

PREDICTORS OF STUDENTS' BEHAVIORAL INTENTION OF ONLINE ART APPRECIATION COURSES IN PUBLIC UNIVERSITIES IN CHENGDU, CHINA

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Abstract

The purpose of this study is to explore the key predictors of the behavior intention of online art appreciation courses among undergraduates in three public universities in Chengdu, China. Perceived ease of use, perceived usefulness, performance expectancy, perceived satisfaction, effort expectancy, attitude towards use and behavioral intention were associated in a research framework. The researchers employed a quantitative method to distribute surveys to 498 participants. The sampling techniques were judgmental, quota and convenience samplings. Item Objective Congruence (IOC) Index and Cronbach's Alpha were approved before the data collection. Confirmatory Factor Analysis (CFA) and Structural Equation Model (SEM) were utilized for quantitative analysis, which include goodness of model fits, validity, and reliability tests. Most hypotheses were supported, except the relationship between effort expectancy and behavioral intention. Therefore, education managers are recommended to identify the main contributors to design effective online learning system and contents, so as to improve students' behavioral intention.

Keywords: Online education, Perceived satisfaction, Effort expectancy, Attitude towards use, Behavioral intention.

Introduction

China's online education has gradually developed at the end of the 20th century. It had been faced several limitations such as ineffective network bandwidth and the limited use of home computers. With the growth of Internet penetration rate in China, online education has increasingly gained acceptance in the education sector. In 2020, COVID-19 tremendously impacted schools across the country to launch online education. Currently, the Ministry of education in China has established 22 online learning platforms with more than 2.4 million online courses (Gu & Li, 2022). Since then, the advantages of online education such as accessibility, convenience and flexibility have encouraged education sector in China to invest more in hardware and software infrastructures (Hochberg, 2006).

In Chengdu, a city has over 20 million residents including 3.3 million students in campus who were disrupted by the pandemic and had to shift to online courses. Even though online education offers benefits during the closure of physical campuses, most students have not yet fully adopted online learning effectively. With the continuous spread of COVID19, online education is extremely required further development to ensure the best learning experience and performance of students. This quantitative research is essential to examine the mechanisms of behavioral intention in determining whether students embrace online learning courses in a psychological level which can contribute significant knowledge to online learning system developers and education managers in a strategic level.

Objectives of the Study

- a) To investigate the influencing factors of behavior intention to adopt online art appreciation courses of undergraduates in three public colleges in Chengdu, China.
- b) To test the correlation between perceived ease of use, perceived usefulness, performance expectancy, perceived satisfaction, effort expectancy, attitude towards using and behavioral intention.
- c) To put forward recommendations for improving the implementation of online education to optimize students' academic performance.

Research Framework

The conceptual framework was developed by literature reviews of two main theories, which are the technology acceptance model (TAM) and the unified theory of acceptance and use of technology (UTUAT) model. Three empirical studies were used to

construct a research model, including Bardakci (2019), Fokides (2017), and Cigdem and Öztürk (2016). The conceptual framework of this study is graphed in Figure 1.

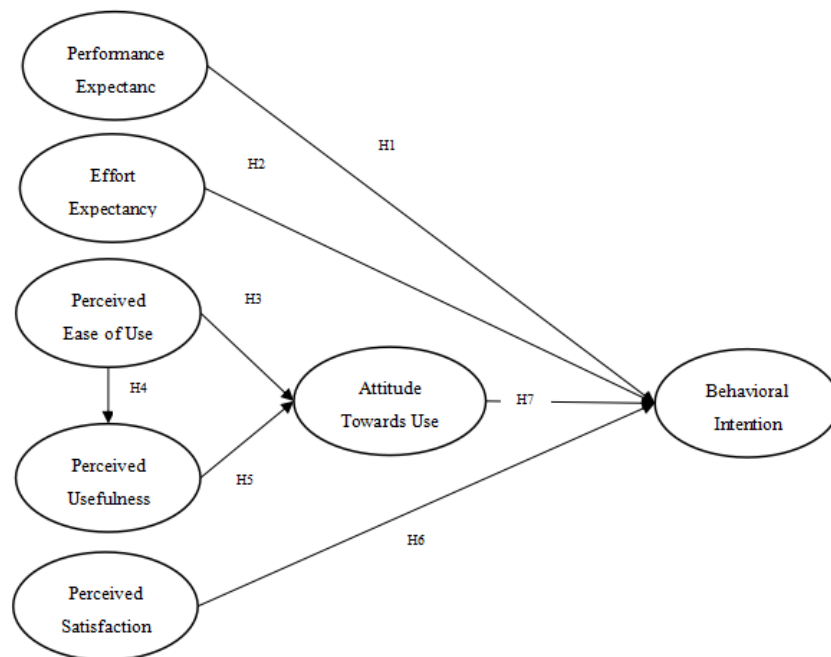


Figure 1 Conceptual Framework

Significance of the Study

Online education has been accelerated globally due to the pandemic. Online art appreciation courses are unique because it requires action learning and physical interaction. Higher education institutes need to find ways to ensure online education and practices that can respond the needs of students, and they are able to maximize their learning effectiveness. Therefore, this study contributes to enhance knowledge for the online course designers and education managers to emphasize on predictors of behavioral intention to adopt online courses.

Literature Review

1. Performance Expectancy

Performance expectancy refers to how much work an individual anticipates to complete a job (Isaac et al, 2001). The UTATU model contains performance expectancy as a key variable to predict behavioral intention to adopt a system technology (Liestiwati & Agustina, 2018). In this study, performance expectancy can be explained that students expect

the benefits and advantages of using online learning, which promotes their behavioral intention to adopt such learning format (Diep et al., 2016). Hence, a hypothesis is proposed:

H1: Performance expectancy has a significant influence on behavioral intention.

2. Effort Expectancy

Effort expectancy is a component of UTAUT model, which reflects the ease and comfort with the use of a technology (Venkatesh et al., 2003). It also demonstrates students' understanding of how to use and benefits of online learning. (Ssekakubo et al., 2011). Effort expectancy is described as the degree of ease associated with using certain learning methods of students, which can impact their behavioral intentions to use it (Onaolapo & Oyewole, 2018). This characteristic is also crucial in determining whether people intend to use information technology in their daily lives (Teo & Noyes, 2014). Therefore, the following hypothesis is proposed.

H2: Effort expectancy has a significant influence on behavioral intention.

3. Perceived Ease of Use

Perceived ease of use, a TAM variable, is the degree to which a university student who uses online education system and anticipate its effortless, efficiency and convenience (Neo et al., 2015). The study determines perceived ease of use is when a student feels online art appreciation course system is simple and effective (Rui-Hsin & Lin, 2017). Students' attitude and perceived usefulness of online learning are significantly driven by perceived ease of use (Elkaseh et al., 2016). It also reflects the motivation of learners as well as the learning outcomes from employing e-learning technology (Vululleh, 2018). From the above discussions, this study suggests below hypotheses.

H3: Perceived ease of use has a significant influence on attitude towards use.

H4: Perceived ease of use has a significant influence on perceived usefulness.

4. Perceived Usefulness

According to Davis et al. (1989), perceived usefulness refers to people's conviction that using this technology will improve their work efficiency and performance. It can be extended to the degree to which people believe that using technology can help them get meaningful results. Perceived usefulness is a significant factor in TAM and is evidenced to have a significant influence on a user's attitude towards using a technology (Celik & Yesilyurt, 2013). Teo (2009) posted that perceived usefulness of students can promote their positive attitude towards using online learning. Based on the above assumptions, the following hypothesis is

recommended:

H5: Perceived usefulness has a significant influence on attitude towards use.

5. Perceived Satisfaction

Perceived satisfaction is a summation of the cognitive and emotional responses to product or service experience. A consumer's happiness with a product or service in relation to its pricing, benefits, and use experience is characterized as perceived satisfaction (Oliver, 1999). Perceived satisfaction is identified as a crucial component influencing students' behavioral intention to use online learning (Drury et al., 2003). People's behavioral intentions with a positive attitude are impacted by their level of satisfaction (Lee & Lin, 2005). Consequently, a hypothesis is projected:

H6: Perceived satisfaction has a significant influence on behavioral intention.

6. Attitude Towards Use

An individual's attitude toward usage is a psychological intention toward a specific object or system. According to Ajzen (1991), students' learning motivation is an emotional domain that is cultivated by their attitude towards using online learning system (Bahjat, 2018). The way a student feels about using online learning system is a key indicator of his or her behavioral intention (Golnaz et al., 2010). Students' attitudes can determine whether they will adopt online art appreciation courses (Celik & Yesilyurt, 2013). In TAM, perceived ease of use and perceived ease of use can determine attitude towards using (Nagy, 2018). Hence, it is possible to test this hypothesis:

H7: Attitude towards use has a significant influence on behavioral intention.

7. Behavioral Intention

TAM is the first theoretical foundation to explain users' behavioral intentions to use a system technology (Ajzen, 1991). One's readiness to adopt a new technology has a direct impact on his or her behavioral intention to use. The intention of an individual for an action or behavior is referred to behavioral intention (Davis et al., 1989). Behavioral intention is taken from a psychology theory that focuses on completed action and explains why people adopt a certain system (Chauhan, 2015). The cognitive presentation of an individual's decision to use a certain system is described as behavioral intention (Asadi et al., 2016; Kitcharoen & Vongurai, 2021).

Research Methodology

Nonprobability sampling approach was used to distribute questionnaires to art undergraduates of three universities which are Sichuan Conservatory of music (SCM), Sichuan University (SCU) and Chengdu University (CDU). There are three parts in a questionnaire, which are screening questions, demographic profiles, and a five-point Likert scale. Before the collection of the data, the Item Objective Congruence (IOC) Index and Cronbach's Alpha were used to approve measuring items and constructs' reliability. For IOC, three experts with doctoral degree and education managers were invited to validate contents, resulting with all items were reserved at a score 0.67 or above. Cronbach's Alpha was used in the pilot test of 30 respondents (Clark-Carter, 2010). As a result of internal consistency reliability, all seven constructs were approved at a score of 0.7 or above (Nunnally & Bernstein, 1994).

1. Population and Sample Size

The target population is art undergraduate students from three public universities in Chengdu. These universities were selected based on common characteristics which are public universities and emphasis on online learning for students. In terms of sample size, Israel (1992) pointed out that the minimum sample size of the complex framework in the structural equation model should be at least 200 samples. The judgmental sampling and quota sampling determined 498 students from a total of 1,700 students.

2. Sampling Technique

The researchers adopted three sampling techniques to achieve research objectives. Initially, the researchers used the judgmental sampling method to identify 1,700 undergraduate students who have been attending online art appreciation courses at least one month in three universities in Chengdu, China. Next, 498 participants were identified per the application of quota sampling. Finally, convenience sampling was employed to distribute paper-based surveys via student administration offices and online questionnaires via internal mail, universities' websites and chat applications

Results and Discussion

1. Demographic Information

The demographic information of 498 respondents in Chengdu includes 36.20% of males, and 63.80% of females. In terms of universities, Sichuan Conservatory of music accounts for 39%, followed by Sichuan University (31.%), and Chengdu University (30%). For year of study,

sophomores are 26%, following with freshmen (24%), juniors (25%), and seniors (25%). In major selection, a large number of students select hand painting of 37.40%, followed by 29.70% of art management, 18.40% of the students do not yet determine their major, 8.70% of art planning, and 5.80% of art evaluation.

2. Confirmatory Factor Analysis (CFA)

Confirmatory factor analysis (CFA) is used to verify the measurement model by SPSS AMOS. The statistical results summarized in Table 1 shows Cronbach's Alpha values of greater than 0.80, factor loading of greater than 0.30, t value of greater than 1.98, p-value of less than 0.50, composite reliability (CR) of greater than 0.70, and average variance extraction (AVE) of greater than 0.50 (Hair et al., 2006). Consequently, all estimates are approved. When CR value is greater than AVE value of greater than 0.50, convergence validity is determined (Hair et al., 2009). The discriminant validity exceeds the critical value as of Table 2. Thus, the convergent validity and discriminant validity of this study are ensured. In addition, results of the goodness of fits in CFA testing were acceptable, including CMIN/DF, GFI, AGFI, NFI, CFI, TLI and RMSEA as shown in Table 3.

Table 1: Confirmatory Factor Analysis Result, Composite Reliability (CR) and Average Variance Extracted (AVE)

Latent Variables	Source of Questionnaire	No. of Items	Cronbach's Alpha	Factors Loading	CR	AVE
Performance Expectancy (PE)	Bardakci (2019)	5	0.895	0.544-0.906	0.885	0.616
Effort Expectancy (EE)	Bardakci (2019)	3	0.901	0.819-0.874	0.883	0.715
Perceived Ease of Use (PEOU)	Fokides (2017)	5	0.861	0.519-0.929	0.860	0.565
Perceived Usefulness (PU)	Fokides (2017)	5	0.871	0.515-0.923	0.876	0.596
Perceived Satisfaction (PS)	Cigdem and Öztürk (2016)	4	0.878	0.602-0.948	0.872	0.638
Attitude Towards Use (ATU)	Fokides (2017)	5	0.911	0.535-0.875	0.868	0.578
Behavioral Intention (BI)	Bardakci (2019)	3	0.915	0.768-0.855	0.854	0.662

Source: Created by the author.

Table 2: Discriminant Validity

	PEOU	PU	PS	PE	EE	ATU	BI
PEOU	0.752						
PU	0.436	0.722					
PS	0.357	0.312	0.799				
PE	0.330	0.365	0.360	0.785			
EE	0.314	0.333	0.277	0.275	0.856		
ATU	0.347	0.379	0.251	0.276	0.328	0.760	
BI	0.381	0.328	0.251	0.298	0.225	0.221	0.814

Note: The diagonally listed value is the AVE square roots of the variables

3. Structural Equation Model (SEM)

After the CFA process, a structural equation model (SEM) is used to estimate a specific set of linear equations and verify the model fit. In addition, SEM determines the causal relationship between each variable in a specific matrix and includes the estimation error of the corresponding coefficient (Jaruanakul, 2021). The adjusted structural model shows the fit value in Table 4, including CMIN/DF, GFI, AGFI, NFI, CFI, TLI and RMSEA.

Table 3: Goodness of Fit for Measurement and Structural Model

Fit Index	Acceptable Criteria	Source	Measurement Model	Structural Model (Adjusted Model)
CMIN/DF	< 5.00	(Awang, 2012)	1.122	3.021
GFI	≥ 0.85	(Sica & Ghisi, 2007)	0.941	0.850
AGFI	≥ 0.80	(Sica & Ghisi, 2007)	0.929	0.822
NFI	≥ 0.80	(Wu & Wang, 2006)	0.950	0.879
CFI	≥ 0.80	(Bentler, 1990)	0.994	0.915
TLI	≥ 0.80	(Sharma et al., 2005)	0.915	0.905
RMSEA	< 0.08	(Pedroso et. al., 2016)	0.016	0.064

Note: CMIN/DF = The ratio of the Chi-square value to degree of freedom, GFI = Goodness-of-fit index, AGFI = Adjusted goodness-of-fit index, NFI = Normed fit index, CFI = Comparative fit index, TLI = Tucker-Lewis index, and RMSEA = Root mean square error of approximation.

4. Hypothesis Testing Result

The hypothesis results of the structural equation model reflect in standardized path coefficient (β) and t-value with the significant value criterion of $p < 0.05$ to confirm a structural pathway as exhibited in Table 4

Table 4: Hypothesis Results of the Structural Equation Model

Hypothesis	(β)	S.E.	t-value	Result
H1: PE $\rightarrow$ BI	0.241	0.083	4.733***	Supported
H2: EE $\rightarrow$ BI	0.089	0.055	1.819	Not Supported
H3: PEOU $\rightarrow$ ATU	0.199	0.098	3.990***	Supported
H4: PEOU $\rightarrow$ PU	0.355	0.068	6.138***	Supported
H5: PU $\rightarrow$ ATU	0.332	0.092	6.001***	Supported
H6: PS $\rightarrow$ BI	0.159	0.076	3.275**	Supported
H7: ATU $\rightarrow$ BI	0.143	0.051	2.963**	Supported

Note: *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

Source: Created by the author

Based on the results in Table 4, the following extensions can be obtained.

H1 confirms the relationship between performance expectancy and behavioral intention, with a standardized path coefficient value of 0.241 (t-value = 4.733***).

H2 signifies that effort expectancy has no significant influence on behavioral intention as the result does not meet the standard of p-value < 0.05 and with a standardized path coefficient value of 0.089 (t-value = 1.819).

H3 affirms that perceived ease of use is a predictor of attitude towards use, with a standardized path coefficient value of 0.199 (t-value = 3.990***).

In H4, statistical results support that perceived ease of use has a significant influence on perceived usefulness, with a standardized path coefficient value of 0.335 (t-value = 6.138***).

For H5, perceived usefulness has a significant influence on attitude towards use, with a standardized path coefficient value of 0.332 (t-value = 6.001***).

H6 denotes perceived satisfaction significantly influences behavioral intention, with a standardized path coefficient value of 0.159 (t-value = 3.275**).

H7 supports the relationship between attitude towards use and behavioral intention, with a standardized path coefficient value of 0.143 (t-value = 2.963**).

Conclusions, Recommendations, Limitations and Future Research

1. Conclusions

This paper verifies the predictors of behavior intention to adopt online art appreciation learning of art undergraduates in three public universities in Chengdu, China. The conceptual framework contains key variables to examine hypotheses. The results show that perceived ease of use has the most significant influence on college students' perceived usefulness of online art appreciation courses. Perceived ease of use and perceived usefulness are also significantly related to attitude towards use. The results are consistent with previous studies that students tend to have positive attitude towards using an online learning when it is simple and beneficial (Elkaseh, et al., 2016; Neo et al., 2015). It also reflects the behavioral intentions of students are predicted by performance expectancy, perceived satisfaction and attitude towards use (Vululleh, 2018; Rui-Hsin & Lin, 2017). In opposite, effort expectancy has no significant influence on behavioral intention, which contradicted with many scholars (Ssekakubo et al., 2011; Onaolapo & Oyewole, 2018; Teo & Noyes, 2014). It can be assumed that students are forced to push their own effort to use online learning for the course completion per required by an academic policy.

2. Recommendations

The results suggested that the behavior intentions of students to engage online art appreciation courses should be addressed among academic researchers and education managers. The design of online art appreciation course should be improved and reformed to help students to optimize their learning performance. Perceived ease of use, perceived usefulness, performance expectancy, perceived satisfaction, effort expectancy, and attitude towards use of online art appreciation are key predictors of students' behavioral intentions, which online course designers need to focus to develop the system accordingly. Art students have special psychological expectations and certain educational experience background, which online learning can partially serve their expectation as it is evidenced that effort expectancy has no impact on their behavioral intention.

3. Limitations and Future Research

There are several limitations in this research. Firstly, the selection of population and

sample is only among three public universities in Chengdu, China. Therefore, future researchers can consider to expand the research scope to other regions in China. Secondly, potential variables such as trust, social influence, facilitating conditions and usage behavior could be used. Finally, this quantitative study cannot determine clearly implications and interpretations of the findings. Hence, qualitative study should be accounted to compare results.

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