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AHP-based Design and Teaching Optimization Strategies for Higher Vocational Chinese Language Courses

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Abstract As an important carrier for cultivating students' comprehensive quality, language in higher vocational institutions has many problems in the construction of curriculum system and innovation of teaching methods. This paper uses hierarchical analysis to construct a language curriculum system for higher vocational colleges, and establishes an evaluation system containing four primary indicators and eighteen secondary indicators by inviting eight experts to conduct a weighting assessment. The study adopts a blended teaching mode to design the curriculum program and selects 100 students from a higher vocational college for a four-month teaching experiment to verify it. The results show that the module of language knowledge and utilization ability has the highest weight of 0.4328, which becomes the core element of the course design. The average score of the students in the experimental class reached 71.11, which was 4.46 points higher than that of the control class, and the rates of excellence and goodness reached 6% and 20%, respectively, which were significantly higher than that of the control class. The results of independent samples t-test indicate that there is a significant difference between the two groups' scores. The study shows that the curriculum system based on hierarchical analysis can effectively guide the design of language teaching in higher vocational schools, and the blended teaching mode has obvious advantages in enhancing students' language literacy and professional ability, which provides a scientific basis and practical path for the reform of language education in higher vocational schools.

Index Terms Hierarchical Analysis, Higher Vocational Institutions, Language Curriculum, Blended Teaching, Weighted Assessment, Teaching Optimization

I. Introduction

Higher vocational education cultivates high-quality skilled practical talents. This talent cultivation goal determines that higher vocational education focuses on vocationality in the curriculum, highlights the relevance in the construction of the curriculum system, and focuses on practicality in the teaching link [1], [2]. Secondly, higher vocational education is also higher education, which is different from intermediate and secondary education, and cultivates highly skilled talents with good work ethics and high quality [3], [4]. At present, most colleges and universities, in order to adapt to the market demand and oriented to the future employment of students, focus only on cultivating students' professional skills, gradually neglecting the quality education of students, and also neglecting the construction of the basic courses in setting up the teaching curriculum [5]-[7]. As the skill-based and applied practice-based courses can directly connect with the enterprise's demand for talents, most students also pay attention to these adaptive courses only, while the basic language courses with humanistic education significance are almost not paid attention to by students [8]-[10].

The language course is to improve students' ideological and moral literacy as well as innovation ability on the basis of cultivating the cultural quality of higher vocational students [11]. As a kind of basic cultural education course, its dissemination of the Chinese language and script brings the charm to the extreme, and between the lines, it also conveys the spirit of continuous national culture [12], [13]. Constant exposure to these beautiful literary works in the higher vocational language classroom is not only receiving beauty, but also will help students to find their cultural roots. Considering the importance of language curriculum education to the cultivation of students' vocational core competencies, we strive to realize the integration of vocational education and curriculum teaching by carrying out curriculum design and teaching optimization, and make efforts to serve the coordinated development of students' knowledge, ability and quality [14], [15].

The core of this study is to use the scientific decision-making theory of hierarchical analysis to construct a systematic evaluation system for higher vocational language courses, and to determine the weights of each index through expert assessment, so as to provide a quantitative basis for curriculum design. On this basis, a hybrid teaching model integrating the advantages of online and offline is designed, a specific course implementation

program is formulated, and the teaching effect is verified through comparative experiments. The study combines theoretical analysis with practical testing, and strives to provide operable solutions and scientific evaluation standards for the reform of higher vocational language education.

II. Construction of language curriculum system of higher vocational colleges based on AHP

Higher vocational language is a public basic course in higher vocational colleges and universities, and with the promotion of teaching reform, the teaching mode of higher vocational language is also exploring and innovating. In this chapter, we will take the hierarchical analysis method (AHP) as the basis to build up the language course mention system in higher vocational colleges and universities, calculate the weight of each specific index, and provide the basis for the design of language courses and optimization of teaching activities in higher vocational colleges and universities in the following article [16].

II. A.Principles of Hierarchical Analysis

Hierarchical analysis method referred to as AHP, the method is able to carry out weighted decision-making effective analysis method, is to solve the influence of the elements is not easy to quantify, the influence of the elements of the more complex structure of the decision-making means, the model will be the target problem is decomposed into a number of different levels of factors, layer-by-layer analysis, the uncertainty of the factors quantitatively, used to solve the complexity of the decision-making problem of the multi-scenario. The basic process of hierarchical analysis is shown in Figure 1.

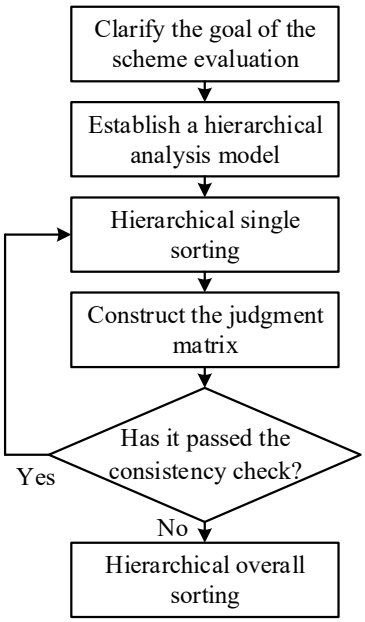


Figure 1: Basic Flowchart of the Analytic Hierarchy Process

Problem solving using hierarchical analysis generally involves the following steps:

(1) Construct a hierarchical model of the current problem:

The essence of the hierarchical analysis method is based on the problem to be solved, the problem will be subdivided, and a hierarchical way to establish an analysis model, and then based on the established model to analyze the factors affecting the target, layer by layer analysis, the target layer that is the construction of the hierarchical analysis model to solve the final problem, the element layer is the impact of the problem of the target level of the elements, the indicator layer is the impact of the element layer of the various Evaluation indicators.

(2) Construct judgment matrix:

Construct the judgment matrix to obtain the weight value of each level element, the method is to compare the relative importance of the two adjacent elements of each level relative to the elements of the previous level, the value of the comparison is generally used in the “5-point scale” method, to obtain the importance of the two adjacent elements of the same layer between the two elements of the matrix, so as to calculate the importance of each element of each level relative to the elements of the target level through the matrix, the index level is the evaluation indexes of each element. The importance matrix of each neighboring element between the same layer is obtained,

through which the importance degree of each layer element relative to the element of the previous layer is calculated, which is the required weight value:

$$P = \begin{bmatrix} P_{11} & \cdots & P_{1n} \\ \cdots & \cdots & \cdots \\ P_{n1} & \cdots & P_{nn} \end{bmatrix} \tag{1}$$

The value of P_{ij} is generally used in the "5-point" scale method, but the specific problem is analyzed specifically, it is not necessarily necessary to use the "5-point" scale measurement method.

(3) Calculate the weight vector of each layer for hierarchical ordering and consistency test:

Using the judgment matrix obtained in the previous step, through the calculation of the weight value of the elements of each layer of the single sort, commonly used methods for calculating the weight of the sum and product method and the square root method, after obtaining the weight vector, according to the consistency of the consistency test method for consistency testing, consistency test is passed, then you can get the final weight vector.

Step1: Set $P = (P_{ij})$ as an n-order square matrix, and then normalize each column of the P matrix to obtain the $A = (A_{ij})$ matrix, where:

$$A_{ij} = \frac{P_{ij}}{\sum_{i=1}^{n} P_{ij}} \quad i, j = 1, 2, 3, ..., n \tag{2}$$

Step2: The matrix $A = (A_{ij})$ after normalization is subjected to a summation operation by rows to obtain $C = (C_1, C_2, C_3, ..., C_n)^T$.

Among them:

$$C_i = \sum_{j=1}^{n} A_{ij} \quad i, j = 1, 2, 3, ..., n \tag{3}$$

Step3: The C matrix obtained in the previous step is subjected to normalization operation to obtain the result $W = (W_1, W_2, W_3, ..., W_n)$, which is the desired target feature vector:

$$W_i = \frac{C_i}{\sum_{i=1}^{n} C_i} \quad i = 1, 2, 3, ..., n \tag{4}$$

Step4: Calculate the maximum characteristic root $\lambda_{\max}$ of the judgment matrix P by using the judgment matrix P and the feature vector W_i:

$$\lambda_{\max} = \frac{1}{n} \sum_{i=1}^{n} \frac{(PW)_i}{W_i} \quad i = 1, 2, 3, ..., n \tag{5}$$

In Eq. (5), $(PW)_i$ is the i th component of PW, and P_i in the P matrix represents the i th element in the P matrix.

Step5: Consistency test:

$$CI = \frac{\lambda_{\max} - n}{n - 1} \tag{6}$$

In Eq. (6), CI is the consistency judgment index, n is the order of the judgment matrix, and $\lambda_{\max}$ is the feature vector. Calculate the consistency ratio:

$$CR = \frac{CI}{RI} \tag{7}$$

In Eq. (7), CR is the consistency ratio and RI is the consistency judgment index.

II. B. Language Curriculum System in Higher Education Institutions

This study mainly comprehensively combed the current literature related to language curriculum design in higher vocational colleges and universities, clarified all aspects involved in language courses in higher vocational colleges and universities, and constructed the name of language course system in higher vocational colleges and universities, as shown in Table 1. It can be seen that the first-level indicators mainly include four aspects, such as course selection, teaching content, teaching design, course specifications, etc., and the first-level indicators are subdivided into different second-level indicators.

Table 1: Chinese curriculum system in higher vocational colleges

System	First-level indicators	Secondary indicators
Chinese curriculum system in higher vocational colleges	Literary appreciation and humanistic quality	Selected Readings of Chinese and Foreign Literary Classics
		Modern Literature and Trend of Thought
		Inheritance of traditional culture
	Critical Thinking and Lifelong Learning	Critical thinking training
		Information processing ability
		Cultivation of innovative thinking
	Professional Application and Practical Ability	Workplace writing training
		Business communication skills
		Copywriting and editing
		Industry case analysis
		Practice feedback
	Language Knowledge and Ability to Use	Basic knowledge of Chinese language
		Oral Communication Skills
		Written expression training
		Appreciation of literary language
		Information Technology Language Applications
		Industry terminology learning

II. C. Calculation of the weights of the indicators of the language curriculum system in higher vocational colleges and universities

In this section, the hierarchical analysis method will be applied to develop a weighting coefficient questionnaire, and eight experts (numbered 1 to 8) will be invited to fill in and recycle the questionnaire, calculate the weighting coefficients of each expert for each dimension of the first-level and second-level indicators, and utilize the arithmetic mean to calculate the weighting coefficients for determining the final weighting coefficients of each indicator item of the language curriculum system of the higher education institutions.

II. C. 1) Calculation of weights for level 1 indicators

The weighting analysis table for the level 1 indicators is specifically shown in Table 2. The arithmetic mean of the weights of each of the eight experts is obtained to get AVE, which is the final weight. From the table, it can be seen that the most important part of the language curriculum in higher vocational colleges is the module of language knowledge and application ability (0.4328), followed by literature appreciation and humanistic literacy (0.2748) and critical thinking ability and lifelong learning (0.1591), and lastly the module of vocational application and practical ability (0.1333).

Table 2: Weight coefficient of the first-level index

First-level indicators	1	2	3	4	5	6	7	8	AVE
Literary appreciation and humanistic quality	0.3431	0.3621	0.1824	0.1987	0.2453	0.2542	0.4168	0.1954	0.2748
Critical Thinking and Lifelong Learning	0.1593	0.1448	0.1997	0.1589	0.1407	0.1279	0.1017	0.2398	0.1591
Professional Application and Practical Ability	0.435	0.4186	0.4989	0.5669	0.5327	0.4512	0.3749	0.1844	0.4328
Language Knowledge and Ability to Use	0.0593	0.0722	0.1271	0.0862	0.0856	0.1646	0.0973	0.3743	0.1333

II. C. 2) Calculation of weights for secondary indicators

After completing the calculation of the weighting coefficients of the four first-level indicators, the weighting coefficients of the different second-level indicators under each first-level indicator are calculated, and the results are shown in Table 3. This is still not the final weight of each secondary index, and it still needs to be further processed. As can be seen from the table, under the first-level indicators of literature appreciation and humanistic literacy, critical thinking ability and lifelong learning, vocational application and practical ability, and language knowledge and utilization ability, the second-level indicators with the highest weighting coefficients are Modern Literature and Currents (0.3655), Innovative Thinking Cultivation (0.4324), Business Communication Skills (0.2368), and Literature and Language Appreciation (0.2596) respectively.

Table 3: Weight coefficient of secondary index

First-level indicators	Secondary indicators	1	2	3	4	5	6	7	8	AVE
Literary appreciation and humanistic quality	Selected Readings of Chinese and Foreign Literary Classics	0.4029	0.3296	0.3438	0.2125	0.3292	0.168	0.2616	0.1993	0.2809
	Modern Literature and Trend of Thought	0.299	0.2631	0.3326	0.5604	0.2895	0.4421	0.3381	0.3992	0.3655
	Inheritance of traditional culture	0.3991	0.4128	0.3331	0.2697	0.4197	0.3837	0.4111	0.1999	0.3536
Critical Thinking and Lifelong Learning	Critical thinking training	0.1706	0.2108	0.2595	0.3332	0.1443	0.2957	0.3336	0.1412	0.2361
	Information processing ability	0.3862	0.2494	0.3285	0.3332	0.4283	0.1619	0.3337	0.4304	0.3315
	Cultivation of innovative thinking	0.4426	0.5504	0.4094	0.3317	0.4287	0.5384	0.3317	0.4266	0.4324
Professional Application and Practical Ability	Workplace writing training	0.111	0.1125	0.1226	0.1197	0.091	0.0674	0.1987	0.099	0.1152
	Business communication skills	0.2482	0.2243	0.2405	0.3228	0.2962	0.34	0.0913	0.1311	0.2368
	Copywriting and editing	0.1888	0.1655	0.1862	0.1628	0.1731	0.1542	0.2365	0.2709	0.1923
	Industry case analysis	0.1477	0.1583	0.2286	0.2237	0.2592	0.2532	0.2387	0.2704	0.2225
	Practice feedback	0.3007	0.3413	0.2183	0.1834	0.1809	0.1842	0.2329	0.2242	0.2332
Language Knowledge and Ability to Use	Basic knowledge of Chinese language	0.1683	0.2107	0.2005	0.1218	0.1228	0.1374	0.1783	0.2092	0.1686
	Oral Communication Skills	0.131	0.1391	0.1528	0.2081	0.2106	0.2456	0.2283	0.1764	0.1865
	Written expression training	0.2828	0.2268	0.2306	0.2557	0.2624	0.2276	0.2246	0.2692	0.2475
	Appreciation of literary language	0.2839	0.3044	0.2911	0.2871	0.2763	0.2295	0.1948	0.2099	0.2596
	Information Technology Language Applications	0.0767	0.0681	0.0732	0.0729	0.0749	0.0957	0.109	0.065	0.0794
	Industry terminology learning	0.0575	0.0494	0.0514	0.0543	0.0538	0.0654	0.0676	0.0675	0.0584

The final weights of each of the secondary indicators are calculated by multiplying the total weight of the primary indicator by the weight coefficient of the secondary indicator in that dimension to obtain the final weight coefficient of each. The final weights of the primary and secondary indicators are calculated and summarized separately, as shown in Table 4. It can be seen that the final weight of the secondary indicators, the highest weight of the secondary indicators for business communication skills (0.1025), followed by internship practice feedback (0.1009) and modern literature and thought (0.1004). The secondary indicator with the lowest indicator weight was learning industry terminology (0.0078).

Table 4: First-level index and second-level index weight summary table

Secondary indicators	First-level indicators				
	Literary appreciation and humanistic quality (0.2748)	Critical Thinking and Lifelong Learning (0.1591)	Professional Application and Practical Ability (0.4328)	Language Knowledge and Ability to Use (0.1333)	Synthetic weight (1)
Selected Readings of Chinese and Foreign Literary Classics	0.2809	-	-	-	0.0772
Modern Literature and Trend of Thought	0.3655	-	-	-	0.1004
Inheritance of traditional culture	0.3536	-	-	-	0.0972
Critical thinking training	-	0.2361	-	-	0.0376
Information processing ability	-	0.3315	-	-	0.0527
Cultivation of innovative thinking	-	0.4324	-	-	0.0688
Workplace writing training	-	-	0.1152	-	0.0499
Business communication skills	-	-	0.2368	-	0.1025
Copywriting and editing	-	-	0.1923	-	0.0832
Industry case analysis	-	-	0.2225	-	0.0963
Practice feedback	-	-	0.2332	-	0.1009
Basic knowledge of Chinese language	-	-	-	0.1686	0.0225
Oral Communication Skills	-	-	-	0.1865	0.0249
Written expression training	-	-	-	0.2475	0.0330
Appreciation of literary language	-	-	-	0.2596	0.0346
Information Technology Language Applications	-	-	-	0.0794	0.0106
Industry terminology learning	-	-	-	0.0584	0.0078

III. Optimization of language teaching activities and curriculum design in higher vocational colleges and universities

In this chapter, we will combine the language curriculum system of higher vocational colleges constructed above with the calculation results of the weights of the indicators, propose the optimization strategy of language curriculum teaching activities in higher vocational colleges, and complete the design of higher vocational colleges language curriculum that combines online and offline teaching by taking a higher vocational college in Liaoning Province of China as an example.

III. A. Strategies for Optimizing Language Teaching Activities in Higher Education Institutions

The selection or design of the teaching mode should be based on the content of the lesson, the target audience, the ability of the teacher and the available resources. Teaching design should implement the idea of “learner-centered” from the beginning to the end, and plan the following points.

(1) Define the objectives of the course

In the specific course design, teaching objectives is an important prerequisite, is the starting point and ultimate destination of teaching design activities. Teachers only on the basis of clear teaching objectives, in order to select the teaching content, adjust the teaching capacity, break the original order, re-create the framework structure, better organize and carry out teaching activities, so that the teaching effect to achieve optimization.

(2) Create a high-quality course system

Curriculum design can be combined with the project-based practical teaching system to guide students to change their learning styles. Construct a new mode of teaching with module as the framework, project as the carrier, task-driven, student as the main body, teacher-led, ability training, quality enhancement as the goal.

(3) Online and offline complement each other's advantages

Online teaching can reduce the cost of teaching, reduce the expenditure of teachers, solve the traditional classroom time is limited, the content is not enough to expand and many other problems. The shortcomings of online classroom mainly focus on the weak adaptability of teaching, poor controllability and lack of necessary emotional interaction. The “dual-line hybrid” teaching mode integrates the teaching participants, teaching methods, teaching space, teaching resources, evaluation system and other aspects, solves the respective drawbacks of the traditional classroom teaching mode and pure online learning mode, and optimizes the teaching effect.

(4) Do a good job of course evaluation design

In the design of learning evaluation, we should pay attention to the combination of process evaluation and summative evaluation. The design of online test is based on the core concept of cultivating vocational literacy and improving vocational skills, and the process evaluation is used to guide the learning, promote the depth of learning and enhance the learning effect. Online evaluation mainly includes online self-tests, online exams, number of times of browsing materials, completion of online homework, number of logins, etc.; offline evaluation mainly includes attendance, classroom questions, attitudes, exams, quizzes and homework.

III. B. Language curriculum design for higher education institutions

This section combines the optimization strategies of teaching activities proposed above to design and develop a high-quality language course for higher vocational colleges and universities, relying on the on-campus online teaching platform, as shown in Figure 2.

(1) Orientation of course objectives

The course teaching is based on the theory of language pedagogy, with language teaching skills as the main line, focusing on the cultivation of teaching practice ability of higher vocational teacher trainees.

(2) Course Content Design

The course adopts a blended learning approach that combines face-to-face teaching and online teaching, and the blended learning is designed from the perspectives of serialization of learning activities, integration of learning activities and learning resources, and so on.

(3) Online media application design

Relying on the online teaching platform and following the online course construction standards, the online course content can be divided into two major parts: video and non-video. The video part of each video is controlled in 8-10 minutes, and comprehensively utilizes charts, animations and cases to increase the amount of information in the video lectures and improve the vividness of teaching. The teaching content is complete, and it is convenient for students to flexibly utilize their fragmented time for learning. The non-video part mainly includes online lesson plans, exercises, tests, assignments, as well as special cases for learning and discussion.

(4) Design of blended teaching activities

According to the teaching needs, we can select “online” or “offline” teaching activities.

(5) Blended assessment and evaluation mechanism

The assessment and evaluation of the course focuses on grasping the teachers' professional skills, combining practical theoretical knowledge and skills acceptance assessment, combining process evaluation and summative evaluation, and combining online and offline evaluation.

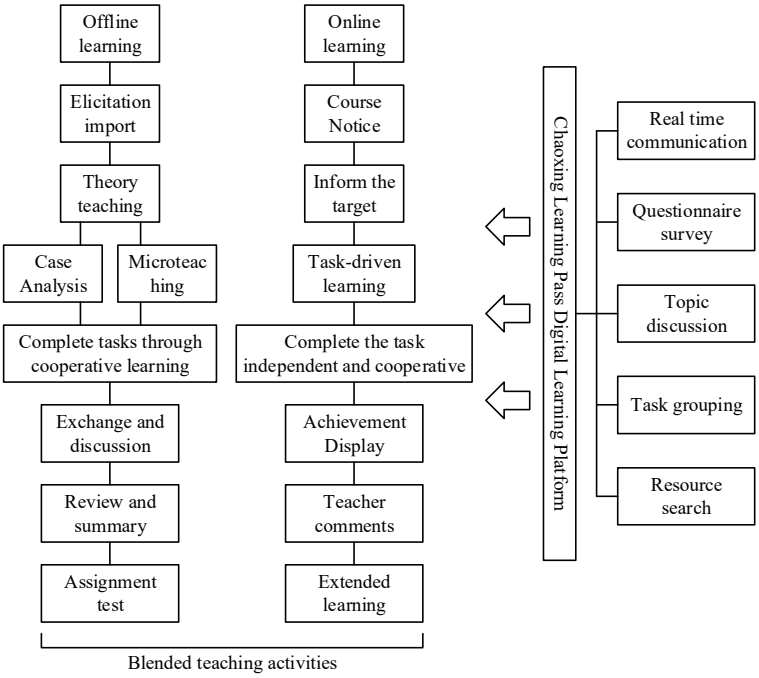


Figure 2: Chinese curriculum design in higher vocational colleges

IV. Experiments in teaching language courses in higher education institutions

In this chapter, an experimental site of a higher vocational college in Liaoning Province, China, will be used to conduct a teaching experiment on language courses in higher vocational colleges with first-year students majoring in elementary school (language) education as the object of the study to test the utility of the optimization strategies of language teaching activities in higher vocational colleges proposed in this paper and the designed language courses in higher vocational colleges in real teaching activities.

IV. A. Experimental setup

This experiment will set up an experimental class and a control class, each with 50 students. Students in the experimental class will apply the language curriculum of higher vocational colleges and universities designed in this paper, combined with the optimization strategies of language teaching activities proposed in this paper, to carry out the language curriculum teaching activities. The control class will maintain the traditional way of teaching language courses in higher vocational colleges.

The experiment will take 4 months (February-May 2024), and after the experiment, the paperless online language examination will be conducted for the students of the experimental class and the control class respectively, and the examination of both classes will use the same question bank, with the same scope, difficulty, and paper scheme, and the examination process will be rigorous, and the examination results will be recognized as valid.

IV. B. Analysis of experimental results

IV. B. 1) Descriptive statistics

The test score grades of the experimental and control classes are specifically shown in Table 5. As can be seen from the table, the percentage of students in the experimental class with excellent, good and moderate examination results are 6%, 20% and 28%, which are higher than that of the control class. As for the proportion of passing and failing, the proportion of the experimental class is 28% and 18%, which is lower than that of the control class by 2% and 14% respectively.

Table 5: Achievement rating

Class	Total number of students	Excellent (more than 90)		Good (80-89)		General (70-79)		Passed (60-69)		Failed (Under 60)	
		Number of students	Proportion	Number of students	Proportion	Number of students	Proportion	Number of students	Proportion	Number of students	Proportion
Control class	50	1	2%	7	14%	11	22%	15	30%	16	32%
Experimental class	50	3	6%	10	20 %	14	28%	14	28%	9	18%

The descriptive statistics indicators are shown in Table 6. As can be seen from the table, the skewness coefficients of both grades are positive, i.e., positively skewed. The kurtosis coefficients of both samples are negative, i.e., low broad peaks, indicating that the frequency is more dispersed, which is in line with the characteristics of the test scores data. The average score of the test scores of the students in the experimental class after the experiment is higher than that of the control class by 4.46 points, and the highest and lowest scores of the two classes are similar.

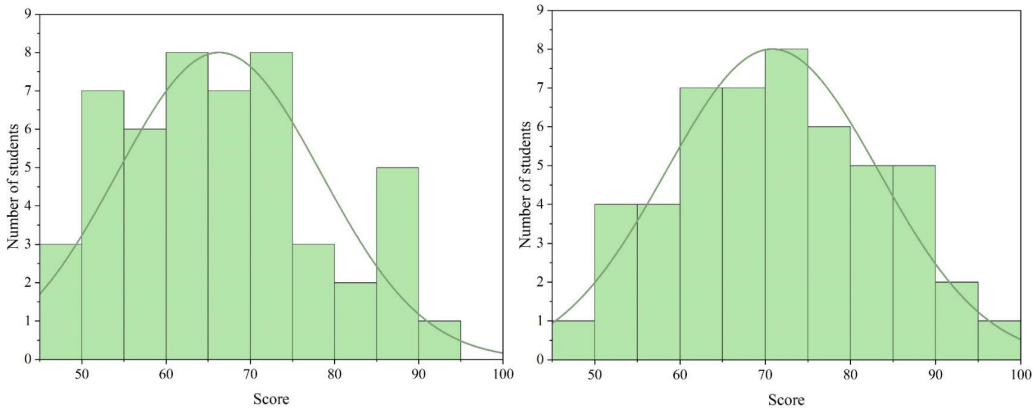
Table 6: Descriptive statistical indicators

Class	Mean		Bias angle		Kurtosis		Median	Maximum	Minimum value
	Statistic	Standard error	Statistic	Standard error	Statistic	Standard error			
Control class	66.65	0.292	0.183	0.073	-0.802	0.152	68	94	46
Experimental class	71.11	0.295	0.44	0.084	-0.853	0.155	74	97	46

IV. B. 2) Normality test

In this section, the histogram method will be used to test whether the single sample is from a normally distributed population [17]. The histograms of the sample scores of the experimental class and the control class are specifically shown in Fig. 3, and Figs. (a) and (b) correspond to the control class and the experimental class, respectively. It

can be seen that the histograms of both the experimental class and the control class show a trend of high in the middle and low on both sides, which is close to normal distribution.



(a)Control class (b)Experimental class

Figure 3: Score histogram

IV. B. 3) Independent samples t-test

In this section, a mathematical model of independent samples t-test will be developed to further quantify the outcomes of the language program in the experimental and control classes [18]. The following statistical software, SPSS, was utilized to conduct the t-test on the two sets of data and the results of the test are shown in Table 7. Assuming equal variances, it is seen that the significance level Sig=0.608>0.05, which indicates that the variances of the two samples are chi-square, which is in line with the prerequisites for the application of the independent samples t-test. Corrected T=-2.481, corrected Df=285, and down pressed the level of significance Sig.(two sided)=0.02<0.05, which indicates that the test is significant, i.e. there is a significant difference in the performance of the experimental class and the comparison class. This proves the effectiveness of the optimization strategy of language teaching activities in higher vocational colleges proposed in this paper and the designed higher vocational colleges language courses applied to the teaching of language courses in higher vocational colleges, which has a good general applicability.

Table 7: Independent sample t test results

-	Levene test of variance equation -		T test of mean equation						
			T	Df	Sig. (bilateral)	Mean difference	Standard deviarian	95 % confidence interval of difference	
	F	Sig.						Lower limit	Upper limit
Suppose the variance is equal.	0.14	0.608	-2.481	285	0.02	-5.448	2.418	-11.626	-1.468
Suppose the variance is not equal.			-2.502	274.626	0.02	-5.448	2.418	-11.415	-1.489

V. Conclusion

The higher vocational language curriculum system constructed through hierarchical analysis in this study effectively solves the problem of unclear weight distribution in traditional curriculum design, in which business communication skills become the most important secondary index with a weight of 0.1025, which fully reflects the career-oriented characteristics of higher vocational education. The experimental results confirm the effectiveness of the course design, and the performance of students in the experimental class at the intermediate level is particularly outstanding, reaching 28%, which is significantly better than the 22% of the control class, indicating that the blended teaching mode can better promote the progress of students at the intermediate level. The results of the statistical test show a significance level of 0.02, which is less than the critical value of 0.05, indicating that there is a significant difference between the two teaching modes in terms of teaching effectiveness. This study involves the teaching practice of 50 experimental subjects and provides reliable empirical support for language curriculum reform in higher vocational colleges and universities. The research results show that the combination of scientific curriculum system

construction and innovative teaching mode design can significantly improve the quality of language teaching in higher vocational colleges and enhance students' language application ability and vocational literacy. At the same time, the application of hierarchical analysis in the field of education provides methodological guidance for the reform of other curricula, which has strong popularization value and practical significance.

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