

Factors influencing students' learning willingness in online art classroom of Chengdu Private University

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Abstract

In this study, students majoring in art design who participated in online art classes in Chengdu Private University were selected as research objects to study the factors influencing students' willingness to learn behavior. The factors studied in conceptual framework included perceived usefulness (PU), performance expectancy (PE), behavioral intention (BI), satisfaction (SA), self-efficacy (SE), social influence (SI), as well as perceived behavioral control (PBC). Research design, data and methodology: After data collection, 512 questionnaires were collected and after review for validation, 500 questionnaires remain for the data analysis. Purposive sampling and quota sampling were used in the sampling procedures. Before the data gathering, the content validity and reliability of questionnaire was tested by Item-Objective Congruence (IOC) and pilot test (n=30). After the data collection, the Structural equation model (SEM) and confirmatory factor analysis (CFA) are used in combination to verify the verification hypothesis and goodness of fit of the model studied. Results: According to the seven hypotheses, it is found that the main factor affecting students' willingness is the perceived behavioral control (PBC).

Keywords: Online Art Classroom; Behavioral Intention; Satisfaction; Students' Willingness

Introduction

So far, due to the rapid development of various emerging mobile communication devices and advanced mobile technology, all kinds of electronic mobile apps and mobile client terminals have been

the peak of unprecedented development and application. Online art classes are also gaining popularity among Chinese college students. Art students' access to knowledge has gradually expanded from classroom to network platform, which has changed the learning mode of higher education from "fixed learning mode" to "mobile learning mode". Online art classroom learning had more advantages than traditional art classroom learning mode in terms of autonomy, convenience, flexibility, interactivity and continuity. Students can use online learning in art classes and make the most of their "fragmented" time, anytime, anywhere.

Especially during the pandemic and COVID-19, the Chinese government began to implement the "offline classroom closed, online classroom continued" as a response measure, as a solution to reduce the academic loss of students due to global diseases (Zhou et al., 2020). "Traditional classes are closed while new classes are opened" and "classes are closed but learning is not stopped" refers to a special teaching activity in China during the epidemic period from basic education to higher education (Leung et al., 2020). The same or similar curriculum is used in most countries around the world. Coursera and edX, the world's most open and studied platforms, also offer many online learning opportunities, as well as several free courses from Harvard and MIT. In the online classroom, the role of teachers begins to shift from the traditional offline dissemination of knowledge to providing professional guidance to students. (Jing, 2021)

Furthermore, According to the research of (Cheon et al., 2012), online online courses have played a very important auxiliary role in traditional education. Now, more and more college students choose to use more advanced and fast mobile devices for learning anytime and anywhere (Ravizza et al., 2014).

Online classroom education has generated a large number of interactive links between students and teachers, enabling students and teachers to be more socially intimate and communicate more smoothly, and teachers and students to arrange curriculum Settings and other learning activities more reasonably. These changes and these humanized places can for learning, is to have a direct impact on their learning outcomes(Kang et Im, 2013). Students' participation in online classes and personal satisfaction are both important observational factors for students to complete online classroom education (Herbert, 2006). Online classroom can meet the requirements of students to study anytime, and can let the students can a learning platform anytime and anywhere, so as to help students learn and improve their academic performance (Sarrab et al., 2018).

1. Literature Review

1) Perceived Usefulness (PU)

According to TAM, perceived usefulness was an individual evaluation of improving his or her own general health and happiness, personal feat, and the practicability to supply by the technology(Davis, 1989).The meaning of perceived usefulness the degree to which a student believes that using online art classes will contribute to his or her personal learning performance(Venkatesh et al., 2012), in other words it refers to an assessment of a person's ability online art classes to achieve their goals.

H1: PU exerted crucial effect on SA to using online art classroom.

2) Performance Expectancy (PE)

Performance expectations were mean as the expected degree to what is the use of online classes will help students gain benefits in real life(Venkatesh et al., 2003).Performance expectations were defined as students' understanding of the advantages of using technological innovation to produce better results (Zhou, 2008).

Performance expectations are ideals about the students that the use of specific technologies can improve the performance of students' online classroom learning tasks.Performance expectations were defined as the efficiency achieved by students in completing learning tasks when adopting a technology.(Venkatesh et al., 2003).

H2:PE exerted crucial effect on students' SA towards using online art classroom.

H3: PE exerted crucial effect on students' BI towards using online art classroom..

3) Self-Efficacy (SE)

Self-efficacy is usually the most important psychological variables. It can change some of the feelings and ideas students have about their learning environment (Pajares, 1996). Therefore, it can infer that self-efficacy will also have an important impact on whether students can successfully conduct online classroom learning. (Zimmerman, 1995) showed that self-efficacy includes The idea of making a personal decision on his own ability to complete any and all tasks. Therefore, self-efficacy is also understood as one of the important indicators of how much stress a person is under when doing something they first do. (Bandura, 1977).

Self-efficacy is the most important factors in the cognitive theory of society. Bandura's meaning of self-efficacy is that it is a kind of ability that affects an individual's judgment on himself, how an individual makes a certain performance on his own behavior and whether he can successfully complete it. (Askar et Aysun, 2001).

H4: SE exerted crucial effect on students' BI towards using online art classroom.

4) Social Influence (SI)

The meaning of social identity can be understood as a process in which an individual psychologically combines with the self in the environment and the social group, and thus participates in a particular characteristic of the group. Social influence refers to "a change in one's feelings, thoughts, attitudes, or behaviors resulting from interactions with another person or a group. Behavior arising from interaction with another person or in group learning" (Rashwan, 2021).The influence on society can be elaborated through the pressure on society, the amount of participation in social norms, and the factors of the surrounding environment of society (Venkatesh et al., 2003), generally speaking, is a subjective standardized measurement scale with the same similarity

H5: SI exerted crucial effect on students' BI towards using online art classroom

5) Perceived Behavioral Control (PBC)

The meaning of social identity can be understood as a process in which an individual psychologically combines with the self in the environment and the social group, and thus participates in a particular characteristic of the group. Social influence refers to "a change in one's feelings, thoughts, attitudes, or behaviors resulting.

TRA indicated in its research report that human behavioral intention is mainly related to two factors, one is behavioral attitude, the other is human subjective behavioral norms (Fishbein et Ajzen, 1977), and a new factor is added to TPB, namely perceived behavioral control (Ajzen, 1991).It is understood as a perception of how difficult or easy certain subjective actions are some behaviors. The level of perceived behaviors can control and directly affect the level of behavioral intention.

Perceived behavioral control (PBC) was another mechanism propose will cause adaptively framed stories to increase readers' agreement with the story's perspective, and their behavioral and news engagement intentions.

H6: PBC exerted crucial effect on students' BI towards using online art classroom.

6) Satisfaction (SA)

Student satisfaction was a short-term attitude that was an assessment of their experience of the educational services provided (Elkaseh, 2016). Satisfaction refers to the mental or emotional state associated with the cognitive evaluation of expected performance differences (Bhattacharjee, 2001). Satisfaction refers to a student's emotional state towards a specific service, which will change students' motivations accordingly. (Mazman et al., 2009).

H7: SA exerted crucial effect on students' BI towards using online art classroom.

7) Behavioral Intention (BI)

Students' behavioral intentions were governed by their attitudes, their subjective norms and their perceived behaviors. (Ajzen, 1991). Therefore, many studies had confirmed the close relationship between behaviors and demonstrated that behavioral intention was a sufficient representative of behavioral intention Actual behavior (Venkatesh et Davis, 2000). Consistent with previous studies (Gefen et Straub, 1997); Kibelloh's results also confirm the moderating role of gender in mobile phone use. From technical characteristics to TTF, the influence of TTF on attitude and behavioral intention. Behavioral intention was thought of as a measure of power a person's thinking to perform a particular act. In general, behavioral intent was a certain degree to which a person will or will not perform in the future (Ajzen, 1980).

2. Research Methods

1) Research Framework

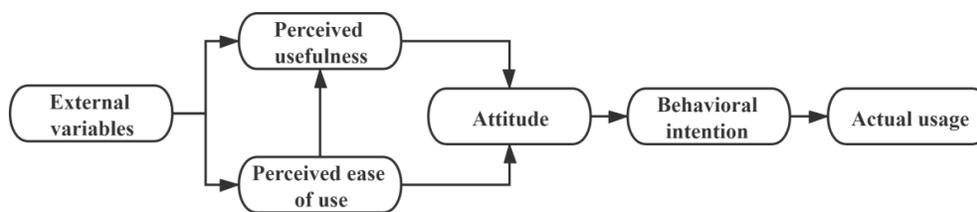


Figure 1 The Conceptual Framework

2) Methodology

This research is conducted a quantitative investigation on 500 art and design undergraduates with online art classroom experience in Sichuan University of Media and Communications through online questionnaires. The structure of questionnaire had been divided into three sections: screening questions,

demographics information and measuring variables. To make the survey content more vivid for participants, the questionnaire was interpreted in Chinese by a native Chinese speaker who knew about the research project. Before data gathering, 3 experts were invited to verify the content validity of the questionnaire using Item Objective Congruence (IOC). The reliability of the questionnaire was verified by pilot test of Cronbach's Alpha with 30 participants and all items were reserved at a score at least 0.6 or greater, resulting all items reserved. In order to save the cost of data collection, the work was completed online, and the questionnaire distribution and collection were carried out using the Questionnaire Star platform and WeChat software, and AMOS 23.0 and SPSS 24.0 were employed to analyze the data. Purposive sampling and quota sampling were used as sampling techniques in this study. The Structural Equation Model (SEM) as well as Confirmatory Factor Analysis (CFA) was employed to validate the goodness-of-fit of model and confirm hypotheses.

3) Population and Sample Size

In this study, art and design undergraduates (sophomore and juniors) with experience in online art classroom at Sichuan University of Media and Communications (SUMC), a private university in Chengdu, China, were selected as the target population. In addition, the A-Priori sample size calculator of Structural Equation Model (SEM) was also used in this study for calculation, and the minimum sample size was suggested to be 425. Kenny and (McConatha et al., 2008) claimed that, based on examinations of published SEM papers, many SEM literatures employed a sample size of 250–500. After data collection, 512 questionnaires were collected and after review for validation, 500 questionnaires remains for the data analysis.

4) Sampling Technique

The researcher conducted the purposive and quota sampling technique. The researcher first selected 1,342 art and design major undergraduates with online art classroom experience from a private university in Chengdu, using purposive sampling. The two types of sampling used in this study mainly refer to non-probability sampling and probability sampling. The selection of sampling procedures and techniques is based on the study itself. (Kaplan, 2009), (Jaiyeoba et Iloanya, 2019) argue that the selection of sampling techniques depends on respondents' cost of money, cost of time, educational objectives, research objectives, and research accuracy requirements. All participants had to fill out a questionnaire on their own. This questionnaire was edited and generated electronically through Questionnaire Star (www.wjx.cn), and sent to the target population through WeChat group of students, so as to collect data conveniently and efficiently.

Table 1 Sample Units and Sample Size

| Target Private University | Sampling Units | Population Size Number of students | Proportional Sample Size |
|--|----------------|---------------------------------------|---------------------------|
| Sichuan University of Media and Communications | Sophomore | 578 | 215($578 * 500 / 1342$) |
| | Junior | 764 | 285($764 * 500 / 1342$) |
| | Total | 1342 | 500 |

Source: Constructed by the researcher

3. Discussion and Results

1) Demographic Information

As Table 2 shown that 500 questionnaires were distributed across the two grades collected, 500 of which were valid as presented in Table 2. Among the 500 participants, there was 52.4% man and 47.6% female participants in this survey. In terms of academic year organization, sophomores account for 49.2%, juniors account for 50.8%.

Table 2 Demographic Information

| Demographic / General Data (N=500) | Data | Rate | Percentage |
|------------------------------------|-----------|------|------------|
| Gender | Man | 262 | 52.4% |
| | Woman | 238 | 47.6% |
| Grade | Sophomore | 246 | 49.2% |
| | Junior | 254 | 50.8% |
| | Total | 500 | 100% |

Source: Constructed by the researcher

2) Confirmatory Factor Analysis (CFA)

CFA was first used to assess the convergence and discriminant validity of measurement models (Joreskog, 1969) and was determined by factor loadings. Confirmation Factor Analysis (CFA) is the extremely valid approach for determining how properly the small-scale of variables illustrated themselves (Byrne, 2010). Structural Equation Model (SEM) is a classification of the nonuniform series of methods employed according to observational and experimental research in social and humanity science, which is employed most frequently in behavioral academic domain.

Table 3 Results of CFA, CR and AVE

| Latent Variables | Source of Items | No. of Items | CA | Factors Loading | CR | AVE |
|------------------|----------------------------------|--------------|-------|-----------------|-------|-------|
| SI | (Lee et al., 2006) | 4 | 0.837 | 0.709– 0.828 | 0.842 | 0.571 |
| PBC | (Arbaug, 2002) | 4 | 0.824 | 0.708– 0.773 | 0.826 | 0.543 |
| SE | (Jairak et Mekhabunchakij, 2009) | 5 | 0.868 | 0.705– 0.871 | 0.871 | 0.575 |
| PU | (Alshammari, 2020) | 4 | 0.840 | 0.715– 0.839 | 0.845 | 0.578 |
| PE | (Chenget al., 2019) | 4 | 0.839 | 0.701– 0.825 | 0.842 | 0.573 |
| SA | (Chiou et Shen, 2012) | 4 | 0.830 | 0.705– 0.814 | 0.834 | 0.557 |
| BI | (Ismah, 2019) | 4 | 0.833 | 0.684– 0.831 | 0.839 | 0.567 |

Source: Constructed by the researcher

3) Structural Equation Model (SEM)

Structural equation modeling (SEM) was a mathematical methodology which utilizes confirmatory factor analysis to evaluate an incorporated strategic step that influences a concept. This theory generally interconnects to causal mechanisms that lead to analyses of a variety of variables (Newcomb et Bentler, 1988). The inferential analysis of structural equation modeling (SEM) was used to quantify and scrutinize the interactions between latent variables and observed. It evaluates linear causal relationships between variables when compensating for misspecification, comparable to but perhaps more influential than regression evaluations.

The results were illustrated in Table 4 adjusted by SPSS AMOS version 23. The outcome of fit indicator was provided good fit which are CMIN/DF = 1.810, AGFI = 0.903, GFI = 0.920, RMSEA = 0.040, CFI = 0.958, NFI = 0.911, and TLI = 0.952. Table 4 revealed that the SEM analysis after modification presents overall good fit. Consequently, each indicator of the goodness of fits in SEM verification for this research was acceptable.

Table 4 Goodness of Fit for SEM

| Index | Acceptable Values | Value |
|---------|---------------------------------|-------|
| CMIN/DF | ≤ 3 (Hair et Black, 2010) | 1.810 |
| AGFI | ≥ .80 (Segars et Grover, 1993) | 0.903 |
| GFI | ≥ .90 (Bagozzi et Yi, 1988) | 0.920 |
| RMSEA | < .08 (Browne et Cudeck, 1993) | 0.040 |
| CFI | ≥ .90 (Bentler, 1990) | 0.958 |
| NFI | ≥ .90 (Bentler et Bonnet, 1980) | 0.911 |
| TLI | ≥ .90 (Bentler et Bonett, 1980) | 0.952 |

Source: Constructed by the researcher

4) Research Hypotheses Testing Results

In addition, Table 5 explained the Standardized Path T-values and Coefficients. Therefore, details of the research hypothesis test were as follows:

H1 had shown significant impact of perceived usefulness on satisfaction, this structural pathway results in the standard coefficient value of 0.224, and the t-value at 5.126***. Therefore, Ho1 was

rejected, and H1 was supported. H2 had presented significant influence of performance expectancy on satisfaction with the standard coefficient value of 0.313, and the t-value at 7.176***. Hence, H2 was rejected, and H2 was supported. H3 had revealed that performance expectancy has significant influence on behavioral intention with value of 0.217 of standard coefficient, and the t-value at 6.045***. Accordingly, H3 was rejected, and H3 was supported. H4 had the standard coefficient value of 0.270 of which publicized significant influence of self efficacy on behavioral intention and the t-value at 7.573***. Thus, H4 was rejected, and Ha4 was supported. H5 the significant impact between Social influence and behavioral intention had exposed the standard coefficient value of 0.143 which confirmed H5, and the t-value at 3.931***. As a result, H6 was rejected, and H6 was supported. H6 had the standard coefficient value of 0.242 of which publicized significant influence of perceived behavioral control on behavioral intention, and the t-value at 6.341***. Consequently, Ho6 was rejected, and H6 was supported. As Per H7, satisfaction on behavioral intention presented the value of 0.167 on standard coefficient which confirmed the significant influence, and the t-value at 4.797***. Therefore, H7 was rejected, and H7 was supported.

Table 5 Hypotheses Results of the SEM

| Hypotheses | Paths | Standardized Path Coefficient (β) | T-value Tests | Results of Testing |
|------------|--------|---|---------------|--------------------|
| H1 | PU→SA | 0.224 | 5.126*** | Supported |
| H2 | PE→SA | 0.313 | 7.176*** | Supported |
| H3 | PE→BI | 0.217 | 6.045*** | Supported |
| H4 | SE→BI | 0.270 | 7.573*** | Supported |
| H5 | SI→BI | 0.143 | 3.931*** | Supported |
| H6 | PBC→BI | 0.242 | 6.341*** | Supported |
| H7 | SA→BI | 0.167 | 4.797*** | Supported |

Note: *** P<.001

Source: Constructed by the researcher

4. Conclusion and Recommendations

1) Conclusion

In the results of this study, it mainly want to study the main factors that affect students' learning behavior intention to study in online art classroom of Chengdu University in Chengdu, China. A total of 512 questionnaires were distributed to art major understudents from freshman to senior year and have experiences with online art classroom. The proposed conceptual matrix was developed from the TAM, VBL and UTAUT theories and a certain number of literatures. The latent factors include perceived usefulness, performance expectancy, social influence, satisfaction, self–efficacy, behavioral intention, perceived behavioral control. Confirmatory factor analysis (CFA) was inform to be the results, so as to better understand and clarify the convergent validity, discriminative validity and reliability of the research results. In addition, structural equation model (SEM) can be used to test the hypotheses, which can summarize the research results.

Moreover, a multi–group analysis technique was applied in measurement and structural model. In summary of this chapter, SPSS version 24.0 and AMOS version 23.0 package were used for analysis to analyze self–efficacy, perceived expectancy, perceived usefulness, perceived ease of use, satisfaction, behavioral intention and perceived behavioral control. with Frequency Distribution, Percentage, Arithmetic Mean, Standard Deviation, Skewness, and Kurtosis.

Moreover, the analysis developed and verified the validity of the measurement model of innovative behavior factors by analyzing the Measurement Model to confirm component with Confirmatory Factor Analysis (CFA). To result the validity of each component of the measurement model, it is appropriate to use the variables within the measurement model for structural equation analysis (SEM) in the following sequence.

For testing of models and research hypotheses, it was an analysis of the causal relationship. By analyzing the relationships of various factors by using causal relationships from the conceptual and theoretical frameworks used. To check that the information matches the theoretical relationship was to analyze the model to examine the model Evaluation hypothesis that the researcher created (Model Evaluation). This was a two–part evaluation of the accuracy of the model which are Overall Model Fit Measure and the harmonization of the results in the key components of the model (Component Fit Measure). Last, all hypotheses were tested to find direct, indirect and total effect and all of them also resulted as supported in this study.

Satisfaction was the mediator variable in this study and two latent variables which significantly impacted satisfaction directly. Behavioral intention was the dependent variable in this study and six latent variables which significantly impacted behavioral intention directly. According to the results, it is found that the main factor affecting students' willingness were the perceived behavioral control (PBC).

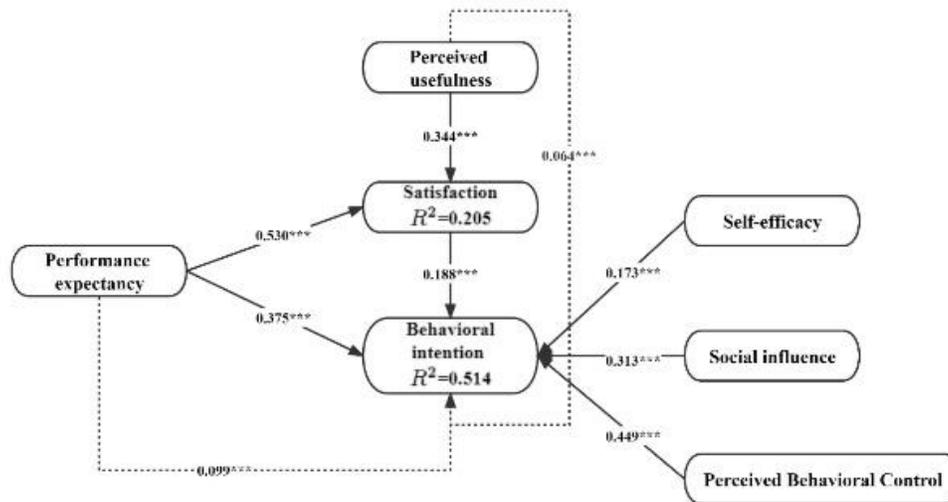


Figure 2 The Results of Structural Model

Note: *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$.

2) Recommendations

This study identifies and analyzes the factors that affect students' learning willingness in online art classes in Chengdu University. The research results show that each variable in the model has its own role in students' learning intention and learning behavior intention. As an art higher teaching management department, it should understand students' learning behavior intention and students' behavior intention, learn more about online art class, achieve better and more effective teaching effect and teaching quality, and enable students to learn better.

According to the verification results of hypothesis 4 and hypothesis 7, teachers should fully mobilize students' self-efficacy and satisfaction, so that students can get better intention of self-learning behavior through developing interest in online art classroom learning. In addition, teachers should provide different online art classes for students of different majors, classify and formulate online courses in class, make clear and effective online learning content, encourage students to watch and learn repeatedly, so that students can learn better according to their own learning interests and conditions. In this way,

students' self-efficacy and subjective initiative are finally mobilized to realize their behavioral intention of active learning and finally improve their learning outcomes.

In addition, based on the results of hypotheses 1, 2, 3, 5 and 6, researcher found that there were relatively relevant mechanisms for perceived usefulness, perceived expectancy, social influence and the perceived behavioral control of the online art classroom. Therefore, in the teaching of art design major of Chengdu University, teachers should effectively combine online art class with traditional art class, so as to produce more effective teaching quality. In terms of students' behavioral intention, teachers and teaching colleges should teach students how to conduct effective self-learning in online art class, reduce students' unfamiliarity with and resistance to mobile learning, and provide corresponding technical support so that students can easily complete online art class learning. In addition, according to the specific characteristics of art design courses, teachers should effectively integrate the teaching content of traditional classroom and online learning platform, take video content as the auxiliary teaching content, gradually improve the corresponding text, pictures and teaching content, and build a systematic teaching design. Meanwhile, teachers should also partially combine with traditional offline art classes to promote students' progress in both directions. Obtain satisfactory learning results.

Consequently, according to the instructional design, the essential seven latent variables would directly or indirectly exert a significant positive influence on the behavioral intention of art and design students toward the employment of hybrid education, so as to effectively ensure the learning achievements and cultivation of quality and skills of art and design students.

Limitation and Further Research

To enhance the quality of hybrid education for art and design students in the future, the researcher proposed some conceptions for subsequent academic exploration.

Since the study object is a university in Chengdu, China, in the context of COVID-19 pandemic, which least the universality of the study code, further research can be extended to private universities in other provinces and regions of China that recruit more art and design students, so as to obtain more comprehensive research conclusions.

In addition, in subsequent studies, researchers can develop concepts the framework of this study was achieved by adding potential variables to extend the research framework for further exploration

by framing previous academic findings such as perceived interaction, trust, learning motivation, performance expectations, and facilitation conditions.

Future investigations should also consider the impact of online learning support, online course design, teacher knowledge and online teaching training. More consideration can be given to the combination of online learning and offline learning in students' future learning. How can the technological classroom of online classroom learning and the traditional classroom learning of offline learning coexist and improve together.

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