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Factors Impacting University Majoring in Vocal Music Students' Behavioral Intention to Chaoxing Learning Platform In Changsha, Hunan, China

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Abstract

Purpose: The purpose of this study was to determine students' behavioral intention to Chaoxing learning platform. The study was conducted in public primary university in Changsha, Hunan Province, China, with majoring vocal students who had at least one year of experience using this technology. **Research design, data and methodology:** This is a quantitative study, which uses survey to collect sample data through a set of questionnaires to explore the factors influencing the Behavioral Intention of using Chaoxing learning platform for vocal music majors in university. The questionnaire is made by online questionnaire of Kingsoft Form with 500 sample size. The content validity method of Item Objective Congruence (IOC) Index was used, resulting all measuring items reserved by three experts. Pilot testing of 30 participants was approved under Cronbach's Alpha reliability test at a score of 0.7 or over. Confirmatory Factor Analysis (CFA) and Structural Equation Model (SEM) were performed for data analysis, including goodness of model fits, validity, and reliability testing. **Results:** The results show Perceived Enjoyment, Self-Efficacy, Teacher Support, Perceived Ease, Perceived Usefulness, Perceived Ease of Use and Attitude all support the model. **Conclusions:** This study has a relevant role in promoting the service of Chaoxing platform and the improvement of related technologies.

Keywords: Vocal music, Perceived ease of use, Perceived usefulness, Attitude, Behavioral intention

JEL Classification Code: E44, F31, F37, G15

1. Introduction

Online course learning was introduced in the United States in 1981 (Mclsaac & Gunawardena, 1996). With the development of The Times, more and more schools need the support of technology to learn more knowledge, so online courses have been more extensive and rapid development (Mclsaac & Gunawardena, 1996). The model of the

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education system is moving in the direction of mobile learning, which leaves the interaction between users and educational materials and services, mainly on mobile devices, without clear time or place limits (Alzaza & Yaakub, 2011). At present, teaching technology has changed the teaching mode. Information technology has evolved to support global communications, and the tools used are becoming increasingly advanced (Gilbert & Green, 1994). Wong (2016) points out that technology has had a positive impact on teaching and learning and has been applied for many years.

In this process, the Chaoxing learning platform has been widely used in domestic universities. At present, the impact of the COVID-19 epidemic on offline teaching in Chinese universities has been basically eliminated, and the mandatory requirements for online teaching have been cancelled by the authorities. In the post-epidemic period, whether the online teaching platform can continue to be widely used by teachers and students, and what are the main factors affecting the willingness of college students to continue to use the Chaoxing learning platform after teachers and students have more in-depth application of the learning platform, is an important content of the next stage of teaching research in colleges and universities.

As a learning method that keeps pace with The Times, online learning can provide many solutions for teaching innovation and educational reform. However, due to the limitations of online learning supporting environment, online learning resources, learners' autonomous learning ability and other factors, the willingness to use may still be affected to some extent.

1.1 Objectives of this Research

The main purpose of this study is to determine the factors impacting the Behavioral Intention of vocal music undergraduates on Chaoxing learning platform in Hunan Province. It includes Teacher Support, Perceived Enjoyment, Self-Efficacy, Perceived Ease of Use, perceived usefulness, Attitude and Behavioral Intention.

1.2 Conceptual Framework

In the process of forming the conceptual framework of this study, researchers reviewed previous literature and models, as shown in Figure 1. Based on TAM model. Huang et al. (2007) studied the significant relationship between Perceived Enjoyment (PE) and behavioral intention (BI). Bag et al. (2020) studied the significant influence of self-efficacy (SE) on behavioral intention (BI). Cheng et al. (2019) found that Teacher Support (TS), Perceived Ease of Use (PEOU), Perceived Usefulness (PU) and Attitude (ATT) had a supporting relationship with behavioral intention (BI).

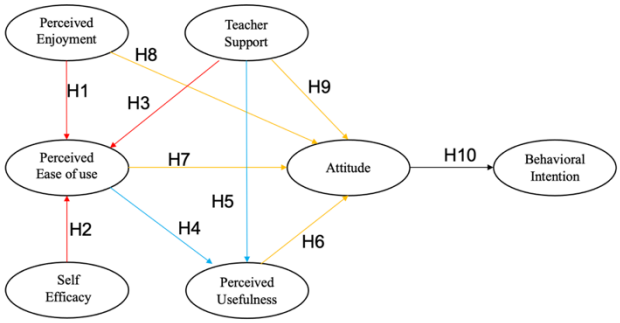

Figure 1: Conceptual Framework
Source: Created by the author

1.3 Significance of the Study

The significance of this study will be the vocal music students, teachers and technology developers in Hunan.

Through investigation and data analysis, the researcher understands the factors influence that affect the behavioral intention of vocal music majors in Hunan province to use Chaoxing Learning platform, so that the technology developers can better understand the needs and usage habits of the audience. At the same time, adjustments are made according to the particularity of vocal music students to meet the learning needs of students and teachers, so as to better use the Chaoxing Learning Platform for teaching activities.

2. Literature Review

2.1 Perceived Enjoyment

Enjoyment is a commonly used concept to evaluate an individual's hedonic experience. Enjoyment is considered a single dimensional structure and is assessed as a form of pleasure or excitement derived from performing an activity (Pe-Than et al., 2015; Wu & Liu, 2007; Wu et al., 2010). Literature on technology acceptance types shows that perceived enjoyment is a significant predictor of behavioral intention (Huang et al., 2007). Hedonic motivation has a strong influence on behavioral intention (Khoi et al., 2018; Madan & Yadav, 2018).

H1: Perceived enjoyment has significant impact on Perceived ease of use

H8: Perceived enjoyment has significant influence on Attitude

2.2 Self Efficacy

Self-efficacy can be defined as “a person’s belief in someone’s ability to succeed in a given situation”, it’s also referring to an individual's degree of confidence in somebody’s ability to perform a given behavior (Bandura, 1982). Bandura (1977) defined self-efficacy as "believing oneself to have the organizational and executive ability to meet future challenges". Self-efficacy is a kind of power and function in self-motivation (Kankanhalli et al., 2005). Under the influence of self-efficacy, Albion (2001) believes that self-efficacy is crucial when teachers use technology in class, and students will have strong self-motivation. Teachers' positive attitude towards e-learning will affect many variables. Liaw et al. (2007) found in the study that self-efficacy, enjoyment and usefulness, and behavioral intention to use were all affected by self-efficacy.

H2: Self-Efficacy has significant influence on Perceived ease of use

2.3 Teacher Support

Teacher support can be defined as broad support and narrow support. Based on the social support framework, teacher support is defined in a broad sense as the provision of information, instrumental, emotional, or evaluative support by teachers to students in any environment, including the classroom environment (Tardy, 1985). Teacher support can enhance relationships between teacher and student, and students often feedback this care and respect by following classroom norms (Chiu & Chow, 2011; Lei et al., 2018; Longobardi et al., 2016). Conversely, when teachers yell at students, accuse them, or punish them roughly, these students tend to show less concern for their teachers and less cooperative classroom behavior (Lei et al., 2018; Miller et al., 2000).

H3: Teacher support has significant influence on Perceived ease of use

H5: Teacher support has significant influence on Perceived usefulness

H9: Teacher support has significant influence on Attitude

2.4 Perceived Ease of Use

Davis (1989) thought that "perceived ease of use" refers to the degree to which individuals expect new technologies to be effortless and uncomplicated. Just like Poon (2008); Wang et al. (2003); Agarwal and Karahanna (2000) all proposed in their respective studies the importance and positive impact of supporting perceived ease of use on willingness to use new systems. Perceived ease of use has been shown to be a determinant of behavioral intention to use new technology (Davis, 1989). If a new technology is simple and easy to use, people will want to use it much more than other system (Chang et al., 2005). Robey and Farrow (1982) point out that if people find a system is easy to use, they will think it’s useful.

H4: Perceived Ease of Use has significant influence on Perceived Usefulness

H7: Perceived Ease of Use has significant influence on Attitude

2.5 Perceived Usefulness

Perceived usefulness refers to the degree to which one believes that adapting to and using a particular technology will improve one's job performance (Davis, 1989), and it will affect one's willingness to use the new technology. Lin. C and Lin. M (2019) believe that perceived usefulness refers to system users who believe that they will get better results by using services. Gefen et al. (2003); Venkatesh and Davis (2000); Igbaria et al., (1997) proposed a strong link between perceived usefulness and the adaptation of new technology in different contexts, such as e-banking technology, e-commerce and so on. In fact, perceived usefulness has a strong positive and significant effect on behavioral intention to use Google classroom (Al-Maroof & Al-Emran, 2018).

H6: Perceived usefulness has significant influence on Attitude

2.7 Work Life Quality

Work life quality (WLQ) refers to people’s perception that the use of certain technology in Work or life will improve their efficiency (Samsudeen & Mohamed, 2019). Although many studies (Kripanont, 2007; Tarhini et al., 2017) investigated the importance of Work life quality, and few studies focused on the field of online learning platform (Tarhini et al., 2017). The study of Samsudeen and Mohamed (2019) replaces price values and habits with Work life quality and Internet experience.

H7: Work life quality has significant influence on Behavioral intention

2.8 Attitude

Attitude to use is defined as the user's evaluation of likes and dislikes for certain stimulating behaviors (Fishbein & Ajzen, 1975). Attitude is a psychological tendency expressed by subjectively evaluating an object to a certain degree of advantage or disadvantage (Eagly & Chaiken, 1993). Giles and Coupland (1991) point out that attitude refers to a response to experience that is related to a person's point of view, state of mind, and spontaneous beliefs about service. Based on TAM's research, Davis (1989) found that

consumers' overall attitude to use is a prerequisite for the adoption of information technology systems. Many studies and data show that the attitude of using the system has a positive impact on the use behavior (Wu & Liu, 2007). Lin (2007) found that people's attitude towards use would affect their behavioral intention.

H8: Attitude has significant influence on Behavioral intention

2.9 Behavioral Intention

Ajzen (1991) believes that human behavioral intention is a feeling, that is, the user's preparation for a certain behavior, and the possibility that a person will choose such a technology (Ajzen & Fishbein, 1980). Davis (1993) believed that a person's attitude to something depends on his intention to some special behavior and is one of the important constructs to predict human behavior. As Klobas (1995) proposed, a person's attitude can predict his intention to act. Research shows that people's attitude can affect people's behavioral intention. According to the theory of rational behavior, a person's behavioral intention will be affected by his attitude towards things (Ajzen & Fishbein, 1980).

3. Research Methods and Materials

3.1 Research Methodology

This is a quantitative study, which uses survey to collect sample data through a set of questionnaires to explore the factors influencing the Behavioral Intention of using mobile learning for vocal music majors in university. The questionnaire is made by online questionnaire of Kingsoft Form, which is convenient for data distribution and collection. The questionnaire is divided into three sections and questions are screened to determine the qualifications of the respondents. Demographic information, including gender and age. Items were measured on a five-point Likert scale, with 1 indicating strong disagreement and 5 indicating strong agreement.

Three experts were invited to complete the item-objective congruence (IOC) content validity index. The scores of the items in the scale were all above 0.67, and the results showed that they were acceptable. For the pilot test reliability assessment, 30 respondents with characteristics similar to those of the actual study respondents were invited. Cronbach's Alpha data showed that the scores of all items on the scale were above 0.70. To collect data for this study, 500 undergraduate students from five universities were invited to complete questionnaires. In this study, JAMOVI was used to analyze descriptive statistics and AMOS was used as a statistical tool to test confirmatory factor analysis (CFA) and structural equation model (SEM).

3.2 Population and Sample Size

The researcher chose the five universities because they were representative. First, the five universities are in Changsha, Hunan Province, China. Secondly, these universities have music majors and a considerable number of students majoring in vocal music. Third, they all have some vocal music students who have applied mobile learning. Fourthly, these universities have been established for more than 20 years. According to Soper (n.d.) algorithm, the recommended minimum sample size is 425.

Through purposive sampling and stratified random sampling, 500 students were selected from above 3000 students as the final sample.

3.3 Sampling Techniques

The sampling process consists of several steps. First, the researchers used a purposeful sampling method to select about 3,000 vocal music majors from five public universities in Changsha, China, who had at least one month of experience in chaoxing learning platform. Using stratified sampling, a total of 500 students were randomly selected proportionally from each university. In order to facilitate sampling, questionnaires were distributed online through the Kingsoft form platform.

Table 1: Sample Units and Sample Size

Target Public Universities	Population Size Total = 3620	Proportional Sample Unit Size Total = 500
University A	800	110
University B	200	28
University C	320	44
University D	1000	138
University E	1300	180
Total	3620	500

Source: Created by the author.

4. Results and Discussion

4.1 Demographic Information

The data were distributed among students majoring in music in five universities of Hunan. For these students, there were 126 males and 374 females, accounting for 25.2% and 74.8%, respectively. And there were 168 freshmen, 176 sophomores and 156 juniors, accounting for 33.6%, 35.2% and 31.2% respectively.

4.2 Confirmatory Factor Analysis (CFA)

Confirmatory factor analysis (CFA) is used to evaluate the measurement model, analyze the reliability and validity of the variables, and determine whether the structure and load of each observed variable are consistent with the hypothesis (Malhotra et al., 2017). According to the research results of Hair et al. (2013), this study adopted the average variance extraction (AVE) measure to investigate the convergence effectiveness, and the minimum acceptable value of AVE is 0.50.

The structural numbers and factor loading of 28 observed variables were verified using CFA. The measurement model was adjusted to 2.955 the chi-square value to degrees of freedom (CMIN/DF), the Goodness of Fit index (GFI) was 0.880, the adjusted Goodness of Fit index (AGFI) was 0.852, the normalized fit index (NFI) was 0.945, and the Tucke-Lewis Index (TLI) was 0.957. The comparative fitting index (CFI) was 0.963. The approximate root means square error (RMSEA) is 0.063. As a result, the results present an acceptable model fit status in the CFA. According to the CFA statistical results summarized in Table 2, when Cronbach's Alpha value is greater than 0.70, factor load is greater than 0.30, p value was less than 0.05, compound reliability (CR) was greater than 0.70, and AVE was greater than 0.50, All values are accepted (Fornell & Larcker, 1981).

Table 2:Confirmatory Factor Analysis Result, Composite Reliability (CR) and Average Variance Extracted (AVE)

Laten Variable	Source of Questionnaire	No. of Items	Cronbach's Alpha	Factor Loadings	CR	AVE
Self-Efficacy	Bag et al. (2020)	3	0.917	0.815~0.886	0.891	0.732
Perceived Enjoyment	Huang et al. (2007)	3	0.972	0.860~0.884	0.909	0.769
Teacher Support	Cheng et al. (2019)	4	0.986	0.845~0.879	0.924	0.851
Perceived Ease of Use	Cheng et al. (2019)	7	0.967	0.858~0.894	0.959	0.857
Perceived Usefulness	Cheng et al. (2019)	4	0.992	0.861~0.879	0.926	0.851
Attitude	Cheng et al. (2019)	4	0.990	0.895~0.905	0.944	0.810
Behavioral Intention	Huang et al. (2007)	3	0.988	0.879~0.902	0.920	0.792

When CR value is higher than AVE, the convergence validity of the model is determined, and when AVE value is higher than 0.50, the convergence validity is defined as meeting the requirements (Hair et al., 2007). The discriminant validity has been tested and demonstrated and exceeds the critical value. As shown in Table 3, based on the research basis of Fornell and Larcker (1981), the convergence validity and discriminative validity of this study meet the requirements, and the discriminative validity value has been tested and demonstrated, exceeding the critical value (Fornell & Larcker, 1981).

Table 3: Discriminant Validity

	SE	PE	TS	PEOU	PU	ATT	BI
SE	**0.855**						
PE	0.792	**0.876**					
TS	0.774	0.851	**0.922**				
PEOU	0.783	0.875	0.920	**0.926**			
PU	0.774	0.843	0.891	0.924	**0.923**		
ATT	0.755	0.833	0.881	0.914	0.922	**0.900**	
BI	0.751	0.803	0.860	0.885	0.894	0.873	**0.889**

Note: The diagonally listed value is the AVE square roots of the variables
Source: Created by the author

4.3 Structural Equation Model (SEM)

In this study, two methods, CFA and SEM, were used to verify the degree of fit between variables. The CFA method is used to verify the degree of fit between variables, and then the structural equation model (SEM) is used to estimate and verify the fit of the model. The results adjusted by the IBM AMOS statistical program included all the values of CMIN/DF, GFI, AGFI, CFI, TLI and RMSEA, and all the indicators of goodness of fit in this study were satisfactory (see Table 4).

Table4: Goodness of Fit for Structural Model

Index	Criterion	Source	After Adjustment Values
CMIN/DF	≤5.0	Awang (2012)	2.649
GFI	≥0.85	Sica and Ghisi (2007)	0.893
AGFI	≥0.80	Sica and Ghisi (2007)	0.867
NFI	≥0.80	Wu et al. (2006)	0.951
TLI	≥0.80	Bentler (1990)	0.964
CFI	≥0.80	Sharma et al. (2005)	0.969
RMSEA	≤0.08	Pedroso et al. (2016)	0.057

Source: Created by the author.

4.4 Research Hypothesis Testing Result

Regression weights and R2 variance were used to calculate the significance of each variable. Table 5 shows the calculation results of each structure path.

Perceived Ease of Use had the strongest impact on Perceived Usefulness, with the standardized path coefficient (β) result of 0.982 (t-value = 14.045*).

Attitude significantly impacted Behavioral Intention, with β as 0.701 (t-value = 8.941*).

Teacher Support significantly impacted Perceived Ease of Use, with β as 0.615 (t-value = 21.006*).

Perceived Enjoyment significantly impacted Perceived Ease of Use, with β as 0.279 (t-value = 14.894*).

Perceived Ease of Use significantly impacted Attitude, with β as 0.187 (t-value = 7.390*).

Perceived Usefulness significantly impacted Attitude, with β as 0.141 (t-value = 4.994*).

Self-Efficacy significantly impacted Perceived Ease of Use with β as 0.103 (t-value = 6.728*).

Teacher Support had no significant impact on Perceived Usefulness, with β as 0.024 (t-value = 0.616).

Teacher Support had no significant impact on Attitude, with β as 0.023 (t-value = 0.370).

Perceived Enjoyment had no significant impact on Attitude, with β as -0.002 (t-value = -0.085).

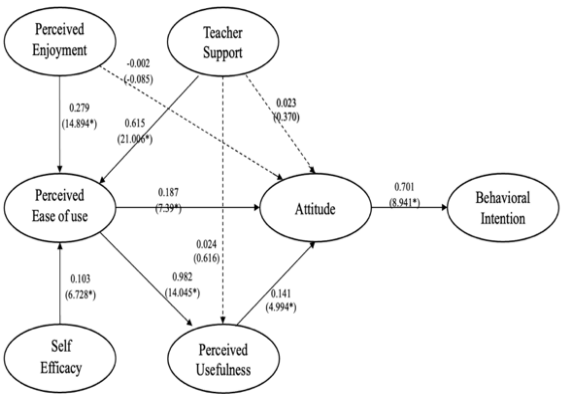

Figure 2: Structural Equation Model (SEM) Note: * p<0.05
Source: Created by the author

Table 5: Hypothesis Result of the Structural Equation Modelling

Hypothesis	Paths	Standardized Path Coefficient(β)	t-Value	Tests Result
H1	PE→ PEOU	0.279	14.894*	Supported
H2	SE→ PEOU	0.103	6.728*	Supported
H3	TS→ PEOU	0.615	21.006*	Supported
H4	PEOU→ PU	0.982	14.045*	Supported
H5	TS→ PU	0.024	0.616	Not Supported
H6	PU→ ATT	0.141	4.994*	Supported
H7	PEOU→ ATT	0.187	7.390*	Supported
H8	PE→ ATT	-0.002	-0.085	Not Supported
H9	TS→ ATT	0.023	0.370	Not Supported
H10	ATT→BI	0.701	8.941*	Supported

Source: Created by the author
Note: *p<0.05

Based on the information in Figure 2 and Table 5, it might be able to obtain the following analysis.

Strongest influence on Perceived Ease of Use is Perceived Usefulness. Path relationship of Perceived Ease of Use and Perceived Usefulness has standardized path coefficient of 0.982, and t-value at 14.045 in H4. Attitude has significant influence on Behavioral Intention with standardized path coefficient of 0.701 and t-value at 8.941 in H10. Teacher Support has significant influence on Perceived Ease of Use with standardized path coefficient of 0.615 and t-value at 21.006 in H3. Perceived Enjoyment has significant impact on Perceived Ease of Use with standardized path coefficient of 0.279 and t-value at 14.894 in H1. Perceived Ease of Use has significant influence on Attitude with standardized path coefficient of 0.187 and t-value at 7.39 in H7. Perceived Usefulness has significant influence on Attitude with standardized path coefficient of 0.141 and t-value at 4.994 in H6. Self-Efficacy has significant influence on Perceived Ease of Use with standardized path coefficient of 0.103 and t-value at 6.728 in H2. All these testing results were supported.

Teacher Support was not found significant influence on Perceived Usefulness at standardized path coefficient of 0.024 and t-value at 0.616 in H5, also teacher support was not showing the significant influence on Attitude at standardized path coefficient of 0.023 and t-value at 0.370 in H9. Perceived Enjoyment didn't support on Attitude at standardized path coefficient of -0.002 and t-value at -0.085 in H8. It was not supported.

5. Conclusions

5.1 Conclusion

This quantitative scientific investigation identifies the factors impacting university majoring in vocal music students' behavioral intention to Chaoxing learning platform in Hunan conducted online training for college students with relevant professional knowledge and collected a total of 500 valid questionnaires. The proposed conceptual matrix is constructed using the TAM model and previous existing investigations. Perceived ease of use, perceived usefulness, attitude, Perceived Enjoyment, Self-Efficacy and Teacher Support are characteristics of potential variables. The

internal consistency reliability, convergence validity and discriminant validity of JAMOVI 2.2.5 and AMOS 26 were evaluated using data validation methods such as confirmatory factor analysis. In addition, structural equation models were used to evaluate all hypotheses, which validated important determinants of Behavioral Intention for this study. In the measurement and structural models, multiple evaluation methods are used here. A comparative critical ratio assessment of the parameter prediction was also performed to measure the path variability generated by various latent variables.

5.2 Recommendation

According to the actual conditions and limitations of this research, the researcher put forward some of suggestions for further research. Previously, the population scope of this research was limited to a few universities with vocal music major's students in Hunan Province, and only for undergraduate students. If possible, in future studies, it is suggested that the scope of the supplementary survey be expanded to other parts of China, where the universities have prominent arts majors and more master's or doctoral degree candidates. To produce more complete examination results.

In addition, with the development of increasing integration of technology into teaching, researcher can add other potential variables according to the actual situation, providing a basis for the subsequent quantitative test.

5.3 Limitation

Due to the limitations of time and region, this study is only conducted for vocal music students in Hunan, so it can only represent the influential factors in Hunan, and other regions can only be used as a reference. Due to the limitation of research time and research area, the research time is short. The number of samples is subject to certain limitations, and the target population samples obtained through a series of sampling methods may lead to the problem of underrepresentation of the research.

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