.

After the invitation, a total of 20 experts and scholars as well as frontline teachers agreed to join the consultation. The proportion of experts and scholars working in higher education units reached 78%; the proportion of experts and scholars with senior titles was 50%, the same as that of intermediate titles; the proportion of those with 5-10 years of education experience was 85%, and the proportion of those with more than 10 years of experience was 15%. The overall analysis shows that the experts and scholars who participated in the consultation have a high level of professionalism, which ensures the authority of the results of the consultation.

II. B. 3) Results of the consultation

The opinion questionnaire of this paper mainly includes the importance of evaluation indexes and the order of importance between evaluation indexes, and the questionnaire adopts the Likert five-level scale method, which assigns a value from one to five points from very unimportant to very important, and needs to rank the evaluation indexes of the same level in order. The questionnaire was analyzed using the mean to judge the importance of the indicators, the standard deviation to test the degree of dispersion of expert opinion, and the coefficient of variation to judge the degree of consistency of expert opinion. According to relevant literature as well as practical experience, if each evaluation indicator meets the following conditions: the mean of importance >4.5, standard deviation <1, and coefficient of variation <0.2, it means that the evaluation indicator passes the rationality verification.

Table 2: Analysis Results of Specific Indicators

First-level indicator	Secondary indicator	Connotation	Average value	Standard deviation	Coefficient of variation
Teacher's Teaching A	Teaching Objective A1	A11	4.587	0.357	0.007
	Teaching Attitude A2	A21	4.725	0.462	0.097
	Teaching Content A3	A31	4.946	0.235	0.042
	Teaching Process A4	A41	4.725	0.460	0.097
		A42	4.832	0.382	0.078
		A43	4.610	0.501	0.106
	Teaching Organization A5	A51	4.724	0.465	0.095
		A52	4.831	0.382	0.071
Student studies B	Learning Objective B1	B11	4.945	0.234	0.046
	Learning Content B2	B21	4.779	0.429	0.091
	Learning Process B3	B31	4.276	0.462	0.101
		B32	4.518	0.617	0.136
		B33	4.834	0.382	0.074
	Learning Effect B4	B41	4.721	0.465	0.097
		B42	4.610	0.606	0.130
		B43	4.886	0.322	0.065
		B44	4.886	0.321	0.064
Platform Environment C	Learning Experience C1	C11	4.519	0.516	0.112
		C12	4.834	0.382	0.077
	Learning Resource C2	C21	4.777	0.540	0.111
	Teaching Platform C3	C31	4.384	0.601	0.137

Table 2 shows the results of the analysis of specific indicators. From the data in Table 2, it can be seen that the average value of the importance of the indicators is at least 4.518, which is greater than 4.5; the standard deviation

is at most 0.617, which is less than 1; and the coefficient of variation is at most 0.137, which is less than 0.2. Therefore, it can be judged that the constructed indicator system is reasonable, and the data analysis can be carried out.

II. C.Specific steps of entropy power method analysis

(1) Dimensionless processing of selected data

Let there be m objects $(m1, m2, \ldots, mm)$ in the indicator system, n indicator $(n1, n2, \ldots, nn)$, so that the first i valuation object $(i = 1, 2, 3, \ldots, m)$ of the first j indicator $(j = 1, 2, 3, \ldots, n)$ to take the value of Xij, the choice of questionnaire m question of data and n indicator is recorded as i year of the first j indicator scale values, its decision matrix is as follows:

$$G = (X_{ij'})_{mn} \tag{1}$$

In the selected indicators, some indicators are positive indicators, with the change of the value of the indicator its effect changes in the same direction is called positive indicators, the larger these indicators are the better; some indicators are moderate indicators, its standard is in an interval, not the larger the better, not the smaller the better, but after the study found that the effect achieved in an interval is optimal; some indicators are reverse indicators, with the change of the value of the indicator its effect changes in the opposite direction, the smaller the value of these indicators is the better. Some indicators are inverse indicators, as the value of the indicator changes the effect changes in the opposite direction, the smaller the value of these indicators the better. In order to make these indicators comparable, the data need to be dimensionless.

For positive indicators (the larger the better):

$$X_{ij'} = \frac{x_{ij} - \min_j \{x_{ij}\}}{\max_j \{x_{ij}\} - \min_j \{x_{ij}\}} \tag{2}$$

For negative indicators (smaller and smaller indicators):

$$X_{ij'} = \frac{\max_j \{x_{ij}\} - x_{ij}}{\max_j \{x_{ij}\} - \min_j \{x_{ij}\}} \tag{3}$$

(2) De-miniaturization of data

After the original data is de-minimized, the indicator data range can be taken to zero, and taking the logarithm when calculating the entropy weight will make the calculation meaningless, and it is necessary to level the whole of the de-minimized data, and the formula after the leveling is as follows: $X_{ij} = X_{ij} + \alpha$, and in order not to change the information of the original data, make $\alpha = 0.0001$.

(3) Normalize the data

$$P_{ij} = \frac{x_{ij}}{\sum_{i=1}^{n} x_{ij}} \tag{4}$$

where $i = (1, 2, \cdots, m)$, $j = (1, 2, \cdots, n)$

(4) Determine the entropy value

$$e_j = -\frac{1}{\ln 1} * \sum_{j=1}^{n} P_{ij} \ln P_{ij} \tag{5}$$

(5) Calculation of entropy weights

$$W_j = \frac{1 - e_{ij}}{\sum_{i=1}^{m} (1 - e_{ij})} \tag{6}$$

(6) Construct a weighted standardized decision matrix

$$G = (G_{ij})_{mxn} = (X_{ij} W_i)_{mxn} \tag{7}$$

(7) Determine positive and negative ideal solutions
The positive indicator is:

$$\begin{cases} R^+ = \max G_{ij} \\ R^- = \min G_{ij} \end{cases} \tag{8}$$

Negative indicators are:

$$\begin{cases} R^+ = \min G_{ij} \\ R^- = \max G_{ij} \end{cases} \tag{9}$$

where the positive ideal is given by:

$$R^+ = \left(G_1^+, ..., G_m^+\right) \tag{10}$$

(8) Calculate the Euclidean distance

$$d_i^+ = \sqrt{\sum_{i=1}^{m} (G_{IJ} - R^+)^2} \tag{11}$$

$$d_i^- = \sqrt{\sum_{i=1}^{m} (G_{IJ} - R^-)^2} \tag{12}$$

(9) Calculate relative closeness

$$D_j = \frac{d_j^-}{d_j^- + d_j^+}, j = 1, 2..., n \tag{13}$$

III. Analysis of Influence Indicators of English Translation Teaching in Flipped Classroom Based on Entropy Right Method

In this chapter, relevant evaluation data are obtained through questionnaire surveys, and the entropy weighting method is used to calculate the weights, the positive and negative ideal solution distances, and the relative closeness of the indicator data, to analyze the size of the influence of each indicator on English translation teaching in the flipped classroom.

III. A. Reliability test of data

This paper constructs a flipped classroom English translation teaching indicator evaluation system, in order to further explore the weight value of each indicator in the system, this paper adopts a combination of subjective and objective methods to assign weights to the flipped classroom English translation teaching quality evaluation system. According to the index system, this paper designs the questionnaire, which is divided into 3 major aspects such as teachers' teaching, students' learning, etc. Specific questions for each aspect are designed according to the secondary indicators, totaling 15 questions. Each question is categorized under 5 answers of not important at all, not important, general, important, very important, and scored 1-5 points in order. In order to guarantee the reasonableness and extensiveness of the questionnaire data, the questionnaire in this paper adopts a combination of offline paper questionnaire and network questionnaire distribution method, and the distribution object is mainly the teachers and managers engaged in the flipped classroom English translation in colleges and universities as well as the students who study, and a total of 1,600 questionnaires were distributed and 1,428 were recovered, with a questionnaire recovery rate of 89.25%.

Because the data collected by the questionnaire is subjective data, the data must be tested for reliability and validity to ensure the validity of the data, if the data does not pass the reliability and validity test, the outliers need to be eliminated, and the test should be conducted again until it passes, in order to carry out the analysis of the empowerment, and the reliability and validity test is carried out by using SPSS22.0. Table 3 shows the results of the confidence validity test. According to the results of Table 3, the reliability values of the 12 secondary indicators are higher than 0.65, indicating that these indicators passed the reliability test, while the combined secondary indicators were tested for the validity of the primary indicators, and the validity values of the indicators were higher

than 0.75, indicating that they passed the validity test. The data collected by the questionnaire are valid.

Table 3: Results of reliability and validity tests

First-level indicator	Secondary indicator	Reliability value	Validity value
A	A1	0.685	0.769
	A2	0.664	
	A3	0.775	
	A4	0.647	
	A5	0.710	
B	B1	0.774	0.757
	B2	0.735	
	B3	0.740	
	B4	0.842	
C	C1	0.775	0.752
	C2	0.718	
	C3	0.741	

III. B. Data processing and calculation of indicator weights

III. B. 1) Indicator raw data and pre-processing

After verifying the validity of the data, based on the questionnaire title and the resultant data, the raw data of the 12 evaluation indexes of English translation teaching in flipped classroom are organized and calculated. In the process of using the entropy value method to calculate the indicators, it is necessary to take logarithms of the matrix, so in order to avoid the meaninglessness of the logarithmic operation, it is necessary to process the data after the standardization process. In order to avoid the impact on the accuracy of the data, the data after the standardization process should be shifted by 0.0002 and units. Figure 1 is the raw data of the indicators of the evaluation system of English translation teaching in the flipped classroom. Figure 2 is the result of data preprocessing. Observing the results of the preprocessed data, it is found that all the data are between 0-1, which are valid data and can be used for the next step of calculating the weights of the indicators.

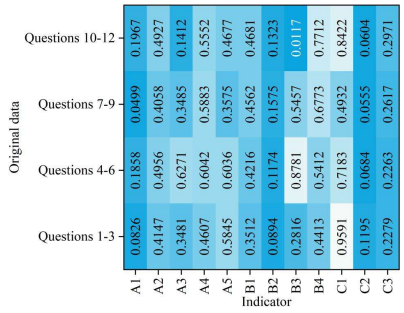

Figure 1: Original data of the evaluation system indicators

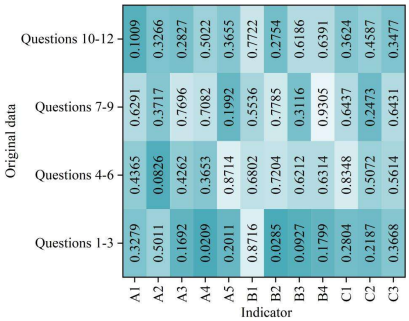

Figure 2: Data preprocessing result

III. B. 2) Calculation of indicator weights

The preprocessed data are subjected to the calculation of characteristic weight, entropy value and coefficient of

variation, and finally the indicator weights of the 12 second-level evaluation indexes selected in this paper as well as the weights of the three first-level evaluation indexes of the quality of English translation teaching in the flipped classroom are calculated. Table 4 shows the specific results. Combined with the results of the calculation of the indicator weights, it can be known that the weights of the three first-level indicators of teacher teaching, student learning, and platform environment are 30%, 31.03%, and 38.97% respectively, and the one with the greatest weight is the first-level indicator of platform environment. Among the secondary indicators corresponding to teacher teaching, the weight of organizational process (A5) is the largest, which is 8.72%. In student learning, the weight of learning process (B3) is the largest at 10.15%. In the platform environment, the weight of learning resources (C2) is the largest at 15.18%. Overall, learning resources (C2), learning experience (C1), and learning process (B3) are the indicators with the highest weights, which is in line with the student-oriented teaching of English translation in the flipped classroom, which allows students to utilize the platform resources for active learning.

Table 4: Weight calculation result

First-level indicator	Secondary indicator	Entropy value	Coefficient of difference	Weight of secondary indicators	Weight of first-level indicators
A	A1	0.7872	0.2123	4.43%	30%
	A2	0.7655	0.2342	4.44%	
	A3	0.6380	0.3615	5.00%	
	A4	0.6635	0.3366	7.41%	
	A5	0.8336	0.1660	8.72%	
B	B1	0.7181	0.2813	7.10%	31.03%
	B2	0.7383	0.2617	6.24%	
	B3	0.6342	0.3651	10.15%	
	B4	0.8577	0.1423	7.54%	
C	C1	0.8556	0.1446	13.73%	38.97%
	C2	0.6082	0.3914	15.18%	
	C3	0.8427	0.1576	10.06%	

III. C. Calculation of distance and relative closeness of positive and negative ideal solutions of the indicator

The resulting indicator weight data are brought into the formula to construct a weighted normalized decision matrix and calculate the positive and negative ideal solutions and the final relative closeness. Figure 3 shows the calculation results. Figure 4 shows the change in relative closeness. According to the calculation results of the positive and negative ideal values and the change in relative closeness, it can be found that among the 12 indicators, the distance between the positive and negative ideal values of C2 learning resources is the smallest, only 0.0111, and the relative closeness is the largest, reaching 0.8128. It can be determined that among the 12 indicators, the indicator of learning resources in the platform environment is the one that has the greatest impact on the teaching of English translation in the flipped classroom. The ranking of the level of impact of the 12 indicators is: C2>C1>B3>C3>A5>B4>A4>B1>B2>A3>A2>A1.

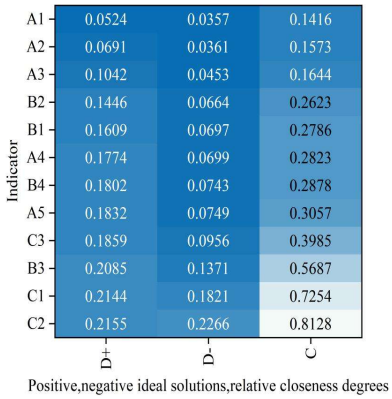

Figure 3: Calculation result

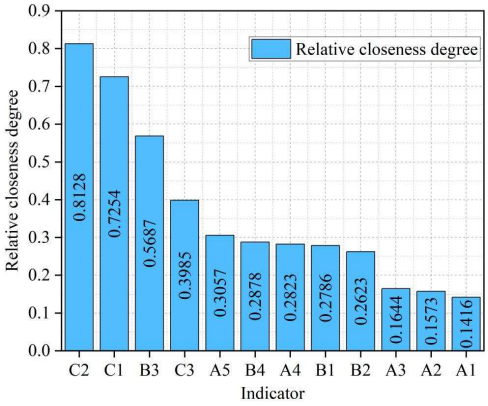

Figure 4: The variation of relative closeness degree

IV. Conclusion

This paper utilizes the entropy weight method to calculate the evaluation index system of English translation teaching in flipped classroom, and digs into the specific influence of the indexes on the teaching effect.The weights of the 3 first-level indexes are as follows: teachers' teaching (30%)>students' learning (31.03%)>platform environment (38.97%). The top 3 most weighted secondary indicators are: learning resources (15.18%), learning experience (13.73%), and learning process (10.15%). According to the calculation results of positive and negative ideal solution distance, as well as relative proximity, the greatest influence on the teaching effect of English translation in the flipped classroom is learning resources (distance = 0.0111, relative proximity = 0.8128). Combined with the calculation results, in the future, relevant teaching administrators can further enrich the amount of learning resources on the platform to attract students' interest in learning, and then enhance their interest in learning in the English translation flipped classroom.

Funding

This research was supported by the General Project of Philosophy and Social Sciences Research in Jiangsu Province: Research on the Application of Multimodal Writing in College English Teaching (No.: 2023SJYB1992).

References

[1] Zheng, W. W. (2019). Status Quo and Cultivation of Translation Talents in the Localization Industry. International Journal of New Developments in Engineering and Society, 3(4).

[2] Deng, F. (2024). RESEARCH AND PRACTICE ON THE CULTIVATION MODE OF COMPOSITE TRANSLATION TALENTS IN AGRICULTURE UNIVERSITIES UNDER THE BACKGROUND OF NEW LIBERAL ARTS. Trends in Social Sciences and Humanities Research.

[3] Zheng, L., Huang, Z., Zhang, W., Ni, K., & Cheng, S. (2023). Research on Employment Status and Development Tendency of Translation Direction for English Major in the Age of Artificial Intelligence. Frontiers in Educational Research, 6(13).

[4] Chai, S., Cai, Y., & Wei, C. (2024). A Study on Gansu's Translation and Interpretation Talents Training from the Perspective of Market Demand. SAGE Open, 14(2), 21582440241255185.

[5] Zhou, Y., & Zou, L. (2017). Cultivation of Translation Competence--A Study on Translation Teaching in College English Teaching in Leshan Normal University, Sichuan, China. Journal of Language Teaching & Research, 8(4).

[6] Cheng, M. (2022). Practical exploration of English translation activity courses in colleges and universities under the background of artificial intelligence. Wireless Communications and Mobile Computing, 2022(1), 4547342.

[7] Su, B. (2022). Exploring Teaching Strategies of English-Chinese Translation in Universities from a Cross-cultural Perspective. International Journal of Education and Humanities, 2(1), 48-52.

[8] Sun, Q. (2021). Common problems in translation practice of english majors and their enlightenment to teaching. International Journal of Social Sciences in Universities, 4, 252-255.

[9] Shen, H. (2021). On the Teaching Reform of Translation Course Based on the Cultivation of Applied Talents. Education Quarterly Reviews, 4(1), 214-220.

[10] Zhang, W., & Yin, H. (2021). Application strategies of cloud computing intelligent optimization algorithms in English translation major teaching. Mobile Information Systems, 2021(1), 2592451.

[11] Zainuddin, Z., Haruna, H., Li, X., Zhang, Y., & Chu, S. K. W. (2019). A systematic review of flipped classroom empirical evidence from different fields: what are the gaps and future trends?. On the Horizon, 27(2), 72-86.

[12] Faridah, N., Ridlo, S., & Saptono, S. (2021). The influence of flipped classroom learning model application on problem solving ability and learning motivation. Journal of Innovative Science Education, 10(3), 339-347.

[13] Estriegana, R., Medina-Merodio, J. A., & Barchino, R. (2019). Analysis of competence acquisition in a flipped classroom approach. Computer Applications in Engineering Education, 27(1), 49-64.

[14] Wei, Y. (2021). Enhancing Teacher–Student Interaction and Students' Engagement in a Flipped Translation Classroom. Frontiers in psychology, 12, 764370.
[15] Lou, Y., Du, Y., Li, Z., Gong, P., & Li, Y. (2017). Effect of the flipped classroom model on Chinese non-English-majored college students' translation skills. Open Journal of Social Sciences, 5(4), 270-281.
[16] Aprianto, E., Purwati, O., & Anam, S. U. (2020). Multimedia-assisted learning in a flipped classroom: a case study of autonomous learning on EFL university students. International Journal of Emerging Technologies in Learning (iJET), 15(24), 114-127.
[17] Arslan, A. (2020). A systematic review on flipped learning in teaching English as a foreign or second language. Journal of Language and Linguistic Studies, 16(2), 775-797.
[18] Deng, L. (2018). The project-based flipped learning model in Business English Translation course: Learning, teaching and assessment. English Language Teaching, 11(9), 118-128.
[19] Li, L. (2021). English translation teaching model of flipped classroom based on the fusion algorithm of network communication and artificial intelligence. Wireless Communications and Mobile Computing, 2021(1), 7520862.
[20] Zhang, L. (2021, April). The effect evaluation of flipped classroom in college English translation teaching under the blended teaching mode. In 2021 2nd Asia-Pacific Conference on Image Processing, Electronics and Computers (pp. 988-991).
[21] Deng, L. (2020). The Process-Oriented Assessment Model of Business English Translation Course in a Flipped Learning Context. Higher Education Studies, 10(4), 1-11.