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The Application of Blended Teaching Mode in International Trade Practices Course Based on Chaoxing Learning APP

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Abstract: Blended teaching is a combination of online teaching and traditional face-to-face teaching. Chaoxing Learning APP is a practical tool to assist blended teaching. International Trade Practices Course is a professional course for senior Business English majors. Taking 86 Business English Majors as the subjects, taking their final exam scores of International Trade Practices course, task completion rate in watching relevant MOOC videos, assignment credits in Chaoxing Learning APP, the frequency of chapter learning in the APP as four variables, this paper makes a multiple regression analysis with SPSS statistics software to decide the relationship between a dependent variable --- final exam score and three independent variables --- task completion rate, assignment credit and frequency of chapter learning, and then the prediction regression equation for these four variables is established. This paper discusses how blended teaching mode is applied in International Trade Practices course based on Chaoxing Learning APP by multiple regression analysis and compares blended teaching with traditional face-to-face teaching in this course by using independent-samples t test.

Keywords: Blended teaching mode; Multiple regression analysis; International Trade Practices course; Chaoxing Learning APP

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1. Introduction

Blended teaching mode is the blending of online teaching and traditional face-to-face teaching. With the development of Internet technology in teaching, online and offline blended teaching mode shows its unique advantages. Chaoxing Learning APP is one of the tools for the implementation of blended teaching. This APP is a professional platform for online mobile learning by smartphones and tablet computers, with rich interactive functions such as message sending, online check-in, live broadcast, online voting, questionnaire distribution, in-class and after-class grading, grading assignments, and group discussions. Students' learning process and academic performance can be recorded in real time. Teachers can use this APP to carry out a variety of classroom activities. Using this APP, teachers will reform the teaching mode, combine online platforms to assist teaching on the basis of the original offline interactive teaching methods. Using it can enable teachers to obtain student learning data in detail, adjust teaching plans in a targeted manner, and continuously improve teaching effectiveness. Blended teaching helps to improve teaching quality, and this APP is favored by teachers and students. In order to comply with the current trend of teaching technology and follow the pace of the pioneers of education reform, the author tried to use this APP to explore the practice of blended teaching of International Trade Practices Course for Business English majors of Grade 2019 in our University, hoping to solve some problems existing in the process of traditional teaching and improve teaching effectiveness.

2. Blended Teaching in International Trade Practices Course

International Trade Practices Course is a professional course for Business English majors. This course is an extension to Fundamentals of Business and other related professional courses. This course studies the specific process of exchange of goods or services across national boundary. It is a practical applied science. Students can master the whole procedure of a transaction after learning this course. International Trade Practices Course is designed to meet students' needs for clear understanding of foreign trade

business, and it is also the foundation of other professional courses. Students are required to be familiar with the special terms used in the import and export process, the professional knowledge of international trade and practical business operation.[1]

Chaoxing Learning APP is a convenient and practical multi-functional professional learning platform. Through mobile phones or computers, teachers construct their own courses, and students can scan the QR code to enter the class and begin learning. Teachers upload lesson plans and MOOC videos before class for students to preview and review the lesson before or after class. During the teaching process, interactive classroom activities such as preemptive answers and discussions can be carried out. Based on modern information technology, this APP effectively solves the problem such as teacher-student interaction, improves the teaching quality and stimulates students' interest in learning. Before class, the teacher uploads and posts MOOC videos of International Trade Practices Course on this learning platform in order that every student can watch these videos before or after class to enhance the understanding of knowledge in this course. This APP can record how long students watch videos, task completion rate in watching relevant MOOC videos, assignment credits, frequency of chapter learning. In class, traditional face to face teaching is carried out: the teacher gives lectures, students discuss cases and exercises. After class, students are required to finish some tasks and submit their homework to this platform. This App records assignment credits every time students have submitted their homework. The final exam of International Trade Practices course includes Multiple Choice, True or False, Blank Filling, Translation, Case Analysis and Short-answer Questions. Closed-book exam is adopted in this course.

3. Data and Research Methods

The final exam scores of International Trade Practices course of 86 Business English Majors Grade 2019 in our university (score), frequency of chapter learning in the APP (frequency), assignment credit and task completion rate in watching relevant MOOC videos (rate) are used as data of this research. The four variables are as follows:

Table 1 Four variables

No.	score	frequency	assignment credit	rate (%)	No.	score	frequency	assignment credit	rate (%)	No.	score	frequency	assignment credit	rate (%)
1	85.5	62	45	92.31	**30**	83.5	73	40	92.31	**59**	89	53	40	100
2	80	47	45	100	**31**	83.5	60	45	100	**60**	77.5	110	45	100
3	75.5	56	45	100	**32**	94	96	40	100	**61**	88	45	45	100
4	90	60	45	92.31	**33**	95	56	45	92.31	**62**	93	117	45	100
5	82	64	45	100	**34**	86	64	45	100	**63**	78.5	105	45	100
6	89	81	45	100	**35**	92	97	45	100	**64**	79	40	45	100
7	84.5	45	35	100	**36**	87.5	64	45	92.31	**65**	89	79	45	100
8	93.5	65	45	100	**37**	83.5	110	45	100	**66**	92	71	45	100
9	78	37	45	53.85	**38**	88	63	45	100	**67**	80	112	45	100
10	74	57	35	100	**39**	83.5	99	45	100	**68**	87	45	45	100
11	84	53	45	100	**40**	79	52	45	84.62	**69**	86.5	60	45	80.77
12	70.5	49	30	92.31	**41**	83	88	45	100	**70**	91	38	45	76.92
13	88.5	35	45	100	**42**	95	35	45	100	**71**	88	68	45	96.15
14	94	81	45	100	**43**	89	88	45	96.15	**72**	83	59	45	100
15	94	33	45	100	**44**	90	87	45	100	**73**	87.5	83	45	100
16	85	108	30	100	**45**	93	59	45	100	**74**	86.5	63	45	100
17	86.5	87	45	100	**46**	98	72	45	100	**75**	90	90	45	100
18	87	22	35	38.46	**47**	87.5	51	45	92.31	**76**	89	70	45	100
19	91	64	45	100	**48**	90	58	45	100	**77**	91.5	63	45	100
20	71	37	40	80.77	**49**	90	32	45	100	**78**	89	74	45	100
21	92.5	54	45	100	**50**	89	75	45	100	**79**	79	110	45	100
22	93	89	45	100	**51**	79	50	45	69.23	**80**	83	54	45	92.31
23	87	65	45	100	**52**	88.5	99	40	88.46	**81**	82	82	45	100
24	84.5	37	40	61.54	**53**	85	62	40	76.92	**82**	93	104	45	100
25	85	87	45	100	**54**	91	121	45	100	**83**	83.5	55	45	100
26	95.5	98	45	100	**55**	92.5	101	45	100	**84**	88.5	108	45	100
27	94	43	45	92.31	**56**	86.5	64	45	100	**85**	85	57	45	100

28	86	47	45	92.31	**57**	81	67	45	100	**86**	93	60	45	100
29	83	45	45	100	**58**	91.5	67	45	61.54					

The above four variables are input into SPSS Statistics system. All of these four variables can be measured at the interval level and we can make a multiple regression to analyze the relationship between a dependent variable --- Score and three independent variables --- Frequency, Assignment Credit and Task Completion Rate, and then we can find the best prediction equation for these four variables.

4. Research Questions and Hypotheses

The research questions in this study are as follows:

Does the frequency of chapter learning in the APP predict the final exam score of International Trade Practices course?

Does assignment credit predict the final exam score of International Trade Practices course?

Does task completion rate in watching relevant MOOC videos predict the final exam score of International Trade Practices course?

When taken together, do frequency, assignment credit and task completion rate predict the final exam score of International Trade Practices course?

In multiple regression, a regression equation is created, and the regression weight for each independent variable (known as a beta weight) is tested to see whether it is significantly different from zero. A beta weight significantly different from zero indicates that the independent variable is a significant predictor of the dependent variable.[2]

The null hypothesis in this study is:

H_0: $\beta_{\text{frequency}} = 0$ and H_0: $\beta_{\text{assignment credit}} = 0$ and H_0: $\beta_{\text{task completion rate}} = 0$

The null hypothesis means that any of the three variables (frequency, assignment credit, task completion rate) does not predict the final exam score of International Trade Practices course.

The alternative hypothesis in this study is:

H_1: $\beta_{\text{frequency}} \neq 0$ or H_1: $\beta_{\text{assignment credit}} \neq 0$ or H_1: $\beta_{\text{task completion rate}} \neq 0$

The alternative hypothesis means that among the three variables, at least one variable (frequency or assignment credit or task completion rate) can predict the final exam score of International Trade Practices course.

Another hypothesis in multiple regression is whether the regression equation, with all the predictors included, significantly predicts the dependent variable.[3] Measures of effect size in regression are given by R Square. Cohen (1988) expressed R Square values of 0.02, 0.13 and 0.26 as corresponding to small, medium and large effect sizes respectively.[4]

5. Multiple Regression and Prediction Equation

A multiple regression analysis can be made after the four variables are input into SPSS Statistics system. We can find the following results:

Table 2 Correlations

		score	frequency	assignment credit	task completion rate
Pearson Correlation	score	1.000	0.122	0.321	0.169
	frequency	0.122	1.000	0.102	0.387
	assignment credit	0.321	0.102	1.000	0.263
	task completion rate	0.169	0.387	0.263	1.000
Sig. (1-tailed)	score	.	0.131	0.001	0.060
	frequency	0.131	.	0.174	0.000
	assignment credit	0.001	0.174	.	0.007
	task completion rate	0.060	0.000	0.007	.
N	score	86	86	86	86
	frequency	86	86	86	86
	assignment credit	86	86	86	86
	task completion rate	86	86	86	86

The Correlations table shows that the correlation between one independent variable --- assignment credit in Chaoxing Learning APP and the dependent variable ---final exam score of International Trade Practices course is significant (p-values = 0.001 < 0.05), with low correlation between Score and Assignment Credit (Pearson correlation coefficient is 0.321). Table 2 also shows that there

is low correlation between frequency of chapter learning in the APP and Score (Pearson correlation coefficient is 0.122), but the correlation is not significant (significance level p = 0.131 > 0.05). There is also low correlation between task completion rate in watching relevant MOOC videos and Score (Pearson correlation coefficient is 0.169), but the correlation is not significant either (significance level p = 0.06 > 0.05). We can infer that frequency of chapter learning in the APP and task completion rate in watching relevant MOOC videos are not two effective predictors to the dependent variable ---final exam score of International Trade Practices course, while assignment credit in the APP is an effective predictor.

Table 3 Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0.338[a]	0.114	0.082	5.39822	1.799

a. Predictors: (Constant), frequency, assignment credit, task completion rate

b. Dependent Variable: score

Table 4 ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	308.325	3	102.775	3.527	0.018[b]
	Residual	2389.547	82	29.141		
	Total	2697.872	85			

a. Dependent Variable: score

b. Predictors: (Constant), frequency, assignment credit, task completion rate

Table 5 Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	58.902	8.794		6.698	0.000		
	frequency	0.016	0.027	0.067	0.590	0.557	0.850	1.176
	assignment credit	0.538	0.195	0.297	2.753	0.007	0.931	1.074
	task completion rate	0.033	0.058	0.066	0.565	0.574	0.800	1.250

a. Dependent Variable: score

According to Table 5, using the Constant and B (unstandardized coefficient) values, the regression equation would be: Predicted final exam score = 58.902 + (0.016 × Frequency) + (0.538 × Assignment Credit) + (0.033 × Task Completion Rate).

A measure of the strength of the prediction equation is R Square, sometimes called the coefficient of determination.[5] In Table 3, R (0.338), R Square (0.114), Adjusted R Square (0.082) measure the degree to which Score is predicted from the three independent variables. In this study, the independent variables Frequency, Assignment Credit and Task Completion Rate account for 11.4% of the variance in final exam score of International Trade Practices course. R Square of 0.114 would be considered to be a small effect in practice. In Table 4, F statistic is 3.527, with an observed significance level of being less than 0.05 (p = 0.018 < 0.05). Thus, the hypothesis that there is no linear relationship between the independent variables and the dependent variable is rejected. That means the above multiple regression equation is effective and valid. The regression method of "enter" shows that the above regression model including three predictors can significantly predict final exam score of International Trade Practices course. [6]

When the independent variables are correlated among themselves, the unique contribution of each independent variable is difficult to assess.[7] In Table 5, both the "tolerance" values (greater than 0.10) and the "VIF" values (less than 10) in Collinearity Statistics are all quite acceptable, so multicollinearity does not seem to be a problem for this study.

6. Comparison Between Blended Teaching and Traditional Face-to-face Teaching

We take 86 Business English Majors in Grade 2019 and 75 Business English Majors in Grade 2017 of our school as the subjects,

taking the final exam scores of these two groups as two variables. Traditional face-to-face teaching mode was adopted in International Trade Practices course for Grade 2017 in the year 2019, while blended teaching mode was used for Grade 2019 in the year 2021. Two groups of final exam scores are proved to be normally distributed and both variables are measured at the interval level. So we can make a T-Test for two independent variables --- the final exam scores of International Trade Practices course of Grade 2019 and Grade 2017 in order to determine whether there is a significant difference between the two groups of scores or not.

Scores of Grade 2019 (n=86) are mentioned in Table 1. Scores of Grade 2017 (n=75) are as follows: 90.5, 82, 84, 82.5, 59, 90, 74.5, 84, 83, 92.5, 79.5, 86.5, 76, 81, 83, 76, 74, 77, 73.5, 83.5, 82.5, 70.5, 80, 76.5, 72.5, 91, 72, 81.5, 89, 84, 79, 89, 83.5, 63, 77.5, 78.5, 80, 78, 73.5, 75, 71, 58.5, 78, 89, 89, 77.5, 76, 76.5, 82, 70, 73, 80.5, 61.5, 74.5, 71, 81.5, 82, 77.5, 63.5, 82, 83.5, 76, 48.5, 81, 81, 75, 73, 78, 79, 70, 81.5, 73.5, 91, 77, 69.

Input the above two groups of scores into SPSS Statistics system, then we make independent-samples t test and get the following results:

Table 6 Group Statistics

	Group	N	Mean	Std. Deviation	Std. Error Mean
Score	Grade 2019	86	86.7558	5.63380	0.60751
	Grade 2017	75	77.8667	8.03722	0.92806

Table 7 Independent Samples Test

F		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper	
Score	Equal variances assumed	4.424	0.037	8.204	159	0.000	8.88915	1.08350	6.74924	11.02905
	Equal variances not assumed			8.014	130.194	0.000	8.88915	1.10921	6.69473	11.08357

Table 6 and 7 shows that Business English Majors of Grade 2019 in our school are significantly different from Grade 2017 on final exam scores of International Trade Practices course ($t(130.194) = 8.014$, $p < 0.05$). Inspections of the two group means indicate that the average final exam score of Grade 2019 is significantly higher than the average score of Grade 2017. The difference between the means is 9 points on a 100-point test. In another word, it is concluded that blended teaching is more effective than traditional face-to-face teaching in International Trade Practices course.

7. Conclusions

Using Chaoxing Learning APP can teachers well pay attention to each student's participation. It is difficult to pay attention to each student' learning only by traditional face to face teaching. Blended teaching based on this APP is a diversified teaching model. In addition to face-to-face teaching, blended teaching gives students more guidance before class, during class and after class, so that students can learn autonomously and independently.[8] Through the above multiple regression analysis and independent-samples t test, we can draw a conclusion that blended teaching is more effective than traditional face-to-face teaching in International Trade Practices course.

References:

[1] Liu Ji (2021) Correlation Analysis on Final Exam Grades of International Trade Practices Course and International Trade Documentation Course Based on Statistical Regression Method. International Journal of Education and Management, 2: 59-62.

[2] Ronald D. Yockey (2018) SPSS Demystified: A Simple Guide and Reference (Third Edition). New York: Routledge: 339.

[3] Ronald D. Yockey (2018) SPSS Demystified: A Simple Guide and Reference (Third Edition). New York: Routledge: 340.

[4] Ronald D. Yockey (2018) SPSS Demystified: A Simple Guide and Reference (Third Edition). New York: Routledge: 352.

[5] Robert Ho (2006) Handbook of Univariate and Multivariate Data Analysis and Interpretation with SPSS. Boca Raton: Taylor & Francis Group: 258.

[6] Ronald D. Yockey (2018) SPSS Demystified: A Simple Guide and Reference (Third Edition). New York: Routledge,: 349.

[7] Robert Ho (2006) Handbook of Univariate and Multivariate Data Analysis and Interpretation with SPSS. Boca Raton: Taylor & Francis Group: 258.

[8] Liu Ji (2022) The Application of Blended Teaching Model in International Trade Documentation Course Based on Rain Classroom. International Journal of Education and Technology, 1: 231-235.