Construction of Teaching Reform Model of International Trade Based on Correlation Analysis and Regression Analysis in SPSS Statistical Software

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Abstract. This paper makes a descriptive statistical analysis of the data through SPSS statistical software, and constructs a model of international trade teaching reform from four aspects: teaching concept reform, reform of teaching methods, integrate ideological and political elements, and construction of curriculum supporting. The model is verified by using the correlation analysis and regression analysis in SPSS software, and finally points out the key problems to be solved in the reform of international trade teaching.

**Keywords:** Correlation Analysis · Regression Analysis · Teaching Reform Model

1 Introduction

Teaching reform is the only way to continuously improve teaching quality and improve students' comprehensive quality. As the core course of international economics and trade, international trade must seize the good opportunity of teaching reform, constantly explore ways and methods of teaching reform, and pay attention to the process assessment of students. Based on the teaching reform model of international trade course constructed in this paper, from the four aspects of teaching concept reform, teaching method reform, teaching content reform and course supporting resources construction, we should change from "teaching as the center" to "learning as the center". In teaching, we should pay attention to enlightening thinking, stimulating interest, connecting with practice, cultivating students' ability of autonomous learning and improving teaching effect [1].

2 Descriptive Statistical Analysis of International Trade Teaching Reform

2.1 What is Your Attitude Towards the Teaching Reform of International Trade?

Figure 1 shows that as for the attitude towards international trade, 15.2% of the respondents chose "like it better", 22.5% chose "acceptable", 33.2% of the respondents choose
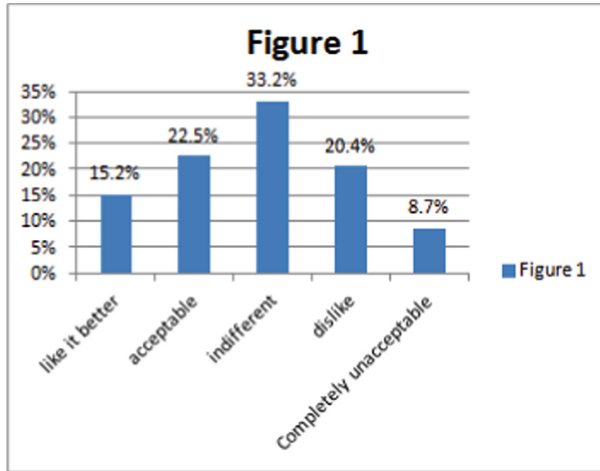
Fig. 1. Attitude towards the teaching reform of international trade
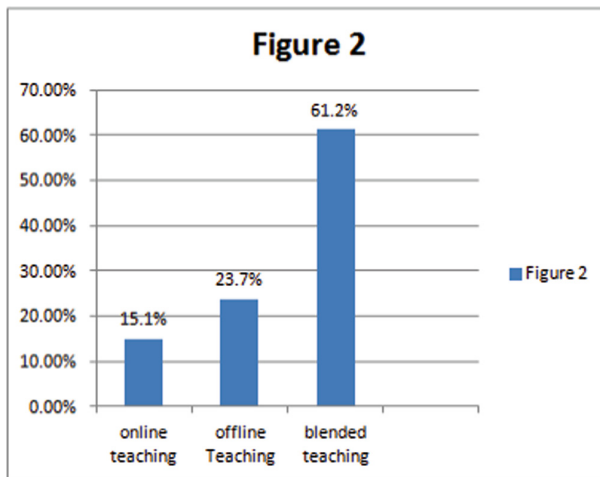
Fig. 2. Teaching mode of international trade

"indifferent", 20.4% chose "dislike", and 8.7% of the respondents chose "completely unacceptable".

2.2 Which Teaching Mode Do You Prefer for the Course of International Trade?

Figure 2 shows that 15.1% of students chose "online teaching", 23.7% of students chose "offline teaching", and the proportion of students who chose "blended teaching" are 61.2%. It can be seen that most students like teachers use a blended approach to teaching the course of International Trade.
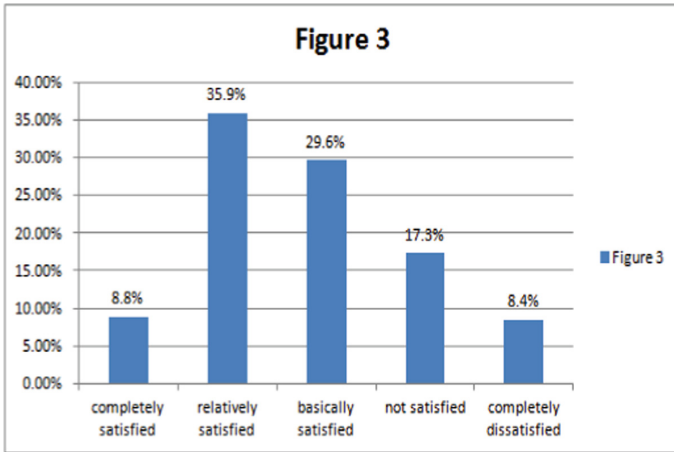
Fig. 3. Whether the teaching reform meets the needs of curriculum learning
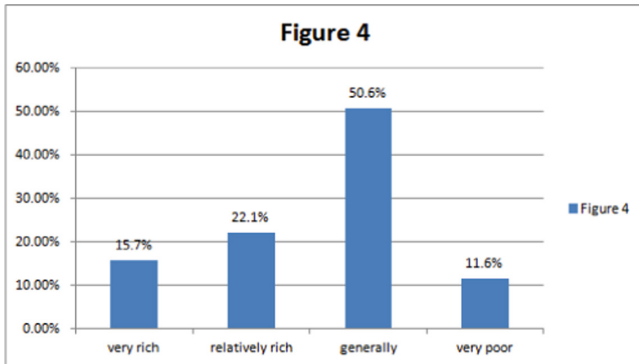

Fig. 4. Practical teaching content of the course

2.3   Can the Teaching Reform of International Trade Meet Your Learning Needs?

Figure 3 shows that 35.9% of the respondents consider that they are completely satisfied with the teaching reform of international trade, and 29.6% of the respondents chose to be basically satisfied, and the proportion of the two reach 65.5%. This shows that the reform of international trade teaching has basically been recognized by students, which is conducive to the improvement of course learning effect.

2.4   What Do You Think of the Practical Teaching Content of International Trade?

Figure 4 shows that 15.7% of the respondents think that the practical teaching content of the international trade course is "very rich", 22.1% think it is "relatively rich", 50.6% of the respondents chose "generally", and 11.6% of respondents chose "very poor". This

Table 1. Proportion of theoretical teaching and practical teaching time

Item	Proportion
reasonable	13.9%
unreasonable, the proportion of theory courses should be increased	29.9%
unreasonable, the proportion of practical courses should be increased	56.2%

Table 2. Interaction

Item	Proportion
a lot of interaction	23.3%
general interaction	56.8%
no interaction	19.9%

shows that the current practical teaching content of international trade courses is not very rich and needs to be further strengthened.

2.5 What Do You Think About the Ratio of Theoretical Teaching and Practical Teaching Time?

The results in Table 1 show that 56.2% of the respondents believe that the proportion of time between theoretical teaching and practical teaching in international trade is "unreasonable, and the proportion of practical courses should be increased", 29.9% think it is "unreasonable, and the proportion of theory courses should be increased", only 13.9% think it is "reasonable".

2.6 How is the Interaction in the Classroom?

The data in Table 2 shows that 23.3% of the respondents believe that there is a lot of interaction between teachers and students, 56.8% believe that there is general interaction, and 19.9% believe that there is no interaction. It can be seen that in the teaching process of international trade, the interaction needs to be improved urgently, which affects the effect of teaching reform largely.

3 Construction of Teaching Reform Model of International Trade

This paper constructs the teaching reform model of international trade from four aspects: teaching concept reform, reform of teaching methods, integrate ideological and political elements, and the construction of curriculum supporting resources (As shown in Fig. 5).
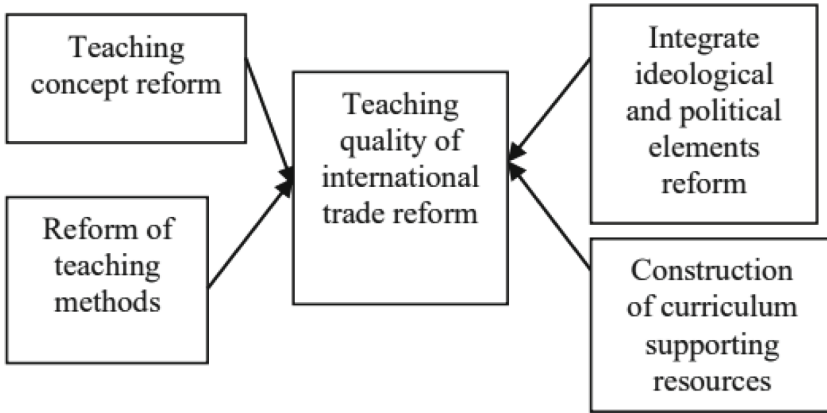
Fig. 5. Teaching reform model of international trade

3.1 Teaching Concept Reform

Following the teaching concept of "employment oriented, student-centered, ability-based, improving students' initiative and innovation", the teaching content should be adjusted in time to keep up with the international situation, integrate the new theories and knowledge formed in the changes of the international trade market into the teaching process of relevant courses of international economics and trade, and actively integrate with the international teaching mode. We should change the concept from imparting knowledge to cultivating students' autonomous learning ability and actively acquiring knowledge, and improve students' lifelong learning motivation and lifelong learning ability.

3.2 Reform of Teaching Methods

Further expand the breadth and depth of case teaching, enrich the form and content of group learning and project design, try bilingual teaching, and explore effective ways of bilingual teaching. We should actively advocate the education and teaching method of "learning by doing and teaching by doing", and fully stimulate the learning motivation through group learning, special topic design, case discussion and other methods, combined with heuristic teaching, inquiry teaching and problem-oriented teaching methods. Take professional skills competition, on campus simulation practice, off campus practice and other methods as a useful supplement to classroom teaching, and constantly improve students' innovation ability and professional and technical ability. Through the reform of teaching methods, we can realize from paying attention to the quality of teaching to the quality of learning, from instilling knowledge to stimulating students' ability [2].

3.3 Integrate Ideological and Political Elements

In the reform of the practical teaching system of international economy and trade, we should thoroughly implement the basic requirements of "building morality and cultivating people", further strengthen the reform and innovation of curriculum ideological

and political reform around the goal of "combining knowledge and skills with ideology and morality", actively carry out curriculum ideological and political discussion, and repeatedly push forward the educational elements in the curriculum. We should put the cultivation of students' ideological and moral quality in the first place, integrate patriotism into the teaching process of international trade. For example, in combination with the reality that the world is facing a common fight against the epidemic, let students realize the responsibility of a big country in building a community with a shared future for mankind [3].

3.4 Construction of Curriculum Supporting Resources

We should further improve the self compiled textbooks and supplement the latest international trade cases and international trade policy measures in combination with the development of the international trade situation; accelerate the construction of digital curriculum resources, and strengthen the construction of multimedia courseware, teaching wall charts, videos and other teaching auxiliary resources supporting the curriculum; improve lesson preparation materials such as teaching plans and cases other than textbooks; strengthen the construction of chart source code and other materials, problem sets and answers, test question banks and answers and other resources [4].

Constructing multiple linear regression model: $Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4$. In this model, Y is the teaching quality, X_1 is the teaching concept reform, X_2 is the reform of teaching methods, X_3 is the ideological and politics element, X_4 is the construction of curriculum supporting.

Based on the above analysis of the model, the research assumptions of this paper are as follows:

Hypothesis 1: Teaching concept reform has a significant positive impact on the teaching quality of international trade.

Hypothesis 2: The reform of teaching methods has a significant positive impact on the teaching quality of international trade.

Hypothesis 3: Ideological and political elements have a significant positive impact on the teaching quality of international trade.

Hypothesis 4: the construction of curriculum supporting resources has a significant positive impact on the teaching quality of international trade.

4   Validation of the Model

4.1   Correlation of Analysis Results

In order to reflect the relationship between each variable and the teaching quality of international trade, the correlation analysis in SPSS software is used to input the relevant data into the computer, and binary variable correlation analysis is used to test, study and analyze the linear relationship between variables, and explore the linear correlation degree between variables.

Table 3 shows that teaching quality is positively correlated with each factor variable at the significance level of 0.01, in which the teaching quality is highly correlated with the

Table 3. Correlation analysis between international trade teaching quality and various factors

Index	Teaching concept reform	Reform of teaching methods	Ideological and politics element	Construction of curriculum supporting	Teaching quality
Teaching concept reform	1				
Reform of teaching methods	.617**	1			
Ideological and politics element	.421**	.549**	1		
Construction of curriculum supporting	.553**	.118	.038	1	
Teaching quality	.622**	.754**	.325**	.534**	1

reform of teaching concept, the reform of teaching methods and curriculum supporting resources, the correlation coefficients are 0.622, 0.754 and 0.534 respectively; The correlation between teaching quality and ideological and political elements is weak, and the correlation coefficient is 0.325. The four variables of teaching concept reform, teaching method reform, ideological and political elements, and curriculum supporting resources have varying degrees of impact on the teaching quality of international trade. There is a certain correlation between various factors that affect the teaching quality. Among them, the correlation coefficients of teaching concept reform and teaching method reform, ideological and political elements, and curriculum supporting resources are 0.617, 0.421, and 0.553 respectively; The correlation coefficient between teaching method reform and ideological and political elements is 0.549 [5].

4.2 Conclusion of Regression Analysis

In order to deeply study the prediction and influence degree of each variable on the teaching quality of international trade, and try to find out the possible relationship between them, we need to conduct multiple regression analysis on each variable and teaching quality. In the analysis, the dependent variable (predictive variable) is set as the teaching quality of international trade, and the independent variable is set as the teaching concept reform, reform of teaching methods, ideological and political element, construction of curriculum supporting. The results are as follows:

a predictive variables: (constant), Teaching concept reform, Reform of teaching methods, Ideological and politics element, Construction of curriculum supporting.

a prediction variable: (constant): Teaching concept reform, Reform of teaching methods, Ideological and politics element, Construction of curriculum supporting.

b Dependent variable: Teaching quality of international trade.

a dependent variable: teaching quality.

Table 4. Model summary

Model	R	R^2	Adjusted R^2	Standard error of estimation
1	.731[a]	.611	.778	.32138

Table 5. Analysis of variance (b)

Model		Sum of squares	freedom	F value	Significance
1	Regression	27.112	6	171.322	.000 (a)
	Residual	2.355	155		
	Sum	29.467	161		

Table 6. Regression coefficient (a)

Model		B	Tolerance	Variance expansion factor	significance
1	constant	.812			.000
	Teaching concept reform	2.765	.858	1.114	.000
	Reform of teaching methods	3.213	.911	1.001	.000
	Ideological and politics element	0.993	.801	0.888	.000
	Construction of curriculum supporting	2.336	.832	1.013	.000

According to the results of variance analysis in Table 5, the significance value is 0.000, less than 0.05, indicating that it is suitable for linear regression analysis. The tolerance of each variable in Table 6 is greater than 0.8, close to 1, and the variance expansion factor value is below 1.2, indicating that there is no collinearity problem between independent variables. Table 6 shows the significance values of variable teaching concept reform, teaching method reform, ideological and political elements and curriculum supporting resources are all 0.000, less than 0.05, indicating these four variables have significant predictive power on the teaching quality of international trade. According to Table 4, after adjustment, $R^2 = 0.778$, indicating that these four variables can explain 77.8% of the variation in the teaching quality of international trade [6].

Table 6 shows that these four variables have a positive impact on the teaching quality of international trade. According to the B value, the regression coefficients are 2.765, 3.213, 0.993 and 2.336 respectively. The larger the regression coefficient, the greater the

degree of influence. Through the regression coefficient, it can be seen that among the four independent variables, the reform of teaching methods has the greatest impact on the teaching quality of international trade. According to the above analysis, hypothesis 1, hypothesis 2, hypothesis 3 and hypothesis 4 have been verified, that is, the teaching concept reform, the reform of teaching methods, ideological and political elements, and construction of curriculum supporting have a significant positive impact on the teaching quality of international trade. Bring B value into model: $Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4$. Getting the model $Y = 0.812 + 2.765 X_1 + 3.213 X_2 + 0.993 X_3 + 2.336 X_4$.

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