Research on the Innovation of Course Teaching Mode under the Background of Online Course

——An Empirical Study Based on the Perspective of Students in Shanxi University of Finance and Economics

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Abstract: This paper took students from Shanxi University of Finance and economics as the research object, and distributed the electronic questionnaire through random sampling. After the selection and reliability analysis of the questionnaire, the content understanding rate of offline class, online course and flipped class are used as dependent variables to make hierarchical regression, and the necessity of teaching mode reform is obtained. Then, the paper uses the reasonable degree of teaching mode as the dependent variable to make multiple linear regression. The conclusion is that the rate of offline class arrival and the frequency of online class use will not have an impact on the reasonable degree of teaching mode, and the teaching level of offline class and online class teachers will have a significant positive impact on the reasonable degree of teaching mode. Based on this and related data, this paper puts forward innovative teaching mode and corresponding supporting measures.

1. Research background

In recent years, the ministry of education has attached great importance to the use of information technology to promote the joint construction and sharing of high-quality education resources. With the rapid development of "Internet + education", the various forms of online courses emerge in endlessly, the learning methods and needs of college students have gradually changed and presented diversity, while the inherent education model of colleges and universities has been unable to meet the personalized needs of students. Subsequently, because of the advantages of flexible learning time and more convenient access to knowledge, the online course not only walks into the college students' extracurricular learning life, but also walks into the college classroom. All colleges and universities began to set up in-school online courses, and the research on the use of online courses and the reform and innovation of teaching mode also appeared on a large scale.

Now, Shanxi University of Finance and economics has started to introduce online courses into the classroom, but both students and the school are having problems in combining offline and online courses. Then, through the form of questionnaire, we can find out the students' attitudes towards the three teaching modes of online class, offline class, flipped class, as well as the problems in the integration process of offline class and online class. And find an innovative teaching mode to improve it, so as to meet the needs of students as much as possible and achieve the Pareto best in learning .This is the purpose of this project.

2. Questionnaire information

The questionnaire is divided into five parts: the first part is the basic information of students (school, gender, age); The second part is about the problems related to offline class. The third part is about the related problems of online courses. The fourth part is about flipped class. The fifth part is the students' attitude and suggestion to the teaching mode. A five-level scale was used in the

questionnaire, and the number from low to high indicated that the grade was getting higher and higher.

The survey is mainly based on random sampling, and the questionnaire star is published to the website by the questionnaire star, so that the university students of our school can fill in the questionnaire through the link.

A total of 237 questionnaires were collected, 50 questionnaires were screened out, 187 valid questionnaires were collected, and the effective rate was 79%.

In terms of gender structure, 33.69% of male students and 66.31% of female students. In terms of grade structure, the majority of students are juniors (54.01%).

After Cronbach reliability analysis of the scales in the three teaching modes in the questionnaire, it was found that the reliability coefficient values were all greater than 0.8. For the "CITC value", the CITC values of the analysis items are all greater than 0.4, indicating a good correlation between the analysis items and a good reliability level. The result shows that the reliability of data is high and can be used for further analysis.

3. The necessity of teaching mode reform --Hierarchical regression

Taking grade and gender as independent variables and content understanding rate of the three teaching modes as dependent variables, linear regression analysis shows that model R^2 values are 0.002, 0.003 and 0.005 respectively, which means that grade and gender can explain the variation of content understanding rate of 0.2%, 0.3% and 0.5% in the corresponding teaching mode. When F test was conducted on model 1, it was found that the models failed to pass the F test ($p>0.05$), which indicated that grade and gender did not affect the content comprehension rate, so the influence of independent variables on dependent variables could not be specifically analyzed. After model 2 adds the reasonable degree of the corresponding teaching mode on the basis of model 1, the F value changes are significant ($p<0.05$), which means that the reasonable degree of the teaching mode has explanatory significance to the model. In addition, the R^2 value increased from 0.002 to 0.516, 0.003 to 0.551, and 0.005 to 0.642, respectively, indicating that the reasonable degree of teaching mode could generate 51.5%, 55.1%, and 63.6% of the comprehension rate of the content. Specifically, the regression coefficient values of the reasonable degree of teaching mode are 0.753, 0.812, and 0.829, respectively, and all show significance ($p=0.000<0.01$), which means that no matter which teaching mode, the reasonable degree of teaching mode will have a significant positive impact on the content comprehension rate.

4. Research on the factors affecting the reasonable degree of teaching mode

Here, the innovation research of teaching mode is carried out on the basis of offline course, the main reason is that school learning is dominated by offline course. Secondly, although most students prefer the combination of offline and online courses, offline courses are still the main learning method.

4.1 Variable definition

The dependent variable is: the reasonable degree of the teaching model

The independent variable is:

X_1 teacher's teaching level (offline course)

X_2 teacher's teaching level (online course)

X_3 offline class arrival rate

X_4 the frequency of using online courses

4.2 Model setting

Model 1: $Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \mu$

The regression results are:

$$Y = 0.214 + 0.689X_1 + 0.139X_2 + 0.043X_3 - 0.030X_4$$
$$(3.157) \quad (10.650) \quad (2.289) \quad (1.367) \quad (-1.174)$$
$$R^2 = 0.569 \quad F = 60.062 \quad DW = 1.939$$

According to the regression results, the model R^2 value is 0.569, which means that variables X_1, X_2, X_3 and X_4 can explain the change of 56.9% of the reasonable degree of teaching mode. When F test was conducted on the model, it was found that the model passed the F test (F=60.062, p=0.000<0.05), that is at least one item in X_1, X_2, X_3 and X_4 would have an impact on the reasonable degree of the teaching mode. In addition, all the VIF values in the model were less than 5, indicating that there was no collinearity problem. Moreover, the value of D-W is near the number 2, which indicates that there is no autocorrelation between the models and there is no correlation between the sample data.

Specific analysis shows that: The regression coefficient value of variable X_1 is 0.689(t=10.650, p=0.000<0.01), and the regression coefficient value of variable X_2 is 0.139(t=2.289, p=0.023<0.05), indicating that both variables X_1 and X_2 have a significant positive impact on the reasonable degree of teaching mode.The regression coefficient value of variable X_3 is 0.043(t=1.367, p=0.173>0.05), and the regression coefficient value of variable X_4 is -0.030(t=-1.174, p=0.242>0.05), which means that variable X_3 and variable X_4 do not have a significant impact on the reasonable degree of the teaching mode.

5. The proposal of innovative teaching mode

According to the survey data, 100% of the class attendance rate was the largest, accounting for 60.43%. Although a small number of students have frequent absences, most students can basically maintain the attendance rate, in this regard, traditional courses do a good job in attendance. However, according to the survey, the teaching mode preferred by the majority of students is not our traditional offline class, but the free choice of class time and class type according to their own circumstances. This shows that although the class attendance rate is high on the surface, the existing teaching mode can no longer meet the personalized needs of students, which requires the reform and innovation of the existing teaching mode. According to model 1, the focus of the reform of school teaching mode is to improve the teaching level of teachers and to provide high-quality online course resources, rather than to improve the class rate.

Based on the above analysis, this paper proposes an innovative teaching model: students can choose when to take online courses and when to take offline courses according to their own situation.

6. General arrangement under innovative teaching mode

6.1 General policy

Under this teaching mode, students can choose the learning methods of corresponding subjects according to their preferences and actual conditions. The teachers in the school divide the work and cooperate with each other. According to the teaching quality evaluation results, the teachers with higher teaching level score will teach the offline courses. In addition, the corresponding class will also be equipped with an assistant teacher, who is responsible for planning, supervision, the study of the course students and answering questions, online course students can study in the corresponding period through the teaching assistant teacher answer doubt dispels doubts, offline class students can choose according to intend to at the end of the class or in any other free time looking for the teacher to find a teaching assistant teacher to answer questions.

It is mainly responsible for the planning, supervision and answering question of students' course learning. Students in online class can solve their questions in time through the assistant teacher in the corresponding learning period. Students in offline class can choose to find the teaching teacher at the end of the class according to their wishes or find the assistant teacher to answer questions in other free time periods.

6.2 The arrangement of offline courses

Given the growing popularity of online courses and the increasing demands of students for flexibility in classroom location and time, there are fewer students who like to take offline classes. For some students who like traditional courses, students of different majors can be integrated on campus and taught by teachers with high teaching quality. At this time, we can learn from the foreign classroom model for small class teaching, no more than 20 students in each class. In this regard, we do not copy the existing model of foreign countries, but to learn from the model of foreign classroom, combined with the study habits of our students and to form a unique curriculum teaching model suitable for our school. In this mode, the instructor should pay close attention to the latest research progress and market situation of the course-related content in time, and pay more attention to the practical application of professional knowledge in addition to imparting knowledge. In addition, teachers should make corresponding improvements in the teaching form, and try to adopt different ways to teach, so as to increase students' interest and initiative in learning.

6.3 Arrangement of classes on opposite lines

1) The average evaluation of students on the teaching level of teachers is 3.914. Most students hold an above average view on the teaching level of teachers in colleges. As we all know, in addition to teaching tasks, university teachers have certain scientific research tasks, and their own pressure is relatively large. In addition, some teachers teach multiple professional courses, making it more difficult to meet the needs of each student. Therefore, it is necessary to integrate the teaching resources among colleges and universities, break the barriers of educational resources, and let high-level professors with strong professional fields and rich teaching experience record relevant teaching videos, while our teachers are responsible for offline answer. In this way, school teachers play a more important role in the learning process of students. Assistant teachers should ensure to solve the problems encountered by students in the process of self-study in online class in a timely and targeted manner, and collect and sort out students' doubts carefully before class, so as to ensure the efficient and orderly classroom teaching.

2) According to the survey data, 44.16% of the students mentioned the quality of online courses among the reasons for not choosing online coursees. So we can clearly see that the uneven quality of online courses is the biggest concern. In this regard, two aspects should be considered. The low quality of online courses is not only due to the problems in the content of the courses, but also due to the fact that they do not meet the preferences of a specific group of students. To fundamentally solve the problem, the first thing to do is to eliminate some of the poor quality of online courses, and the second is to recommend different styles of online courses to students with different preferences. Only let the teacher help the students to constantly screen courses, the workload is large and endless, but let the students find their own suitable online courses in many online courses will cost a lot of energy. The plan of this paper is to first establish a unified and perfect evaluation index system of online course teaching quality, so that students who have really studied this course can give pertinent suggestions and grade it according to their own experience, and everyone can roughly judge the quality of the course according to the final scoring results. In addition, in this teaching quality evaluation index system, the system also needs to automatically delete those low-quality videos with too low score and low playing volume for a long time. After the system selection, the online courses left behind need assistant teachers to carry out a general trial. This is mainly to make clear the teacher's lecture style and curriculum content arrangement ideas. Finally, the teacher integrates the resources of the same subject and acts as a guide.

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