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Teaching Platform in Response to the COVID-19
–Taking the Undergraduates of the Department
of Tourism Management as an Example

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Evaluation of user acceptance of the remote teaching platform in response to the COVID-19 --Taking the undergraduates of the department of tourism Management as an example

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Abstract. In 2020, In response to the COVID-19 in China, most universities will adopt remote learning in the first semester of the 2020 academic year. This study uses the Technology Acceptance Model (TAM) to evaluate the acceptance of University X's tourism management students when using the Enterprise WeChat platform for remote teaching, and explores what is the relationship among self-efficacy, learning motivation, perceived usefulness, perceived ease of use, usage attitude and actual usage? The research method adopts quantitative questionnaire survey, and uses SPSS software for data analysis and research model testing. The research results show that (1) Self-efficacy positively affects perceived ease of use. (2) Learning motivation positively affects perceived usefulness, perceived ease of use and attitude toward. (3) Perceived ease of use positively affects perceived usefulness and attitude toward. (4) Perceived usefulness positively affects attitude toward and actual usage. (5) Attitude toward positively affects actual usage. Based on the results of this research, it is expected to provide constructive suggestions for education departments and platform designers.

Key words: Technology Acceptance Model, Remote Teaching, Self-efficacy, Learning Motivation

1. Introduction

In recent years, under the background of the development of big data and the Internet, e-learning has gradually become popular, and "Internet plus education" has become a new form of learning. From 2013 to the present, under the strong promotion of the Ministry of Education, the number of courses and online learning is increasing, a variety of learning online platform continues to develop. In the context of the 2020 epidemic, online education showed an explosive growth trend, as of March 2020, the size of China's online education users reached 423 million, an increase of 110.2% over the end of 2018, accounting for 46.8% of the total number of Internet users (China Internet Development Statistics Report, 2020). China's Ministry of Education has carried out the work of "stopping classes", as of May 18, 2020, a total of 1,454 colleges and universities nationwide opened online, a total of more than 1.03 million teachers opened 12.26 million online courses, a total of 17.75 million students to participate in online courses, a total of 2.3 billion times (China Education Daily, 2020), home learning has become the main way for students to acquire knowledge at home. There are many kinds

of online remote platform, among them, enterprise WeChat is a WeChat team to create a software for office and learning, the biggest feature of this software is that the number of users can accommodate more people, and the transmission of messages will not be delayed, however, in the remote software market, this platform cannot avoid competing with other software of the same type, so the user's status and acceptance to be examined. Therefore, this study to X University tourism undergraduates as the research object, to investigate students in the outbreak using the "enterprise WeChat" platform online class awareness and acceptance of the APP, through the establishment of research models and analysis of data, to draw relevant conclusions, can give educational institutions and platform designers practical recommendations.

2. Literature discussion

2.1 Enterprise WeChat.

Enterprise WeChat is a professional communication tool built for enterprises by Tencent, which has the following features: (1) live broadcast function: directly synchronized player, screen or document can be shared at the same time, live audience can use text or turn on voice to interact; (2) Meeting function: with voice function, can achieve the communication effect of voice synchronization, the host can also share computer screens or documents according to the needs, the need for group discussion is also appropriate. (3) The group will use a large number of people capacity: the maximum number of people used in each group will be 200, and the capacity can still be requested for expansion according to the needs.

2.2 The theory of Technology Acceptance Model

Davis (1986) based on the Theory of Reasoned Action (TRA) (Fishbein and Azjen, 1975), explored the relationship between cognitive and emotional factors on the use of science and technology, and developed a technology acceptance model. This model is expected to be widely applied to explain or predict the influencing factors of information technology use. In other words, this model provides a theoretical basis for understanding the influence of external factors on the internal beliefs, attitude and intention of users, and then influence the situation of technology use (Davis et al., 1986;1989). TAM model is shown in Figure 1. The model considers that users' actual system use is affected by their behavioral intention to In other words, users feel that using this information technology will contribute to their future work performance, which will directly affect the individual's willingness to use the technology. In practice, Tam can explain and predict the acceptance of it, and then take measures to control external factors to influence users' internal cognition and belief, so as to strengthen users' acceptance and achieve management purposes.

The TAM mainly includes six elements: perceived ease of use, perceived usefulness, attitude toward, behavioral intention, actual usage and external variables. The six elements are explained as follows (Fishbein & Azjen, 1975; Davis et al., 1986;1989).

- **Perceived ease of use:** refers to the degree to which the individual needs to make

efforts to use a technology system when he or she uses the application system, that is, the degree of ease that an individual expects to use the system.

- **Perceived usefulness:** it refers to the subjective understanding of an individual when using a technology system that may improve its work efficiency or performance, that is, how much the system can improve its productivity or work efficiency.
- Attitude toward: it refers to the subjective positive or negative feelings of an individual when using a technology system.
- **Behavioral intention:** a measurable measure of an individual's willingness to complete a specific behavior, that is, the willingness of individual users to adopt a technology system.
- **Actual behavior :** refers to the actual behavior of individual users using a technology system.
- **External variables:** refer to some measurable factors, such as system user characteristics and system use interface design features.

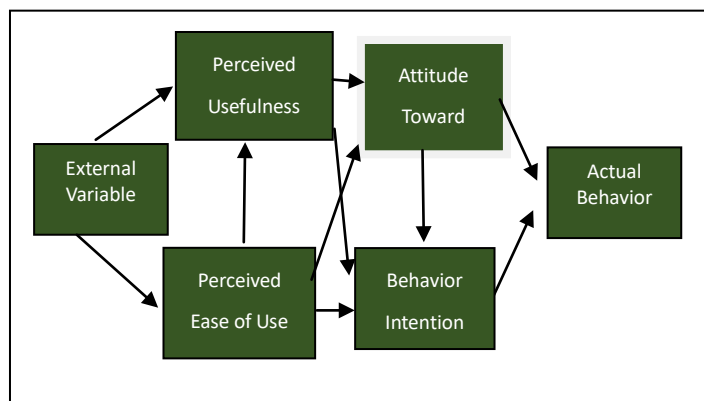


Fig.1 TAM Proposed by Davis et al. (1989)

Subsequently, scholars have been arguing about the relationship between perceived usefulness, use attitude, use intention and the degree of use in the related TAM model in the past, and proposed amendments to the original TAM model. Adams et al. (1992) and Straub et al. (1995) proposed a revised version of TAM, which deleted behavioral intention from TAM, and obtained the support of research results. Igbaria (1997) also applied this modified model to the issue of technology acceptance in small enterprises. The modified Tam mode is shown in Fig. 2.

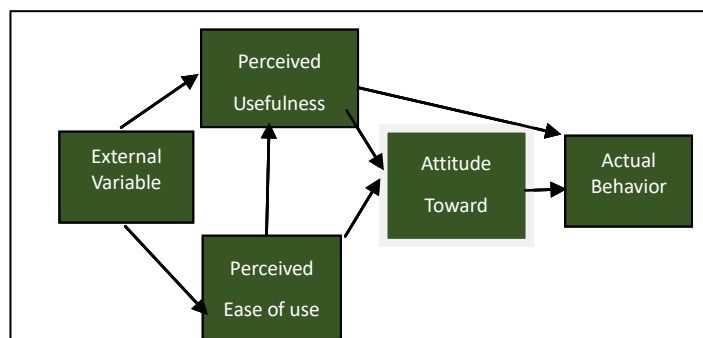


Fig.2 Modification of TAM proposed by Adams (1992) & Straub (1995)

2.3 Learning motivation

Learning motivation, which refers to the internal driving force to stimulate and maintain individual learning activities and make the activities towards a certain goal, can be divided into endogenous and exogenous (Li Xueping, 2012). Endogenous motivation refers to the tendency of individuals to participate in activities for the sake of seeking challenges, fun and curiosity, while exogenous motivation refers to the tendency of individuals to participate in activities for other factors (reward, recognition and evaluation by others, completion of instructions from superiors, competition with others, etc.) other than the activity itself. Zou Xiaohua (2011) studied the influence of learners' internal demand factors, external driving factors and self-efficacy factors. Research by Wang Ziting (2019) show that online learners' sense of usefulness has a significant positive impact on their willingness to learn. She also points out that if learners feel the richness and convenience of learning platform resources, it can help learners improve their perceived ease of use and perceived usefulness.

2.4 Self-efficacy

Self-efficacy is a concept proposed by Bandura (1977). It is a subjective judgment of whether an individual can successfully carry out a certain achievement behavior. It plays a self-regulating role in the process of motivation. It is also a "belief in the ability of organizing and executing behavior process needed to produce certain results". Many scholars have studied the relationship between self-efficacy and technology acceptance model. Lgbaria (1997) found that self-efficacy can directly affect perceived ease of use and indirectly affect perceived usefulness. However, Agarwal (1997) and others believe that self-efficacy is an important part of the premise of perceived ease of use. Shang Xiaoli (2008) found that user self-efficacy has a positive impact on the acceptance of computing technology. At the same time, in the field of e-learning and remote education, Pei Xiaojie (2012) believes that self-efficacy in remote education is the specific application of self-efficacy theory in e-learning, and it is the individual's online learning belief, that is, whether learners can effectively use computers, networks and other existing resources to make full use of their abilities and skills to complete the network. The evaluation of self-confidence of online learning course is a subjective judgment of individual's ability to control network learning behavior and complete network learning task.

2. Research design and methods

3.1 Research framework

Based on the above, this study is based on the revised TAM proposed by Adams et al. (1992) and Straub et al. (1995), and takes learning motivation and self-efficacy as external variables. The research model is shown in Figure 3.

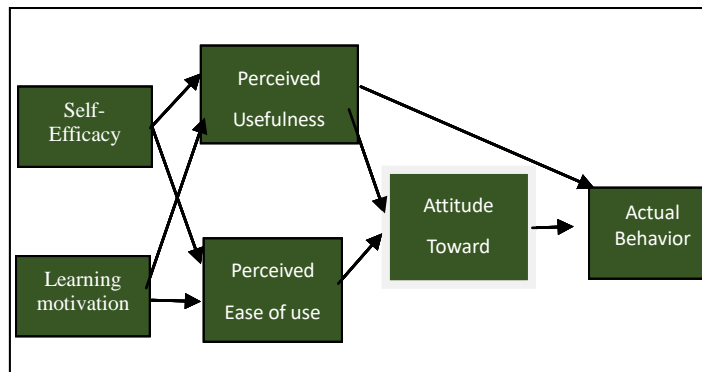


Fig. 3 The research model proposed by this study

3.2 Research hypotheses

Based on the above literature and research model, this study proposes the following hypotheses:

Self-efficacy refers to the degree to which a person can use his own ability to believe that he can achieve certain things and goals. Davis et al. (1989) proposed that when users use the system or website, if the system or website can improve the user's work efficiency or performance, users will think that the system is easy to use, so as to enhance users' perceived usefulness of the system or website, and will have a positive attitude towards this technology or website. When users believe that they can use their own capabilities, believe that they can achieve certain things and achieve their goals, they will be willing to use information systems for learning, and enhance the usefulness of the system perception. Therefore, this study proposes the following hypotheses:

H1: Self-efficacy has a positive impact on perceived usefulness.

Davis et al. (1989) proposed that perceived ease of use means that users can skillfully use the system or website without spending more time or effort. Therefore, it will improve our perceived ease of use of the system or website, and will also have a positive attitude towards this technology or website. When users believe that they can use their own capabilities, believe that they can do certain things and achieve their goals, they don't need to spend more time or effort to operate a technology system easily, which will improve the user's perception of the ease of use of the system

H2: Self-efficacy has a positive impact on perceived ease of use.

Learning motivation refers to the willingness or desire of users to participate in and devote themselves to learning. It shows in the choice of specific learning activities and the intensity of continuous efforts to carry out the activities. In the process of learning, it causes and maintains the internal motivation of learning activities; and in learning activities, it promotes the psychological process of spontaneous devotion to the predetermined learning goals. The strong learning motivation of users will make them spontaneously devote themselves to the predetermined goal. Therefore, when users use a technology system, it will enhance the usefulness of their perception of the system

H3: Learning motivation has a positive impact on perceived usefulness.

When users use a technology system spontaneously, they will enhance their perception of the ease of use of the system, so that they can easily operate the system

H4: Learning motivation has a positive impact on perceived ease of use.

Using attitude refers to the user's willingness to use a certain technology system. When users feel that the information system can improve their learning efficiency or learning performance, they will think that the system is easy to use, so as to enhance the user's perception of the usefulness of the software, and will have a positive attitude towards the software

H5: Perceived usefulness has a positive impact on attitude toward.

The simple operation of a technology system determines the size of its users. The more concise and easy to understand operation, the more people are willing to use the software. At the same time, the flexibility of its login mode and the diversified user interface design, such as different styles of system design and interface design, will increase the user's favor. When users think that the system is easy to use and willing to use, it will positively affect users' cognition and attitude towards the usefulness of the system

H6: Perceived ease of use has a positive impact on attitude toward.

H7: Perceived ease of use has a positive impact on perceived usefulness.

User behavior refers to the user's willingness to use a technology system. When users feel that the information system is simple and useful, they will be willing to use the system and continue to use the system to deal with related work

H8: Attitude toward has a positive impact on actual behavior.

When users think that a technology system is useful for improving their learning efficiency or learning performance, they will increase the frequency of users using the system. Therefore, this study proposes the following assumptions:

H9: Perceived usefulness has a positive impact on actual behavior.

3.3 Research method

This study uses quantitative questionnaire survey method to verify the model. The scale of the questionnaire is Likert's five points scale. Six dimensions of questionnaire are designed, including self-efficacy, learning motivation, usefulness, ease of use, attitude to use and use behavior. SPSS software was used for data analysis, Cronbach's alpha value was used to test the reliability of the questionnaire, exploratory factor analysis was used to test the validity of the questionnaire, and regression analysis was used to test the path hypothesis of the research model.

4. Data analysis and results

4.1 Sample distribution

A total of 214 valid questionnaires were collected from undergraduates of tourism and hotel management in a university. Among them, 76.2% are female, 23.8% are male, 53.3% are hotel management students, and 46.7% are tourism management majors.

4.2 Reliability analysis

Reliability refers to the degree of consistency or stability of measurement results. Generally, the Cronbach α coefficient is more than 0.7, indicating that the scale is feasible. The Cronbach's alpha value of each dimension of the scale ranged from 0.722 to 0.902, while the Cronbach's alpha value of the overall questionnaire was 0.921, which shows that the questionnaire has good stability and reliability.

4.3 Validity analysis

Validity refers to the accuracy of a measurement. It refers to the extent to which a test or other measurement instrument can measure the construct it wants to measure, that is, what is the significance of the test score. The validity of the scale was tested by content validity, convergent validity and discriminant validity. Content validity refers to whether the content of a measurement instrument is comprehensive, representative, appropriate, and indeed contains the connotation of the subject to be measured. The content of the questionnaire in this study is based on the theory and research content of previous studies, and is modified by referring to the questionnaire content and measurement items of relevant scholars, which has objective content validity. Furthermore, the convergence validity was analyzed by confirmatory factor analysis. The results showed that the KMO value was 0.883, the significance of Bartlett spherical test was 0.000, less than 0.001, and the factor loading range of each construction was between 0.561 and 0.812, which was greater than 0.5 test standard, indicating that the scale has good convergence. In addition, the results of the discriminant validity test of the scale also meet the criteria proposed by scholars: (1) the correlation coefficient between the two variables must be significantly less than 1. (2) The correlation coefficient between any two planes is less than the Cronbach α value of a single plane. As shown in Table 1.

Table 1. The results of discriminant validity analysis

Variables	Correlation coefficient					
	A	B	C	D	E	F
A. Self-efficacy	0.815					
B. Learning Motivation	0.546*	0.722				
C. Perceived Usefulness	0.328*	0.403*	0.819			
D. Perceived ease of use	0.292*	0.329*	0.604*	0.851		
E. Attitude Toward	0.281*	0.190*	0.586*	0.438*	0.902	
F. Actual Behavior	0.239*	0.106	0.487*	0.389*	0.564*	0.883

4.4 Regression analysis

Regression analysis is to describe the correlation between variables through

mathematical regression equation, and determine the influence of the change of independent variable on the change of dependent variable. This paper uses multiple regression analysis to explore whether the hypothesis is supported. The results show that all the hypotheses are tenable, there are shown in Table 2.

Table2. The results of hypothesis test

hypotheses	Standardized Beta value	T value	P value	Support
H1: Self-efficacy has a positive impact on perceived usefulness.	0.700	1.106	0.270	Not supported
H2: Self-efficacy has a positive impact on perceived ease of use.	0.161	2.090	0.038	Supported
H3: Learning motivation has a positive impact on perceived usefulness.	0.194	3.008	0.003	Supported
H4: Learning motivation has a positive impact on perceived ease of use.	0.241	3.138	0.002	Supported
H5: Perceived usefulness has a positive impact on attitude toward.	0.506	7.290	0.000	Supported
H6: Perceived ease of use has a positive impact on attitude toward.	0.132	1.905	0.058	Supported
H7: Perceived ease of use has a positive impact on perceived usefulness.	0.520	9.216	0.000	Supported
H8: Attitude toward has a positive impact on actual behavior.	0.424	6.220	0.000	Supported
H9: Perceived usefulness has a positive impact on actual behavior.	0.238	3.491	0.001	Supported

5. Conclusions and suggestions

5.1 Conclusions

The results of this study show that almost all hypotheses are supported, except that the hypothesis that self-efficacy is related to the cognition of usefulness is not supported. The results are as follows: (1) learning motivation and perceived ease of use positively affect perceived usefulness. (2) Self-efficacy and learning motivation positively affect perceived ease of use. (3) Perceived usefulness and perceived ease of use affect user attitudes. (4) The attitude of using influences the behavior of using. Perceived usefulness and perceived ease of use play an important mediating role in the relationship among self-efficacy, learning motivation, use attitude and use behavior. Therefore, the results of this study put forward the following practical suggestions.

1. Suggestions for course managers

According to the empirical results of this study, users' self-efficacy and learning motivation have a significant positive impact on the usefulness and ease of use of Enterprise WeChat. Therefore, if managers (such as teachers) want to improve the acceptance of users, they can use relevant incentive methods to increase learners' learning motivation. For example, they can use incentive methods to praise or add points to the students who speak automatically, which can stimulate the kinetic energy and participation of learning.

2. Suggestions for enterprises to develop system platform

This study puts forward the following suggestions for platform development enterprises: (1) provide clear operation menu for user, so that users can quickly learn various functions of the platform. (2) Provide free training courses online. (3) Open more user-friendly free resource, so that users will be bound to use it continuously after they get used to it. (4) Open up more users to synchronize the number of online users, so as to improve the disadvantage that most platforms cannot accommodate multiple users in group meetings. (5) Enhanced message transmission is smoother and delays or crashes are improved. (6) Actively participate in relevant knowledge popularization activities or public welfare activities to increase the popularity of the software. (7) In order to enhance students' interest in learning and maintain good learning motivation, interesting small programs can be added to the interface of the platform to improve the learning enthusiasm of users, thus affecting the frequency of use. (8) Strengthen the survey of user satisfaction and ask for suggestions for improvement of the platform, so as to timely improve and provide effective function update.

5.2 Research limitations and suggestions for future research

This research is limited by the research scope and time. The scope of the research is limited by the undergraduate students majoring in tourism and hotel management of X university. The object type is relatively single, which cannot fully reflect the user acceptance of Enterprise WeChat. Therefore, in the future research, we can expand the scope of the questionnaire subjects, or increase the individual interview survey, and carry out the user usage survey for the detailed functions of the system function, so as to obtain more detailed improvement opinions. In addition, the external variables of this study only take self-efficacy and research motivation. In the future, we can add other users' internal characteristic factors or system design specific factors to study.

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