An Empirical Study on the Effect of Information on College English Teaching

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Abstract. Based on the empirical data and panel regression model of Yunnan Vocational College of Land and Resources, the relationship between the degree of informatization in teaching and learning and the effect of English teaching was empirically analyzed with the average score of AB grade English test as a surrogate variable of teaching effect. The results show that, in addition to the proportion of time spent on English lesson preparation using information sections, the other information factors have significant positive effects on the average score of AB level. Therefore, the integration of information zed factors with teaching and learning is one of the effective ways to improve the effect of college English teaching. Among the information factors, the proportion of time spent in English learning using information methods has the greatest effect on AB grade, but its sample mean is the lowest, suggesting that actively guiding and encouraging college students to use information methods for English learning may significantly improve the effect of English teaching.

Keywords: information-based teaching · Panel regression · Teaching effect · Higher vocational English

1 Introduction

Currently, with the popularity of the Internet and mobile devices, a large number of learning resources have emerged on the Internet, and their easy availability and low cost enable more and more college students to learn basic and professional knowledge online. As an instrumental and basic course, higher vocational English has always been the core basic course of general education in higher vocational colleges in China. In classroom teaching, therefore, the information degree deepening and under the background of the increasing popularity of network learning, explore the teaching and learning of information factors on the effect of English teaching, to clarify the different letters Interest rates change method and the effect of English teaching, the connection between the distinguish all kinds of the impact of information technology teaching means on the teaching effect difference will have certain practical significance.

According to the current course assessment method in Chinese colleges and universities, the test paper score of the final exam is the main basis for measuring the classroom teaching and learning effect. The author believes that the most direct manifestation of

the effect of information-based teaching should be the contribution degree of various information-based factors in the teaching and learning process to the course examination result. However, from the existing literature, there is a lack of quantitative analysis on the relationship between various informatization factors and course final examination scores, especially the correlation with college English teaching effect. Therefore, based on the panel data of all kinds of information teaching factors of different majors and different classes in Yunnan Vocational College of Land and Resources, as well as AB grade English scores, this paper verifies the dynamic relationship between the degree of information in English teaching and learning and the average grade of A and B level. This not only provides empirical evidence for judging the teaching effect of English Informaionization teaching, but also helps to clarify the differences in the contribution of various informationization methods to the teaching effect.

2   Research Design

2.1   Variable Description and Model Construction

In order to reduce the differences in the average scores of natural classes in different grades and majors, this paper selected the AB grade average SCORE of natural classes as the explained variable and used it to measure the teaching effect of college English. Elements in view of the college English teaching is mainly composed of teachers, students and environment inside and outside the classroom teaching, according to the process and characteristics of daily English teaching in colleges and universities, this article will teachers, students and the informationization factors as explanatory variables in the links of teaching and learning, and separately in view of the college English test AB grade class average panel regression analysis. Among them, the explanatory variables (EV) are the number of English teaching hours using multimedia and the proportion of the total number of teaching hours (MTL). The proportion of information content and teaching content in English teaching (ITCL); Teachers using information technology means for the English lessons available proportion (TMC) and college students' practice of English learning by using information technology means is accounted for (in order to simplify the expression, MTL, ITCL, TMC and ILL respectively, information content of multimedia teaching accounted for short of prepares a lesson, information share and information learning accounted for). Among the above explanatory variables, the proportion of multimedia teaching and the proportion of information content measure the overall degree of college English classroom teaching informationization. The symbolic definitions and descriptions of the explained, explained and control variables are shown in Table 1.

Based on the above variable definitions, the dynamic panel regression model constructed in this paper is as follows:

$$SCORE_{it} = a + \alpha EV_{it} + \beta_1 SA_{it-1} + \beta_2 CEER_{it-1} + \beta_3 SAR_{it-1} + \varepsilon_{it} + \delta_i \quad (1)$$

where, is the first sample class; $i = 1, 2, ...N, t = 1, 2, ..., T$ is the observation of the first semester; t α and $\beta_j j \in \{1, 2, 3\}$, are the leading coefficients of explanatory variables and control variables respectively; EV_{it} Represents explanatory variables, MTL, TMC, ITCL

Table 1. Variable definitions

	The variable name	Variable declaration
Explained variable	SCORE	Average score of A or B in the sample class
Explanatory variables	MTL	The proportion of multimedia English teaching hours to the total English teaching hours in the sample class
	TMC	Proportion of time spent by teachers in sample classes using information-based methods for English lesson preparation
	ITCL	Proportion of information content and teaching content in English teaching in sample classes
	ILL	The proportion of time spent by students in sample classes using information-based methods for English learning
Control variables	SA	The average score of English Test Band 4 or Band 6 of the sample college students
	CEER	Average score in English on the College Entrance Examination for the sample class
	SAR	Average to class attendance ratio of English classes in the sample class

or ILL; ε_{it} And are random disturbances with and without time variation, respectively. δ_i Because the average score of the sample class is the composition of the average score of the whole school, and it is continuous with the average score of English A, B and college entrance examination in the previous year. Therefore, in order to eliminate the problem of serial autocorrelation, the average English scores of the sample colleges and universities and the college entrance examination are treated with a first-order lag. Similarly, the influence of English learning climate on English A and B scores has A time lag, and the control variable SAR is also treated with A first-order lag.

2.2 Data Processing and Descriptive Statistics

In this paper, different grades and professional classes of Yunnan Land and Resources Vocational College were selected as samples, and a total of 280 natural science classes of 12 different majors and previous years were selected as sample classes. Since the English A and B examinations of college students are held at the end of each semester in China, in order to maintain the consistency of the data time interval, the sample data are semi-annual data, and A total of 21480 observed values are removed from the defect data. The time span is from July 2012 to December 2020.Among them, the explanatory variables and control variables were calculated based on the historical scores of colleges English A and B tests of the sample grade or class, the entrance English scores of the college entrance examination, and the historical records of English class attendance of the sample natural class. On the one hand, the data of each explanatory variable were

Table 2. Descriptive statistics

Variable	Mean	Sd	Max	Min
SCORE (A)	446.37	217.41	467.82	431.89
SCORE (B)	393.11	273.90	414,66	384.41
MTL	0.73	0.14	0.93	0.44
TMC	0.63	0.34	0.88	0.21
ITCL	0.27	0.08	0.33	0.14
ILL	0.24	0.14	0.47	0.12
SA	424.54	259.02	439.64	410.94
CEER	108.06	166.44	114.61	102.34
SAR	0.92	0.24	0.92	0.82

obtained from the questionnaire survey of the students of the sample grade or class and the English class teachers, on the other hand, the daily teaching records or the interview records with the relevant teachers and students were collected and calculated. In the case of missing data of variables in some years, the mean interpolation method was used to process and supplement the data, as shown in Table 2.

As can be seen from the descriptive statistical results in Table 2, the average score of A-level examination of the sample natural classes is at the lower level of the national universities, and the average score of B-level examination is also at A relatively low position. The difference between the maximum and minimum scores of A and B was 35.93 and 30.25, respectively, indicating that there was little difference in English proficiency among the students of Yunnan Vocational College of Land and Resources. The standard deviation statistics also showed that the fluctuation of the average scores of English A and B in the observed years was not drastic. Descriptive statistical results from the explanatory variables, using multimedia teaching lessons of relatively high proportion and informationization, and informationization content proportion and the information of the sample mean is relatively low, suggesting that the current land resources in Yunnan province vocational college English teaching content and students' learning is still relatively focus on the traditional content of teaching materials, such as the text, vocabulary, etc., And less use of information means to enrich the learning content. In addition, the average English class attendance rate of the sample natural classes is 0.9274, and the standard deviation is 0.2373, indicating that college students pay relatively high attention to English classes.

3   Empirical Results and Analysis

With least squares and maximum likelihood estimation method, compared to system generalized moment not only allow the panel regression model of the random error term is heteroscedasticity, and do not need to accurately define the distribution function of random error, and the explaining variables can significantly reduce the lag of endogenous

Table 3. Parameter estimation results

	SCORE (A)					SCORE (B)		
	1	2	3	4	5	6	7	8
MTL	0.10 * (1.99)				0.09 * (1.90)			
TMC		0.17 * (0.29)				0.12 * (0.32)		
ITCL			0.08 * * * (4.29)				* * (2.37 0.05)	
ILL				0.18 * * * (7.23)				0.17 * * * (7.94)
SA	0.47 * * * (11.29)	0.39 * * * (8.31)	0.50 * * * (7.43)	0.42 * * * (10.38)	0.49 * * * (10.27)	0.50 * * * (19.48)	0.47 * * * (17.77)	0.45 * * * (16.39)
CEER	* * * (2.33 0.11)	0.11 * * * (4.32)	0.08 * * * (3.38)	* * (2.44 0.09)	0.09 * (1.93)	0.09 (1.59)	0.11 (1.40)	0.08 (1.48)
SAR	0.15 (0.73)	0.11 (0.94)	0.21 (1.24)	0.19 (0.67)	0.075 (1.47)	0.08 (1.47)	0.08 (1.66)	1.03 (1.39)
AR(1)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00 (1.39)
AR(2)	0.21	0.18	0.20	0.20	1.84	0.19	0.19	2.07
Sargan(P)	0.99	1.00	0.97	0.98	0.97	0.99	0.98	0.97

problems, therefore, this article will use the system wide righteousness moment method is applied to the parameter type (1) to estimate. The estimation results in Table 2 show that the P values in the AR (2) estimation results of the average scores of College English A and B of the sample classes are all greater than 0.18, indicating that there is no significant autocorrelation in the random interference term of the panel regression model. The test results of Sargan (P) are all close to 1, indicating that there is no over-constraint problem in Eq. (1). Therefore, the dynamic panel regression model constructed in this paper is effective, as shown in Table 3.

Based on the analysis in Table 2 and Table 3, it can be further found that although the sample mean of multimedia teaching proportion and information-based lesson preparation proportion is high, the multimedia teaching proportion has little effect on English A level and B level, and the information-based lesson preparation proportion has no significant effect. On the contrary, the mean value of the proportion of information-based learning, which has A greater promoting effect on the English A and B grades of the sample classes, is smaller. The empirical results show that the low level of informatization in college students' English learning limits the promotion effect of classroom teaching and learning informatization on English A and B grades, suggesting that there may be A certain degree of imbalance in the allocation of informatization resources in English teaching and learning in the sample universities or classes. In addition, due to the time sequence of college students' A and B tests and the limitation of college English teaching term, the difference in the estimated pre-coefficient and significance of the average scores of A and B tests does not indicate A substantial difference in the impact of information-based teaching environment on them. According to the estimated results of the influence of control variables on English A and B levels, the average scores of colleges English A and B levels in the sample with a lag of one period have a significant promoting effect on the scores of A and B levels in the sample classes.

4   Conclusions

Based on the AB test data and panel regression model of natural class of Yunnan Land and Resources Vocational College, this paper empirically analyzes the dynamic relationship between information teaching factors and the average grade of AB class of college students. The empirical results show that in addition to the proportion of information preparation, the information factors in English teaching and learning have a significant positive impact on the average score of AB level test of college students in the sample class. Among them, the proportion of information content in English teaching and the proportion of multimedia teaching contributed less to the average score of AB level examination, while the proportion of information learning contributed more to the average score.

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