Measurement and Empirical Analysis of the Flipped Classroom Students' Satisfaction Based on Moso Teach

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Abstract: In recent years, with the continuous deepening of the teaching reform in colleges and universities, the flipping classroom teaching mode has received a lot of attention from the education community. This study takes undergraduates from Heilongjiang Province as the research object, and divides the research subjects into sciences and art sciences, and uses the ordered Logistic model to conduct regression analysis. From the teaching platform, teaching process and teaching effects, it explores the significant factors of students' satisfaction. The study found that the students of sciences and arts sciences have high satisfaction with the new teaching mode of "Moso Teach", but the importance factors of the two categories of is significantly different. Therefore, colleges and universities can better implement the practice of flipping classroom teaching under the platform of "Moso Teach" according to the characteristics of different professional students, so that students can maximize the recognition of "Moso Teach" and maximize the Student engagement and learning outcomes.
Keywords: Moso teach, Flipped classroom, Questionnaire, Satisfaction.
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1. INTRODUCTION

With the rapid development of educational informatization, traditional teaching models have been unable to meet the requirements of students for the curriculum. As a new teaching mode, flipping the classroom is becoming an important teaching method in colleges and universities. The so-called flip classroom refers to a new teaching mode that flips the traditional classroom teaching structure, allows students to complete knowledge learning before class, and completes knowledge absorption and mastery in the classroom. In recent years, the flipping classroom has

set off a wave of enthusiasm in the practice of colleges and universities in China, and has formed a certain scale. The decline of student satisfaction in the flipping classroom teaching mode will reduce the teaching efficiency of flipping classrooms. Therefore, it is of great significance to study the influencing factors of student satisfaction in the flipping classroom teaching mode. As the first free auxiliary teaching tool in China, "Blue Moyun Class" is popular among universities. It uses mobile network equipment to carry out mobile informationization and flip classroom teaching, and challenges traditional classroom teaching mode.

At present, scholars at home and abroad have conducted extensive teaching research and practice on flipping classrooms. J Bergmann and A Sams found through research that flipping classroom learning has had a profound impact on teachers' careers, but more importantly, it has had a positive impact on students' lives. Pan Bingchao proposed that the implementation of flipping classrooms is conducive to stimulating and maintaining the motivation of college students and cultivating their ability to learn independently. Fautch J. M. understands flipping the classroom as moving course content from class to homework, and students use class time

2. QUESTIONNAIRE DESIGN AND SAMPLE ANALYSIS

2.1 Questionnaire design and data source

This paper comprehensively considers the opinions of experts, teachers and students, and designs the questionnaire based on the existing research results. The specific content consists of two parts: one is the main part, and its content is shown in Table 1. The design of the main part is based on the Likert five-level scale. The students conduct rating tests according to their own feelings. From 1 to 5, they represent "very dissatisfied", "unsatisfied", "general", "satisfied" and "very satisfied". One; demographic characteristics, including the gender, grade, professional category and school category of the respondents.

Table 1. Student satisfaction measurement scale

Topic		Science and engineering major		Liberal arts major	
		Mean	Standard deviation	Mean	Standard deviation
Teaching platform (P)	1. Do you think that the construction of the "Blue Moyun Class" platform is suitable for teaching interaction?	3.24	1.184	3.66	1.007
	2. When you are studying through the "Blue Moyun Class" platform, are you satisfied with the construction of the school teaching network (such as the fluency of the network)?	3.18	1.090	3.65	0.983
	3. Are you satisfied with the richness of teaching resources on the "Blue Moyun Class" platform?	3.38	1.032	3.66	0.908
	4. Are you satisfied with the	3.35	1.057	3.70	0.954

	teaching space (teacher) and teaching time (45 minutes) of the "Blue Moyun Class"?				
Teaching process (C)	1. Are you satisfied with the content and quality of the "Blue Moyun Class"?	3.41	1.047	3.73	0.981
	2. Do you think that the "Blue Moyun Class" helps to reduce the difficulty of learning the course?	3.31	1.062	3.60	0.971
	3. Do you think that the online workload of the "Blue Ink Cloud Class" and the difficulty of the test test are reasonable?	3.27	1.048	3.64	0.939
	4. Do you think that the learning tasks of classroom learning and pre-course learning in the "Blue Moyun Class" are reasonable?	3.39	1.022	3.68	0.933
	5. Do you think that the class members of the "Blue Moyun Class" class are reasonable?	3.41	1.018	3.73	0.920
	6. Do you think that the "Blue Ink Cloud Class" will increase student participation?	3.39	1.105	3.73	0.973
Teaching effect (E)	1. Do you think that the "Blue Moyun Class" platform will have an impact on the learning outcomes of course learning?	3.41	1.047	3.65	0.957
	2. Do you think that the "Blue Moyun Class" will allow you to communicate more with your teacher and get closer?	3.36	1.091	3.64	0.965
	3. Do you think that the "Blue Moyun Class" will allow you to interact more with your classmates?	3.26	1.116	3.68	0.938
	4. Do you think that the "Blue Moyun Class" can make your learning confused and get timely response from the teacher?	3.36	1.059	3.73	0.949
	5. Do you think that using the "Blue Ink Cloud Class" can better master the knowledge in learning?	3.38	1.027	3.62	1.006
	6. What is your opinion on the "Blue Moyun Class" platform to incorporate the experience value into the usual performance assessment?	3.25	1.135	3.60	1.056
Overall satisfaction (T)	What is your overall feeling about the "Blue Moyun Class" platform?	3.32	0.988	3.78	0.922

2.2 Sample analysis and reliability and validity test

This paper takes the college students who have used the "Blue Moyun Class" mobile platform APP in the three agricultural and forestry colleges in Heilongjiang as the research object, and

uses the questionnaire star to conduct research, and has collected 330 valid questionnaires. The statistical results in Table 1 show that the satisfaction level of the liberal arts students' respondents to the "Blue Moyun Class" mobile platform application is generally higher than that of the science and engineering majors. Among the gender distribution of the sample, 124 male samples, accounting for 37.6%, and 206 female samples, accounting for 62.4%; from the grade level, freshmen accounted for 8.48%, sophomores accounted for 29.7%, and juniors accounted for 57.58%. 4.24%; 161 professional interviewees in the professional category, accounting for 48.8% of the total number, and 169 professional liberal arts respondents, accounting for 51.2%; from the school category, 985 and 211 universities accounted for 39.4% Other universities accounted for 60.6%. This paper builds an ordered logistic model based on SPSS19.0 and Stata13.0, and tests the model and hypothesis based on the above data.

In the credibility analysis of the questionnaire, the Cronbach's Alpha test method used to obtain the α coefficient of the questionnaire was 0.980, and the reliability value was greater than 0.7, indicating that the reliability of the questionnaire is very high and has high internal consistency. In the validity test of the questionnaire, the survey data were analyzed by the principal component method under factor analysis. The KMO and Bartlett spherical test results showed that the KMO value was 0.976, and the Bartlett spherical test had a chi-square value of 7566.665 (P=0.0000).), indicating that the structure of the questionnaire is of good validity.

3. DATA ANALYSIS AND MODEL CHECKING

3.1 Data analysis

In order to verify the existence of multicollinearity of independent variables, this paper introduces the variance expansion factor (VIF) to test, the results show that the maximum value of the professional variable expansion factor (VIF) of science and engineering is 6.57, the maximum value of the liberal expansion factor (VIF) of liberal arts. 6.54, the mean values of the two majors are 4.68 and 4.76, respectively, so there is no multicollinearity problem for the independent variables studied.

Parallel line tests were performed on the samples prior to the ordered multi-class logistic regression. The results of the parallel line tests are shown in Table 2. It can be seen from the table that the P values of the test results are 0.409 and 0.367, respectively, significantly greater than 0.05, and the regression equations are significantly parallel, and the data is suitable for the ordered multi-classification method.

3.2 Model checking

Ordered logistic regression was performed using Stata13.0 software. The regression results are shown in Table 3.

Table 2. Parallel line test result

model	Science and engineering major			Liberal arts major		
	-2 log likelihood value	Bangla	Significant	-2 log likelihood value	Bangla	Significant
Zero hypothesis	223.500			247.870		
Generalized	200.716	218.743	0.409	212.463	225.407	0.367

Table 3. Ordered Logistic Regression Statistics of Overall Satisfaction of Mobile Platforms Using "Blue Ink Cloud Class"

variable	Science and engineering major			Liberal arts major		
	Coefficient	Standard deviation	Significant	Coefficient	Standard deviation	Significant
P_1	0.059	0.446	0.894	-0.973	0.302	0.001***
P_2	-0.564	0.435	0.195	0.963	0.386	0.013**
P_3	0.838	0.567	0.084*	1.093	0.456	0.016**
P_4	-0.094	0.422	0.819	0.798	0.456	0.096*
C_1	0.977	0.457	0.033**	0.713	0.479	0.117
C_2	0.214	0.472	0.650	-0.758	0.455	0.045**
C_3	0.816	0.485	0.092*	0.265	0.370	0.473
C_4	-0.398	0.446	0.373	-0.427	0.476	0.370
C_5	0.455	0.519	0.380	0.449	0.380	0.238
C_6	1.326	0.455	0.004***	0.339	0.368	0.356
E_1	-0.281	0.441	0.524	0.196	0.443	0.658
E_2	0.601	0.511	0.239	0.841	0.410	0.040**
E_3	0.632	0.479	0.087*	-0.189	0.341	0.579
E_4	0.371	0.473	0.432	0.219	0.393	0.578
E_5	-0.010	0.421	0.980	0.234	0.459	0.610
E_6	0.740	0.342	0.031**	1.433	0.346	0.000***
/cut1	9.452	1.746		8.034	1.249	
/cut2	11.756	1.675		11.953	1.419	
/cut3	19.459	2.266		19.097	2.046	
/cut4	24.744	2.714		23.129	2.397	

Remarks: "*", "**" and "***" indicate the level of significance of 10%, 5%, and 1%, respectively.

According to the orderly logistic regression analysis, the significance P value of the professional sample of science and engineering is far below 5% (Prob>chi2=0.0000). The

pseudo R side reached 63.42% (Pseudo R2 = 0.6342). It can be seen from Table 5 that the P1, C1, C3, C6, E3, and E6 coefficients are all greater than 0, and the significance is less than 10%, which means that the larger the value of the six variables, the easier it is to be satisfied. In the higher-level group, it means that in the construction of the teaching platform, the richer the teaching resources on the "Blue Moyun Class" platform, the higher the satisfaction of the respondents; the teaching content, the teaching content, the teaching The quality of quality, the amount of online work, the difficulty of setting the test test, the higher the student participation, the higher the level of satisfaction of the respondents; the more effective interaction between students and the experience value in the usual results The practice will increase the overall satisfaction level of respondents to the "Blue Moyun Class" mobile platform.

Compared with the professional sample of science and engineering, the influence factors of the liberal arts graduates on the overall satisfaction level of the "Blue Moyun Class" mobile platform are very different. The significance P value of the liberal arts professional sample is much lower than 5% (Prob>chi2=0.0000). The pseudo R side reached 61.55% (Pseudo R2 = 0.6155). It can be seen from Table 5 that the coefficients of P1, P2, P3, P4, C2, E2, and E6 are all greater than 0, and the significance is less than 10%, which means that the larger the value of the seven variables, the easier it is to be divided. In the group with higher satisfaction, the results in the table show that the liberal arts professional respondents pay more attention to the construction of the "Blue Moyun Class" teaching platform, and the four influencing factors significantly positively affect the satisfaction of the respondents. Level; In the practice of teaching process, "Blue Moyun Class" helps to reduce the understanding of the difficulty of the course learning, and will improve the overall satisfaction level of the respondents; in terms of teaching effect, more interaction between students and teachers And the practice of incorporating experience points into the usual performance assessment will also increase the overall satisfaction level of respondents to the "Blue Moyun Class" mobile platform.

4. CONCLUSION

Using the "blue ink cloud class class" platform to reverse the classroom teaching model is undoubtedly a scientific teaching method, which is helpful to promote the reform of college curriculum teaching and the improvement of teaching quality. From the above analysis, it can be seen that the satisfaction of science and engineering and liberal arts students with the new teaching model of "blue ink cloud class" is higher. At the same time, it also reveals that the important factors of the two majors are significantly different. Therefore, teachers should better implement the "blue ink cloud class" according to the characteristics of different majors, so that students 'recognition of the "blue ink cloud class" can be maximized. Taking liberal arts students as an example, the students 'feelings in the construction of the "Blue Moon-cloud class" teaching platform are the factors that can best enhance the student's satisfaction with reversing the classroom. Mature network learning platform, rich platform teaching resources and other elements are the basic premise to ensure the normal implementation of the "blue ink cloud class" flipping classroom. In addition, students can master the difficulties in learning the

course through the use of the "blue ink cloud class" platform in the teaching process, and improve the overall satisfaction of "blue ink cloud class"; The overall satisfaction level of students is further improved by increasing the interaction between students and teachers and adding the experience value to the teaching effect satisfaction level of the normal performance assessment. This article provides the basis for the improvement design of the "blue ink cloud class" reversing classroom teaching model. Universities should improve the satisfaction of students and attach importance to the common influencing factors that affect the two majors under the premise of ensuring the quality of learning. That is, rich platform teaching resources and experience values are reasonably included in the usual performance assessment, to maximize the student participation and learning results.

This article is an empirical analysis from the perspective of students 'subjective satisfaction. Because of the analysis of different majors in three universities, the research data may be influenced by students' own personality traits and teacher level. The results of this study may be different if the personality traits are pre-tested and the correlation between the reflection and the personality traits is compared or the students in the same institution are considered for examination. In addition, because the respondents are located in the first to fourth grades of university, their level of satisfaction may also be affected by the length of time the students use the "blue ink cloud class" platform. Therefore, In the next step, it is necessary to carry out the dynamic law of the new teaching mode of "blue ink cloud class" with time, so as to promote the continuous development of the emerging teaching mode.

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