

# *Research on the influencing factors of online teaching satisfaction and willingness to continue using*

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**Abstract:** Since the large-scale development of online teaching in colleges and universities across the country, how to realize the sustainable development of online teaching and improve the quality of service has become the focus of post-epidemic education innovation. This study takes the students of a national university as the research object, explores the main factors that affect the satisfaction of online teaching and the willingness to continue using, constructs the corresponding TAM model, and puts forward suggestions on improving the satisfaction of online teaching and the willingness to continue using, with a view to playing a certain role in promoting the sustainable development and service quality of online teaching, and providing ideas for developing and improving the teaching system adapted to online teaching.

## **1. Introduction**

The sustainable development and service of online teaching in the future have become the focus of innovation in the field of education after the epidemic. The online teaching practice of tens of millions of teachers and students in colleges and universities not only challenges the traditional teaching organization form, but also puts forward new requirements for the teaching governance system and governance ability of colleges and universities. How to scientifically evaluate the quality of online education during the epidemic, how to accurately measure the satisfaction of online education and the willingness to continue to use it, and based on this, to judge the next stage of higher education should adopt the main model, are of great practical significance. Existing studies have shown that students' online learning effectiveness and satisfaction are affected by various factors<sup>[1]</sup>. This study, based on a review of relevant literature, uses structural equation model from the perspective of students to carry out further research on online teaching satisfaction and four main factors: external environment, perceived ease of use, learning engagement, and perceived usefulness are analyzed. This study mainly attempts to solve the following main problems: What is the current situation of college students' satisfaction with online learning and their willingness to continue to use it? What are the influencing factors? To what extent do these factors influence online learning satisfaction? What is the interaction path and influence mechanism between them?

## 2. Theoretical review and analysis framework

After the 1980s, Based on the relevant research results of expectation confirmation theory and self-efficacy theory, American scholar Davisley put forward the concept of TAM., which is mainly used to predict the degree of behavioral subjects' tendency to accept, use or reject new information technology<sup>[2]</sup>. After TAM came out, it has been constantly verified and adjusted by many scholars. Bhattacharjee believes that users' expectation confirmation affects perceived usefulness and satisfaction, and thus affects users' willingness to continue using. The application and development of self-efficacy theory in the study of information technology acceptance and willingness to use is actually a process of positive integration of self-efficacy theory and various technology acceptance theories and models. When using mobile network services, users are more likely to adopt persistent usage behaviors if they are satisfied with the service of the application. Similarly, online teaching use satisfaction is considered to be a key element of continuous use behavior, so satisfaction and willingness to continue use are often studied simultaneously<sup>[3]</sup>. In general, existing studies have shown that the satisfaction degree of online teaching more or less affects the intention to use, and the intention to continue using depends on the satisfaction degree of users to the behavior of being used continuously. In other words, user satisfaction is a key antecedent variable affecting users' intention and behavior to continue using<sup>[4]</sup>.

Bazelais, P.<sup>[5]</sup>and others emphasized the role of variables such as external influence. R.I. Hogan and M. McKnight believe that perceived ease of use, perceived usefulness, external environment and other factors have an impact on online teaching satisfaction, which in turn has an impact on the willingness to continue using<sup>[6]</sup>. Factors such as perceived ease of use, perceived usefulness and external environment of online teaching are important factors that directly affect the intention of continuous use<sup>[7]</sup>. Meanwhile, these three factors can indirectly affect the intention of continuous use through the intermediate variable of teaching satisfaction. Therefore, the mediating role of teaching satisfaction, especially the relationship between the independent variable at the secondary level, teaching satisfaction and continuous use intention, still needs to be further proved. The satisfaction and continuous use intention of online teaching are essentially the acceptance behavior of online teaching information system and online teaching mode. In this study, the scales of perceived usefulness, perceived ease of use and willingness to continue use were adopted in the technology acceptance model (TAM) proposed by Davis<sup>[8]</sup>. However, due to the differences of research objects, sample size and technical environment, the relevant research results of several groups of variable relationships in the technology acceptance model (TAM) are somewhat different<sup>[9]</sup>.

## 3. Research design

### 3.1 Questionnaire design

The research methods of this paper are empirical research methods of questionnaire survey and structural equation modeling. In this study, this research data is collected from the network questionnaire survey of college students in a national university. A total of 216 questionnaires were collected. After screening and eliminating invalid questionnaires, the number of valid questionnaires reached 204, and the effective rate of the questionnaire was 94%. There are 33 questions in total, and the measured variables have 6 dimensions: Perceived usefulness, perceived ease of use, external environment, learning involvement, teaching satisfaction, continuous use intention. The first four are potential independent variables, and the last two are potential dependent variables.

### 3.2 Reliability and validity of the questionnaire

Cronbach 'Salpha of the questionnaire was 0.949>0.9, and Cronbach 'salpha coefficient of willingness was 0.763 > 0.7, which was acceptable. In addition, the title reliability of the five latent variables in the questionnaire -- perceived usefulness, perceived ease of use, external environment, satisfaction and learning engagement -- is above 0.9, indicating that the questionnaire is highly reliable.

SPSS25.0 was used to carry out factor analysis on the data, and factor analysis was carried out on the whole questionnaire and corresponding data of each variable respectively. The KMO value of the questionnaire as a whole was 0.949, and the KMO value of the intention to continue use was 0.643 >0.6. Within the acceptable range, KMO values of the corresponding items of all latent variables except the intention to continue use were all above 0.9. Bartlett spherical test showed that the items of all latent variables and the questionnaire as a whole reached the significance level of 0.000. The analysis results show that the questionnaire is suitable for relevant factor analysis. And the reliability and validity of the questionnaire is good, can be the next stage of the formal investigation.

## 4. Research model and hypothesis

### 4.1 Model construction

The idea of this study is based on the models and theories of previous people. The perceived ease of use and perceived usefulness are identified as two basic variables, combined with the use of TAM as the basic analysis framework. According to the actual characteristics of college students in the process of online learning, the use of learning input variables and external environment variables are introduced. Finally, the research model of college students ' online teaching satisfaction and continuous use intention is constructed.

### 4.2 Research hypothesis

In this study, the most relevant literature was selected by searching through the know network for reading, analysis and collation. Based on this, combined with the situation of colleges and universities, the research hypothesis is proposed to explore the factors that affect college students ' satisfaction with online teaching and their willingness to continue using H1a : perceived usefulness positively affects online teaching satisfaction. H1b: Perceived ease of use positively affects online teaching satisfaction. H1c: The external environment positively affects online teaching satisfaction; h1d: Learning engagement positively affects online teaching satisfaction; h2a: perceived usefulness positively affects the willingness to continue using; h2b: Perceived ease of use has a positive impact on continuance intention; h2c: The external environment positively affects the willingness to continue to use; h2d : learning engagement positively affects the willingness to continue using ; h3 : Online teaching satisfaction has a mediating effect and a positive impact on continuous use intention.

## 5. Data analysis

### 5.1 Confirmatory factor analysis

According to the data analysis of the questionnaire content, the reliability coefficient of each part of the variables is greater than 0.7, and the standard load of the measurement items is above 0.7,

indicating that the reliability quality is high and the internal consistency is good. Average variance sampling (AVE) was all higher than 0.7, indicating a good convergence validity. Therefore, the survey data in this paper are reliable and can be used for further analysis.

### 5.2 Model fitting and analysis

On the basis of passing the reliability test and validity test, AMOS software was used to verify the research model shown in Figure 1, so as to further judge whether the causal relationship between latent variables and observed variables is significant. On the basis of the above research, AMOS software was used to fit the survey data of students respectively. The goodness of fit indexes of the models were as follows:  $X^2 = 356.547$ ,  $X^2/df = 2.947$ ,  $GFI = 0.847$ ,  $AGFI = 0.784$ ,  $TLI = 0.927$ ,  $CFI = 0.941$ ,  $RMSEA = 0.098$ ,  $SRMR = 0.098$ ,  $IFI = 0.942$ . The results show that the goodness of fit index of the model is good, indicating that the model constructed in this study is suitable for the analysis of factors affecting the teaching satisfaction and continuous use intention of students in ethnic universities. Generally speaking, the model has a good degree of fitting, and can be used for relevant evaluation and prediction.

### 5.3 Hypothesis testing

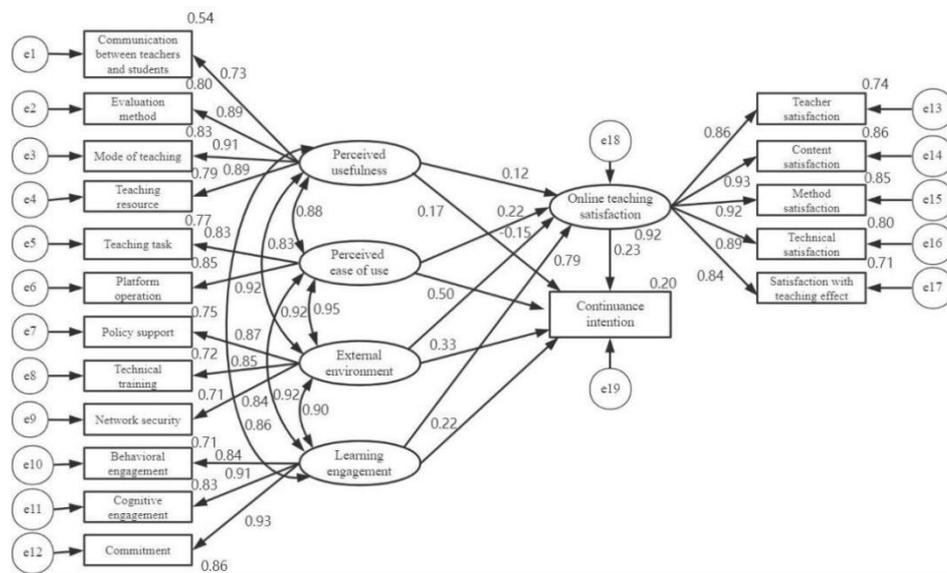


Figure 1 Standardized path coefficient diagram

First, from the perspective of latent variables, the most important factor affecting perceived usefulness is the teaching style. The most important factor affecting perceived ease of use is platform operation, which is slightly higher than teaching tasks; The most important factors affecting the external environment are policy support and technical training, which indicates that the current online teaching needs relevant policies to actively guide students to use the teaching form of online teaching, and technical training of online teaching still needs to be provided. The most important factor affecting learning involvement is emotional involvement, which indicates that students' learning involvement is mainly affected by students' emotional identity, and students' voluntary learning and willingness to learn will improve their learning involvement level.

Secondly, overall, the key factor affecting teaching satisfaction is learning involvement; The key factors influencing the intention to continue using are external environment and online teaching satisfaction. The main factor leading to the low intention to continue using online teaching is

perceived ease of use, especially teaching tasks. The low score of this variable leads to the low intention to continue using.

Finally, contrary to the conclusion of TAM applied in this field, there is a negative correlation between external environment and online teaching satisfaction. It shows that college students' policy support and guidance for promoting online teaching, training activities for teachers and students' online teaching technology are not perfect in the external environment of online learning. In addition, the factors affecting college students' online teaching satisfaction in the process of online teaching also include uncertainty factors such as network instability.

## **6. Research Suggestions**

### **6.1 Improve the perceived usefulness of online teaching**

In the context of the novel coronavirus pandemic, this paper analyzes online course learning experience from the perspective of students and finds that perceived usefulness has a significant positive effect on active learning attitude and indirectly affects online active learning intention. Regression shows that evaluation methods of teacher-student communication, teaching methods and teaching resources have significant positive effects on perceived usefulness. Therefore, emphasis should be placed on improving the perceived usefulness of online teaching of various subjects, especially developing and improving teaching evaluation functions, and paying attention to the quality of online teaching, including online classroom discussion and online practical demonstration. Tutoring efforts to improve the effectiveness of online teaching.

### **6.2 Keep students engaged in learning**

The key to improve college students' online learning effectiveness and online teaching satisfaction is to cultivate college students' information literacy. For teachers as the main body of educators, on the one hand, we should pay attention to the cultivation of college students' information technology ability, and improve their quality and speed of information processing in the process of practical operation, so as to better help them understand information knowledge, select memory and effectively construct knowledge, so as to complete the meaning construction of new information and new knowledge. In addition, it is necessary to cultivate students' ability of autonomous learning and self-regulation, so that they can develop good online learning habits, and encourage them to design their own learning plans, and assist them to find and solve problems according to their own learning rhythm, so as to promote the construction of learning knowledge and the improvement of learning ability.

### **6.3 Improve the external environment guarantee and supply of online teaching**

The usefulness and ease of use of online teaching is an important condition to improve teachers' satisfaction and willingness to continue using online teaching. At present, the platforms and tools used by some schools cannot effectively carry out teaching activities. Therefore, schools should further increase their investment and strengthen the construction of network environment and online education resources, so that more primary and secondary school teachers can clearly feel the usefulness and convenience of online teaching, and thus have a lasting willingness to use. At the same time, many online education platforms have a low degree of intellectualization, which is not conducive to the analysis of learning situation and the effective evaluation of teaching effects. Therefore, enterprises of online education platforms should strengthen the construction of learning situation data of online teaching platforms, and record the teaching and learning behaviors of

teaching platforms in real time and comprehensively with the help of technical means, so as to serve as the basis for teachers to evaluate teaching and learning effects.

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