



Factors Affecting the Behavioral Intention of Public Universities Art Design Major Students by Using Blended Learning in Chengdu

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Received 09/08/2023

Revised 11/08/2023

Accepted 15/08/2023

Abstract

Background and Aim: This paper mainly reacts to the important factors affecting the willingness of undergraduate art and design students to participate in blended learning in three public universities in Chengdu. The study investigated latent variables including Perceived Ease of Use (PEOU), Perceived Usefulness (PU), Attitude (ATT), Effort Expectancy (EE), Social Influence (SI), Facilitating Conditions (FC), and Behavioral Intention (BI). The goal of this paper is to determine the extent to which each variable influences the target population's participation in blended learning activities.

Materials and Methods: In this paper, the characteristics of anchors are classified into three dimensions: attitudes, behavioral intentions, etc., and the relationship between blended learning and students is discussed. In this paper, 488 data were collected through questionnaires and statistically analyzed, and the hypothesis was tested using SPSS and AMOS software.

Results: The results of the statistical analysis confirmed all the hypotheses, with effort expectancy exhibiting the most pronounced and significant direct impact on behavioral intention.

Conclusion: For art and design students to fully appreciate and acknowledge the efficacy of blended learning, college administrators and instructional staff must allocate adequate attention to the factors that wield substantial influence over instructional behavioral intentions. Moreover, they should contemplate prospective instructional modifications or reforms guided by the outcomes of this study.

Keywords: Blended Learning; Art design; Behavioral Intention; Attitudes

Introduction

Blended learning, also named hybrid instruction, is a pedagogical approach that amalgamates conventional hybrid instruction online methods, alongside the integration of various mediums and tools within an e-learning setting (Mulyanengsih & Wibowo, 2021). This method advocates for a synergy between autonomous learning and instructor guidance, facilitating the cultivation of specialized knowledge and skills through skill-driven learning. Moreover, it employs a diverse array of events and delivery media to foster the development of particular behaviors via attitude-driven learning (Valiathan, 2002).

In China, hybrid instruction is pioneering the creation of educational concepts and delivery systems with information technology. It steadily explores the thorough integration of contemporary information technology and education and gives full play to the leading and supporting roles that information technology in education plays in the growth and reform of education. In recent years, China's art and design field has also continued to expand its online blended learning. By 2020, the scale of the online blended learning industry in this field has reached RMB 3.1 billion, with a CAGR of 45.07% from 2016 to 2020 (ASKCI, 2022). The number of studies on blended learning in the journal papers included in China Knowledge also shows rapid growth in the period from 2011 to 2021, totaling 434 articles (Su LinYan et al., 2022). Among them, research articles that concentrate on the application of blended instruction in both education and instruction are the most common, accounting for 46.3% of the total number of publications. Undoubtedly, the primary teaching method in China's higher education sector is shifting toward blended learning (Su LinYan et al., 2022).

The present greatest unnoticed trend in higher educational institutions is the combination of online and residence education, according to the president of Pennsylvania State University, who was mentioned in the Chronicle of Higher Education in 2002 (Young, 2002: A33). The modernization of educational technology and online blended learning are being introduced in more Chinese universities





of general higher education. However, in this process, blended learning has not been able to maximize the development of its advantages of Internet data dissemination, and there are still many learning problems. For example, the evaluation scope of hybrid instruction is not comprehensive, the arrangement of hybrid instruction courses is not scientific, the teaching content is not complete, and the learning technology is not advanced (Zhang Yin & Deng Jiangceng 2021). Meanwhile, undergraduate universities in the Chengdu region keep exploring the art and design of students to new learning styles, but the teaching departments do not consider the development of blended learning enough (Yang Yahan & Pan Jin, 2021). At this stage, online blended learning is an essential part of China's general higher education universities, accounting for about 49.6% (Zhang Qiliang & Wang Aichun, 2014). In addition, judging from the results of the dissertations published for blended learning in China, there are not enough academic results, and most of the academic research is qualitative, which needs to enhance the quantitative research attention (Su LinYan et al., 2022).

In recent times, the availability of digital technologies suitable for integration into blended learning has witnessed a notable proliferation. This phenomenon has led to an increase in the use of hybrid learning approaches in undergraduate programs for art and design. Notably, this transition has led to a substantial elevation in the interconnectedness between instructional efficacy, pedagogical performance, and students' contentment with the learning process (Lan Wenting & Luo Janping, 2022). Enhancing teaching satisfaction within higher education in China is of paramount importance. The utilization of instructional methodologies involving blended online learning holds the potential to yield enhanced learning outcomes for specific student groups (Ajmal et al., 2021).

Students' opinions regarding using online blended learning or selecting a blended learning solution are greatly influenced by their behavioral intention to utilize blended learning. In the classroom, teachers have more time to foster students' fundamental abilities, critical thinking, and individualized and integrated project-based learning (Simeonov, 2015). In academic research, behavioral intention refers to the behavioral tendency of students to subjectively judge that they may adopt blended learning in the future (Folkes, 1984), and to form a favorable attitude and recommend it to their friends and classmates. Therefore, In China's higher art and design education, it is crucial to gradually develop the behavioral intention of hybrid learning.

Building upon prior research, this study delves into the primary determinants impacting the implementation of blended education among undergraduate art design students in China. This study's major objective is to look at the factors that affect students' propensity to participate in hybrid instruction activities in the area of art and design studies. To collect data from the desired sample group for this study, which is focused on three well-known institutions in Chengdu, a quantitative technique and a questionnaire are used as the primary tools.

Key factors such as "Behavioral Intention" (BI), "Perceived Ease of Use" (PEOU), "Perceived Usefulness" (PU), "Attitude" (ATT), "Effort Expectation" (EE), "Social Influence" (SI), and "Facilitation" (FC) will be at the center of the inquiry. The purpose of this evaluation is to ascertain the degree to which these variables have an effect on undergraduate art and design students in Chengdu, China, who are enrolled in blended learning programs.

Objectives

This study mainly focuses on college art and design majors who have engaged in hybrid learning. The primary objective is to analyze existing research about the factors that shape the characteristics of blended learning behavioral intentions among this cohort. The final goal is to provide more sophisticated pedagogical recommendations meant to improve the adoption of prospective blended learning strategies catered to the requirements of art and design students. The benefits brought by the research are mainly reflected in that the dependent variable mainly studied in this paper is behavioral intention. In the Chinese educational academic circle, more studies tend to be qualitative theoretical studies and less quantitative research on the behavioral intention of the dependent variable. The conceptual framework composed of dependent variables PEOU, PU, ATT, EE, SI, and FC, and behavioral intention is also less investigated. According to Davis (1992), a person's attitude and intention to take a particular action are significantly related, which is a key factor in predicting a person's



behavior. In other words, a person's perspective can predict their intention to act (Klobas, 1995). So, we need to do this research to get the benefits.

Literature review

Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) was developed with the intended goal of clarifying how information technology was acknowledged in the business sector (Davis, 1985; Davis et al., 1989). The "Theory of Reasoned Action (TRA)" (Ajzen & Fishbein, 1975) gave rise to TAM as an evolution, which primarily examines the correlation between user attitudes and behavioral intentions to elucidate and predict human conduct. TAM was introduced and quickly acquired universal support as a reliable method for accurately forecasting behavioral intents and technology adoption expectations in quantitative academic studies (Yousafzai et al., 2007).

To forecast the ATT or BI toward particular instructional strategies, the TAM framework has been extensively employed in academic and pedagogical research. This is explained by the fact that ATT involves assessing a person's propensity to interact with a certain information system. Additionally, PEOU and PU are related to the evaluation of the degree of difficulty and efficiency built into the intended educational system. The person's attitude is a crucial external element in determining endogenous factors like behavioral intention.

As a result, In the conceptual framework, PEOU and PEOU were positioned as independent factors, with ATT acting as the mediating variable. This framework makes it possible to explore the complex interactions between these elements, illuminating participants' tendencies and prospective intents in connection to instructional tactics.

Unified Theory of Acceptance and Use Technology (UTAUT)

One of the most important theoretical frameworks was the Unified Technology Acceptance and Use Theory (UTAUT). The theory's four proposed key elements were PU, PEOU, EE, SI, ATT, BI, and FC (Venkatesh et al., 2003). The UTAUT is used in this study because it encompasses all of the prior ideas for forecasting users' psychological responses to the target technical system. Previous research has shown that the TAM derivative UTAUT is useful for determining technical acceptability. Due to their ability to clarify customers' intentions, TAM and UTAUT were obviously used in several initiatives. The model shows how these characteristics are linked to behavioral intention and how behavioral

In the field of educational studies, the UTAUT framework—which closely resembles the TAM—has frequently been used to forecast students' attitudes or behavioral intentions towards particular instructional approaches. The elements of social impact, effort expectancy, and facilitating situations have been identified as pertinent for this quantitative research in the pursuit of the greatest accuracy. These three latent variables have thus been chosen as the conceptual framework's independent variables. This choice guarantees a concentrated investigation of the complex dynamics at work, enabling a thorough comprehension of students' tendencies and predicted behaviors within the framework of the selected teaching style.

Perceived Ease of Use

Davis et al. (1989) provided a unique interpretation of PEOU, defining it as the level of trust a person has in a system and their conviction that putting it to use will enhance their capacity to perform their job. Conversely, PEOU, as defined by Davis (1989), is a measure of whether respondents believe a prescribed method is possible with little effort and doesn't need a lot of mental or physical effort.

In the realm of the internet, the concept of "perceived usefulness" takes on a connotation that pertains to the conviction that engagement with virtual communities will facilitate access to information and services, along with the ability to exchange ideas aimed at enhancing one's performance (Lin, H.-F, 2007). An approach characterized by its simplicity and lack of arduousness in achieving desired objectives is often attributed to having a sense of apparent ease (Neo et al., 2015).

These constructs work as a whole to shape behavioral proclivities, which in turn significantly shape people's propensities to use a specific system or technique (Gangwar et al., 2015). According to Lin.H.-



F (2007), perceived usefulness is the perception that joining online communities will give a person access to services, information, and the chance to exchange ideas, improving their performance. Additionally, it alludes to system users' assumption that using a service would result in a better conclusion (Lin, H.-F, 2007). According to Venkatesh and Davis's (2000) quantitative study, PEOU has a significant impact on PU.

Perceived Usefulness

As per Davis et al.'s (1989) delineation, PU expresses a person's belief that using a specific instrument will significantly improve their productivity and overall performance. This notion extends beyond the scope of specific tools. Building on this, Cigdem and Ozturk (2016) emphasize that employing certain strategies can fortify task achievement in collaborative composition endeavors. Davis (1989) further underscores that PU signifies the extent to which individuals hold the conviction that technology employment can augment their overall efficiency. Moreover, previous research hypotheses indicate that users are motivated to adopt information technology due to two factors: intrinsic motivation and extrinsic motivation, with PU serving as the extrinsic incentive for information technology utilization (Davis et al., 1992).

According to Wu Xiaoyu and Gao Yuan (2011), perceived usefulness refers to the perceived ability to increase user productivity. It also plays a key role in determining how much people want to use technology (Cigdem et al., 2015). Numerous studies have focused on the influence of perceived usefulness on attitudes and perceptions (Celik, 2013; Cheng et al., 2006; Chiou & Shen, 2012; Lee, 2009).

Attitude

A person's liking or aversion towards a certain action or stimulus is referred to as their "attitude towards a behavior (Fishbein & Ajzen, 1975). Indeed, attitude serves as the primary factor dictating behavioral intentions (Golnaz et al., 2010; Nagy, 2018; Hoi, 2020). It captures a person's consistent emotional propensity towards a specific issue (Ajzen, 1991).

In the context of TAM applications, studies frequently encompass ATT and BI (Pavlou, 2003). An individual's attitude can be expressed through their affinity or lack thereof for a given subject. Simply put, individuals are more inclined to embrace behaviors that align with their agreement (Armitage & Conner, 2001; Nagy, 2018). This construct delineates whether the participant holds a favorable disposition towards the activity (Al-Debei et al., 2013) and signifies their preferences for a specific activity or object (Ozgen & Kurt, 2013).

The attitude of a participant is assessed as a critical determinant of his or her adoption of digital learning (King & He, 2006). An emotional domain element that boosts students' academic motivation during the teaching process is what one would refer to as their attitude toward use. (Bahjat, 2018). Based on TAM, Lin.H.-F (2007) identified that a person's attitude toward usage could affect his or her behavioral intention. Yulihassri et al. (2011) revealed that behavioral intention can be indirectly influenced by individuals' perceived usefulness or through the intermediary of perceived usefulness. The key aspect that influences the goal of using technology is thought to be an individual's attitude. (Yuen & Ma, 2008). Studies with TAM applications often contained attitudes toward using and the behavioral intention to use in the research (Pavlou, 2003).

Behavioral Intention

According to Davis (1992), a person's attitude and intention to take a specific action are significantly related, which is a key factor in predicting one's conduct. To put it another way, one's views can anticipate their behavioral intention (Klobas, 1995). According to TAM and other experts, the urge to use new technology affects a person's behavioral intentions. Studies have shown that a person's attitude has an important effect on their behavioral intentions. According to the reasoned action hypothesis, the attitudes of other individuals may affect a person's actions. (Ajzen & Fishbein, 1975) elucidated this point, and recognizing the many different aspects that influence a learner's decision to use technology in their learning is crucial (Warshaw & Davis, 1985).



TAM provides a comprehensive framework for comprehending the process of behavioral intention in adopting or declining technology. Venkatesh et al. (2021) defined behavioral intention, characterizing it as a learner's determination to persist in using technology. This concept is widely recognized as a pivotal driver influencing technology usage. Van der Heijden (2003) discovered that the only variable that could predict or show someone's behavioral intention was perceived usefulness. Moon and Kim (2001) showed that behavioral intention could be affected by the perceived usefulness of business adoption only when it took place to attain the desired performance or goals sought by the users.

Effort Expectancy

Ease of use and complexity are examples of characteristics that make a system feasible to use, and this concept is known as effort expectancy (Venkatesh et al., 2003). Users' perceptions of the technology's usability are greatly influenced by their expectations of the amount of work involved (Ssekakubo et al., 2011; Alshare & Lane, 2011; Wu & Wu, 2019). The idea of effort expectancy is frequently used to describe how usable a technological innovation is for users (Venkatesh et al., 2012; Hoi, 2020). Users' expectations about the work required directly affect how they perform in terms of adopting technology, increasing the likelihood that they will do so (Ghalandari, 2012).

The indicator of whether someone believes using technology will be enjoyable is their expectation of effort (Ssekakubo et al., 2011). Effort Expectancy shows the obvious connection the unique information technology accessibility and how sophisticated or comfy it would be to fit a given system, and whether it achieves or incorporates the anticipated result, which might also influence the user's preferable and self-assured physiological activity regarding how to utilize the scheme (Alshare & Lane, 2011). According to Percy and Belle (2012), effort expectancy affects people's views toward technology, its allure, and its usage of digital educational tools.

Social Influence

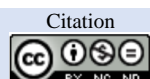
Social influence is a common and cognitive phenomenon that investigates how external variables and an individual's psychological condition shape an individual's attitude. The action of social pressure causes alterations in this trajectory of sociological sway. Nuttavuthisit and Thgersen (2017) stated that social influence is defined as the directional impact on an individual's perceptions, feelings, emotions, or behaviors. This effect has the potential to affect both behavioral intentions and an individual's disposition when influenced by the behaviors of others (Fishbein & Ajzen, 1975).

Generally, there has always been a connection between social influence and involvement, instruction, or demand, but individuals also change their behavior patterns in response to what they believe others are doing or contemplating (Kelman, 1958; Wu & Wu, 2019). Social influence drives individuals to adjust their behavior to align with that of their peers. The desire for validation and a sense of belonging prompts people to modify their viewpoints and stances to align with prevailing norms and recognized authorities (Kanchanapibul et al., 2014). Furthermore, according to Islam et al. (2018), the degree of this influence is largely dependent on how interrelated people's aspirations are.

Facilitating Conditions

A "facilitation condition" as described by Venkatesh et al. (2003) is the perception level to which a person perceives the existence of organizational and technological infrastructure that supports the usage of a system. In essence, it is a conviction that the necessary organizational and technological infrastructure is in place to enable effective system use. According to certain studies, facilitation conditions refer to the process of guiding people through the process of switching from outdated technology to new technology as it becomes accessible (Teo & Noyes, 2014). Academics have described facilitation as influencing perceived ease of use, teachers' propensity to employ technology in TAM, and enabling contextual factors (Teo, 2012).

The term "convenience" is defined as "facilitating circumstances" about user impressions of the infrastructure and behavioral control available for new technologies (Venkatesh et al., 2012). One of the enablers is the idea of perceptual behavior in conditioned planning behavior, as specified in UTAUT2. (Venkatesh et al., 2012). Students' impressions of their access to the tools and help they



require for educational objectives are characterized as facilitating circumstances, and users with adequate knowledge, technical support, and suitable resources are better equipped to act fast (Venkatesh et al., 2003). According to Fishbein and Ajzen (1975), social influence is a sort of social pressure in which people who are important to the subject believe that they should or should not complete a task and how this impacts the subject's behaviors. The perceived existence of organizational and technological infrastructure that allows the utilization of a system to be recognized and utilized as a facilitation system is defined as facilitation. (Harvey et al., 2002)

Conceptual Framework

By integrating the results of prior academic research and building on the work of other academics, the conceptual framework for this study was constructed. The research framework is mostly based on the TAM and UTUTA theories from a theoretical perspective. Yang Yahan and Pan Jin (2021) investigated the relationships between PEOU and ATT, PU and ATT, ATT and BI, and Pu and PEOU using a hybrid online learning system, educational resources, and instructional tools. Perceived Ease of Use, Perceived Usefulness, and Attitude were studied, in addition to the connection between attitude and behavioral intentions. Furthermore, based on the paradigm employed in this study, Marchewka, J.T., Liu, C., & Kostiwa, K.(2007) investigated the impact of students' use of blended learning software on their behavioral intentions. The effects of facilitating environments and social influences on students' real performance were investigated. Attuquayefio (2014) investigated effort expectancy, social influence, facilitating conditions, and behavior intention are all linked.

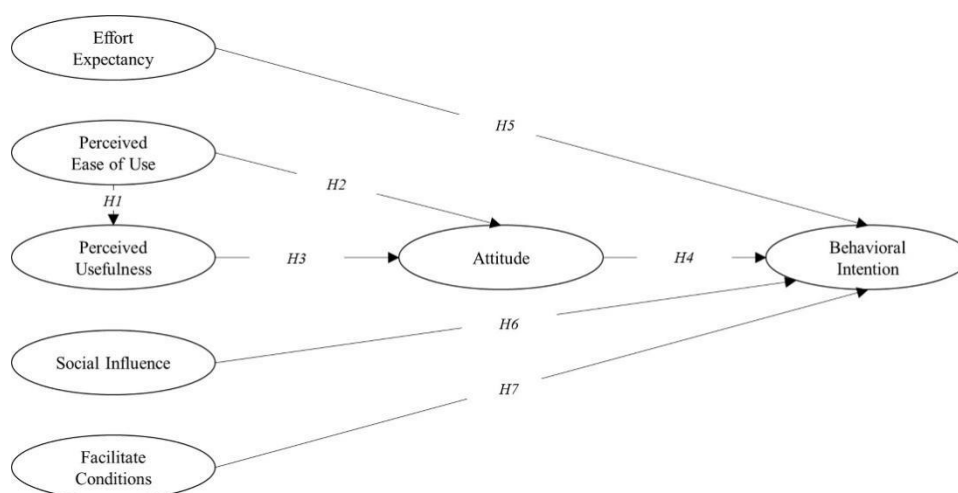


Figure 1 Conceptual Framework

This study builds on previous research by focusing on seven latent variables: PEOU, PU, ATT, EE, SI, BI, and FC. The major goal is to uncover the basic variables that influence the behavioral intents of art and design students at Chengdu Public University through blended learning. To evaluate how each latent variable combined affects students' behavioral intentions, the researchers also looked into the causal relationships between each latent variable. The following assumptions were created based on the conceptual framework's structure:

- H1:** Perceived ease of use has significantly impacted perceived usefulness.
- H2:** Perceived usefulness has significantly impacted attitude.
- H3:** Perceived ease of use has significantly impacted attitude.
- H4:** Attitude towards using blended learning influences the students' behavioral intention.
- H5:** Effort expectancy significantly impacted attitude.
- H6:** Facilitating conditions significantly impacted behavioral intention.
- H7:** Social influence significantly impacted behavioral intention.



Methodology

First, the survey research tool used in this study is a quantitative questionnaire, which is divided into three main parts: initial screening questions, demographic information collection, and comprehensive scale measurement covering all 30 observed variables. Secondly, blended learning academic experts were invited to evaluate the sexual validity of the contents of the study using objective consistency (IOC) assessment methods. Then, the target people of this study are determined in the study area, and the target number of quantitative research is determined through the selection of screening items and quota, to achieve the effectiveness and representativeness of the sample selection of this study. Furthermore, corresponding quantitative research questionnaires were distributed to the target population of this study. Tools such as JAMOWI and AMOS were used to evaluate the matching degree between the obtained attitude data and the subjective attitude data by using the CFA technique. Researchers use structural equation modeling (SEM) and patch map analysis to test assumptions between underlying variables to make broader and more accurate conclusions about attitude data and the connections behind it.

This study's main goal was to investigate the behavioral intentions of undergraduate art and design students from the Sichuan Conservatory of Music (SCM), Chengdu University (CDU), and Chengdu Institute of Technology (CDTU), regarding their adoption of blended learning in Chengdu, Sichuan Province, China. To achieve this objective, a quantitative survey approach was employed. This research methodology was selected due to its effectiveness in gathering psychological data concerning students' traits and discerning their emotional reactions.

Research Instrument

The employed survey instrument, a quantitative questionnaire, was structured into three principal sections: initial screening questions, demographic information gathering, and a comprehensive set of scale measures covering all 30 observed variables. The initial goal was to use the screening questions to identify and assess participants based on specific criteria such as whether they were involved in the field of art and design, whether they belonged to the target university's intended population, and whether they possessed adequate general educational skills. As a result, the researcher evaluated specific items from the screening questions to assess the sample's appropriateness for the next research project.

A demographic questionnaire was also utilized to collect respondents' personal information, such as gender, institutional status, and academic year. This study also used 30 observational variables to assess potential factors, including PEOU (4 items), PU (5 items), ATT (4 items), EE (4 items), SI (5 items), FC (4 items), and BI (4 items).

The total assessment scale was evaluated using a five-point Likert scale, where 5 represents strong agreement with a positive attitude and 1 represents strong opposition to a negative psychological response (Salkind, 2017).

Validation of the Research Instrument

Three professors, each possessing doctoral degrees and boasting a minimum of 14 years of involvement in the domain of blended learning academic research, were extended invitations to carry out an item-objective congruence (IOC) assessment. The evaluation of the content validity of the scale items used in this study was the main goal of this assessment. Notably, the IOC test yielded a minimum score of 0.67, signaling that all observed variables achieved a satisfactory level of content validity.

To evaluate the study instrument's internal consistency dependability, a pilot test was also carried out. A cohort of 30 students was recruited to participate in this preliminary evaluation, drawing on prior scholars such as Hill (1998), who recommended that a participation group of 30 respondents suffices for pilot testing. Cronbach's Alpha metric was developed to assess the reliability of internal consistency.

The outcomes of the pilot test revealed that the lowest recorded Cronbach's Alpha value stood at 0.874, while the highest achieved a substantial 0.952. These results underscore the gratifying level of internal consistency reliability achieved by the scale. Comprehensive details regarding the internal consistency reliability test are comprehensively presented in Table 1.



Table 1 Consequence of the Internal Consistency Reliability Assessment of the Pilot Test

Variable	No. of Items	Cronbach's Alpha
Perceived Ease of Use	4	0.931 (Excellent)
Perceived Usefulness	5	0.894 (Good)
Attitude	4	0.900 (Excellent)
Effort Expectancy	4	0.952 (Excellent)
Social Influence	5	0.881 (Good)
facilitating conditions	4	0.877(Good)
behavioral intention	4	0.874 (Good)

Population and Sample Size

Undergraduate students focusing on art design were the target population for this quantitative study, drawn from three prestigious educational institutions situated in the Chengdu region. These universities encompass the Chengdu Institute of Technology (CDTU), Chengdu University (CDU), and Sichuan Conservatory of Music (SCM). At the suggestion of Rashwan (2021), to employ sophisticated research methods in structural equation modeling, we decided to choose a sample size of 500 participants. Through screening items and quota selection, we carefully selected a target sample of 500 suitable college students from a pool of 1198 college students. The validity and representativeness of the study were both goals of the sample selection procedure.

Sampling Methodology

The sample was selected from key public institutions in the Chengdu area, and a total of 1,198 undergraduate students fulfilled the basic conditions, i.e., they had a one-month blended learning experience. Subsequently, 500 participants who met the requirements were selected from these 12 sample units, and quota sampling was used to form the target group of respondents. Such a sample selection procedure was created to guarantee the study's correctness and representativeness.

Data Collection and Statistical Progress

To comprehensively gather data on a broad range of attitudes and ensure the evaluation of content validity and internal consistency reliability, our strategy involves disseminating quantitative questionnaires to a substantial cohort of 500 undergraduate students specializing in art and design. These questionnaires will be distributed across the three designated universities: Chengdu Institute of Technology (CDTU), Chengdu University (CDU), and Sichuan Conservatory of Music (SCM).

This critical step attempts to collect a large volume of data from a broad set of participants, which is required for evaluating the measuring tool's content validity and internal consistency dependability. Our primary goal is to create a questionnaire that not only captures a comprehensive picture of the respondents' attitudes but also ensures that the data gathered is trustworthy and consistent, allowing for robust and dependable findings.

We will give the questionnaire to a large sample of 500 respondents to fully grasp their viewpoints on specific subjects. Furthermore, this large cohort contributes to the validation and confirmation of the measurement scale's validity and reliability, hence substantiating the quality and credibility of the data acquired.

We successfully acquired a total of 488 genuine datasets after meticulous analysis, deleting 12 items deemed invalid. The researcher used analytical tools such as SPSS, JAMOVI, and AMOS to go deeper into the examination of this dataset. Throughout the data processing phase, the Confirmatory Factor processing (CFA) technique was employed to assess the congruence between the acquired attitudinal data and the designated study model. The degree of agreement between the data and the suggested theoretical framework was tested using this methodology. In addition, the researcher tested hypotheses between latent variables using the Structural Equation Model (SEM) and path diagram (patch diagram) analysis. These analytical tools will aid in validating the study model's fitness, testing



the hypotheses' validity, and providing additional insight into the relationships between the latent variables. The researcher can make more extensive and accurate conclusions regarding attitudinal data and the linkages that underpin them by employing multiple analytical approaches.

Results

Demographic Information

Table 2 summarizes the participants' entire demographic information, including the distribution across institutions and academic years. In terms of institutional data, male students made up 34.5 percent of the total, while female students made up 65.5 percent. Chengdu Institute of Technology (CDTU) had 28.6% of the students, Chengdu University (CDU) had 34.2%, and Sichuan Conservatory of Music (SCM) had 37.6%.

Freshmen made up 25% of the total throughout the academic year, sophomores 25%, juniors 24.2%, and seniors 26.2%. These data contribute to the provision of thorough information about the demographic features of the participants, allowing for more accurate contextual information in later analyses and interpretations.

Table 2 Demographic Profile

Variable	Category	Quantity	Proportion (%)
Gender	Male	168	34.5
	female	320	65.5
Age	Freshman	122	25
	Sophomore	122	25
	Junior	118	24.2
	Senior	126	26.2
Education	Chengdu Institute of Technology	139	28.2
	Chengdu University	166	34.2
	Sichuan Conservatory of Music	183	37.6

Confirmatory Factor Analysis (CFA)

To check the arrangement of observed variables and evaluate whether the factor loadings corresponded to the expected hypotheses or assumptions, a Confirmatory Factor Analysis (CFA) was performed. The congruence of the survey matrix was checked by comparing the factor loading estimates of each observed variable with established acceptable values (Hair et al., 2007).

Furthermore, the results shown in Table 4 show that all relevant criteria were satisfied, following adjustments for the four absolute fit metrics and three incremental fit indicators. Consequently, the results of the CFA evaluation yielded satisfactory outcomes across all fit criteria, which are meticulously outlined in Table 3, providing comprehensive insights into the evaluation process.

Table 3 Model fitting test results for CFA

Content	χ^2/df	GFI	AGFI	CFI	NFI	TLI	RMSEA
Standard	<3	>0.9	>0.80	>0.9	>0.9	>0.9	<0.05
Value	2.085	0.904	0.882	0.949	0.907	0.942	0.047
Conclusion	qualified	qualified	qualified	qualified	qualified	qualified	qualified



Table 4 Reliability and validity test results

Variable	Item	Factor Loading	Cronbach's α	AVE	CR
PEOU	4	0.609-0.891	0.854	0.578	0.841
PU	5	0.675-0.944	0.913	0.653	0.902
ATT	4	0.712-0.931	0.865	0.621	0.867
EE	4	0.687-0.783	0.818	0.529	0.818
SI	5	0.705-0.798	0.863	0.559	0.863
FC	4	0.680-0.930	0.895	0.672	0.890
BI	4	0.678-0.799	0.838	0.569	0.840

Table 4 summarizes the overall values for factor loadings, composite reliability (CR), and average variance reliability (AVE). The AVE should be greater than 0.50 (Truong & McColl, 2011), the CR should be greater than 0.70 (Srinivasan et al., 2002), as well as the factor loadings need to be higher than 0.50 (Fornell & Larcker, 1981).

In this study, the minimal factor loading observed was 0.609, the lowest CR recorded was 0.818, and the lowest AVE achieved was 0.529. As per these metrics, all outcomes met the established criteria, signifying the satisfactory performance of the scale.

Table 5 provides a thorough description of the results for the discriminant validity. Notably, the diagonal values correspond to the square root of the AVE (Average Variance Reliability) values. It is critical to note that a connection between two latent variables that surpasses 0.80 is considered significant (Schmitt & Stults, 1986).

Table 5 Discriminant Validity

	PEOU	PU	ATT	EE	SI	FC	BI
PEOU	0.760						
PU	0.259	0.808					
ATT	0.367	0.383	0.788				
EE	0.105	0.137	0.262	0.727			
SI	0.115	0.099	0.120	0.074	0.819		
FC	0.034	0.057	0.097	0.090	0.043	0.754	
BI	0.200	0.195	0.461	0.446	0.163	0.150	0.747

Structural Equation Model (SEM)

Following the completion of the Confirmatory Factor Analysis (CFA) evaluation, the current study conducted an evaluation using Structural Equation Modelling (SEM). By evaluating a predefined set of regression coefficients, the SEM approach determines whether hypothesized causal linkages are connected. The current study's hypotheses were evaluated using SEM. The model fit values after AMOS adjustment are shown in Table 6. All of the adjusted absolute and incremental fit values were within acceptable limits. The computational findings show that the SEM's fit is satisfactory.

Table 6 Model fitting test results for SEM

Content	χ^2/df	GFI	AGFI	CFI	NFI	TLI	RMSEA
Standard	<3	>0.9	>0.80	>0.9	>0.9	>0.9	<0.05
Value	2.029	0.904	0.886	0.950	0.906	0.945	0.046
Conclusion	qualified	qualified	qualified	qualified	qualified	qualified	qualified

Hypothesis Testing Results

According to the findings in Table 7, BI is significantly and directly influenced by ATT. With a standardized path coefficient () of 0.426 and a significant t-value of 8.539 ****, ATT is the most



impactful factor on BI in this survey. With a standardized path coefficient () of 0.448 and a significant t-value of 8.277 ***, The same considerable impact on BI is produced by EE.

Furthermore, SI and FC have been shown as major predictors of BI. SI has a standardized path coefficient () of 0.105 and a t-value of 2.317*, whereas FC has a standardized path coefficient () of 0.093 and a t-value of 2.117***.

Furthermore, within the context of this study, ATT serves as a moderating variable and is significantly influenced by PEOU and PU. Significantly, PEOU has a value of 0.411 and a t-value of 7.375***, whereas PU has a value of 0.259 and a t-value of 5.352***. Furthermore, PU is highly influenced by PEOU, as evidenced by a standardized path coefficient () of 0.185 and a t-value of 3.704***.

In conclusion, the data justify and support all of the hypotheses proposed in this study, substantiating the existing correlations between the variables under consideration.

Table 7 Hypothetical path verification table

Hypotheses	Path	Standardized Path Coefficient (β)	T-Value	Tests Result
H1	PU \leftarrow PEOU	0.185	3.704 ***	Supported
H2	ATT \leftarrow PU	0.259	5.352 ***	Supported
H3	ATT \leftarrow PEOU	0.411	7.375 ***	Supported
H4	BI \leftarrow ATT	0.426	8.539 ***	Supported
H5	BI \leftarrow EE	0.448	8.227 ***	Supported
H6	BI \leftarrow SI	0.105	2.317 *	Supported
H7	BI \leftarrow FC	0.093	2.117 *	Supported

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

In line with the earlier findings, H1 underscores the significance of perceived ease of use as a pivotal determinant of perceived usefulness, as evidenced by the standardized path coefficient of 0.185 within the scope of this study. Furthermore, earlier research has continuously emphasized the perceived attribute of ease of use within the field of blended learning surveys (Elkaseh et al., 2016), reinforcing its significant significance in molding users' opinions and interactions with the technology.

The statistical analysis of H2 investigates the effect of perceived usefulness on learning attitudes. In this study, the observed standardized path coefficient of 0.259 substantiates a significant influence of perceived usefulness on the degree suggested in the hypothesis. Perceived usefulness, as elucidated by technology adoption theory, serves as a crucial attribute that not only elucidates but also anticipates user inclinations and their inclination toward embracing a specific system (Al-Azawei & Lundqvist, 2016; Nagy, 2018). This empirical evidence further bolsters the understanding of the pivotal role perceived usefulness plays in shaping users' attitudes and orientations toward technology adoption.

H2's statistical study looks into the impact of perceived usefulness on learning attitudes. The observed standardized path coefficient of 0.259 in this investigation supports a considerable and meaningful influence of perceived usefulness on the degree proposed in the hypothesis.

In alignment with H4, this study substantiates the association between attitude and behavioral intention. The standardized path coefficient, measuring 0.426, underscores a significant and robust influence, further establishing attitude as an early and potent predictor within this context. Ajzen (1991) provides valuable insight, defining intention as the measure of the effort an individual is inclined to invest in accomplishing a task or attaining a desired behavior. This insight resonates with the outcomes of this study, reinforcing the pivotal role of attitude in shaping individuals' behavioral intentions.

Moving on to H5, this study validates the link between effort expectations and behavioral intentions. The standardized path coefficient, registering at 0.448, accentuates a significant and robust impact, validating the premise outlined in the hypothesis. Drawing from Festinger (1950), it's apparent that social influence is capable of reshaping an individual's intentions. This sociological perspective



emphasizes the considerable sway that religious counsel and the reputation of others can wield over an individual's spiritual convictions, especially within a particular organizational context where group members can exercise a pronounced impact on behavior (Ajzen, 1991).

According to H6, this study investigates the impact of social aspects in blended learning on students' behavioral intentions. The standardized path coefficient, measuring at 0.105, indicates a relatively weaker yet still significant effect, underscoring the correlation posited in the hypothesis. Building on the insights of Festinger (1950), it becomes evident that social influence can indeed induce shifts in individuals' intentions. From a sociological standpoint, this perspective highlights how religious guidance and the perceptions of others regarding various matters can profoundly impact an individual's spiritual orientation, particularly within the confines of a specific organizational context, where peer dynamics within a group wield substantial influence over behavior (Ajzen, 1991).

Conversely, H7 delves into the role of learning facilitation and its impact on students' behavioral intentions. The standardized path coefficient, measuring 0.093, suggests a somewhat weaker yet statistically significant influence, substantiating the hypothesis at hand. Facilitation has an impact on behavioral intentions, particularly when virtual learning environments are used. The convenience of using novel and unfamiliar virtual learning environments is closely correlated with perceived ease of use, according to previous research (Rienties et al., 2016). Furthermore, within the context of TAM, facilitation is critical in molding teachers' propensity to adopt technology and their view of its use (Teo, 2012).

Path Diagram Analysis

The conceptual framework underpinning this study encompasses a constellation of four independent variables, two intermediary variables, and a singular dependent variable. Positioned as the focal point, the dependent variable encapsulates the core outcome of this research. The intricate interplay and relationships among these elements are visually illustrated in the path diagram analysis, as portrayed in Figure 3. This graphical representation provides a succinct depiction of the intricate associations explored within the study's framework.

In this survey, the coefficient of determination (R^2) for perceived usefulness was 0.034, indicating that the variance of the independent variable perceived ease of use explains 3.4% of the overall variance. The significant influence of perceived ease of use is highlighted by a significant effect size of 0.185***. In this quantitative investigation, the determined R^2 value of 0.234 indicates that the combined impact of both independent and mediating variables contributes 23.4% to the variation in Continuing Intentions. Notably, attitude has a strong and direct influence on behavioral intention, with an effect size of 0.426***. Additionally, the two independent variables wield a significant indirect effect, evident through their respective effect sizes of 0.259*** for perceived usefulness and 0.411*** for perceived ease of use.

Furthermore, three other independent variables manifest a notable influence on behavioral intention, substantiated by an R^2 of 0.402. Here, perceived ease of use emerges as a formidable factor, accounting for 40.2% of the overall variance. The effect sizes for these variables are as follows: 0.448*** for expected effort, 0.105* for social influence, and 0.093* for facilitation. For a comprehensive visual representation, refer to Figure 3, which encapsulates these intricate relationships and their corresponding effects within the text of the study.

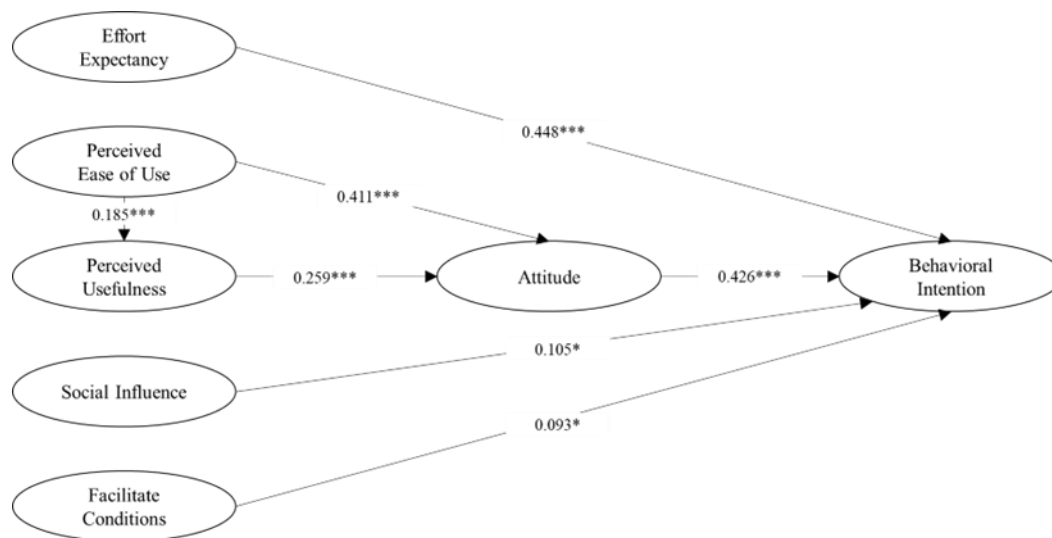


Figure 2 Path Diagram Analysis

Conclusion

The main goal of this study was to thoroughly investigate the potential impact of numerous elements on the long-term intention of art and design undergraduates toward blended learning. This investigation specifically focused on three prominent public universities within the Chengdu region. Utilizing a meticulously designed conceptual framework, the study formulated seven distinct hypotheses, each aimed at exploring and verifying the intricate interconnections between key variables. These variables encompassed behavioral intention, perceived ease of use, social influence, attitude, facilitation, and effort expectation.

To achieve this goal, a strong survey methodology was used, with the participation of 488 undergraduate students who had firsthand experience with blended teaching methodologies. The study intended to untangle and illustrate the potential major impacts that these variables collectively exert on the sustained intention of art and design undergraduates toward blended learning by meticulously analyzing the data collected from the completed questionnaires. The main objective was to better comprehend the factors that influence students' attitudes and preferences in the context of blended learning within the specified academic setting.

To ensure the alignment of the collected data with the predetermined hypotheses, a rigorous examination of the measurement instruments was conducted through confirmatory factor analysis (CFA). Additionally, Structural Equation Modeling (SEM) was employed as a robust methodology to meticulously assess and corroborate the hypothesized relationships among independent, mediating, and enduring variables. This analytical approach specifically delved into elucidating the intricate connections between independent variables, mediating variables, and the persistent intentions of the participants.

The study's findings revealed important information. Notably, it was discovered that ATT had a significant and direct influence on BI. Furthermore, the study found that both EE and PEOU had a significant and direct influence on ATT. Among these correlations, it is interesting to observe that, despite having the lowest standardized path coefficient, convenience remained a considerable direct effect on BI.

These outcomes contribute to a richer understanding of the interplay among the various factors under scrutiny, lending credence to the formulated hypotheses and further elucidating the complex dynamics that govern students' intentions and behaviors in the realm of blended learning.

Art and design students participating in this survey believe that effort expectation is the most significant determinant of behavioral intention, while behavioral intention is directly influenced by social influence, convenience, and attitude, and indirectly influenced by ease of use and usefulness. In this quantitative study, effort expectation is the most significant independent variable affecting behavioral intention, indicating that the Academic Affairs Office can take the initiative to assign



teaching goals that the entire blended learning is expected to achieve, to significantly determine the behavioral intention goals of students and teachers, and design teaching preparation, implementation, and evaluation criteria in teaching management according to the effort goals of teaching operation. Promote front-line teachers to achieve blended learning classroom organization according to the goals proposed by the Academic Affairs Office, and enhance the participation of students' behavioral intentions.

Discussion

According to target learners, the influence factor of attitude on behavioral intention ranks second, indicating that educational administration administrators can use the learning platform to feedback on learning effects, clearly requiring front-line teachers to guide students' learning behaviors through the feedback data of the learning platform and help front-line teachers to influence students' behaviors in the teaching process and maintain a welcoming attitude towards teachers.

Perceived ease of use ranked third in terms of its direct impact on attitudes and indirect impact on behavioral intentions, indicating that blended learning can help teaching administrators manage the use of blended learning platforms, and it is necessary to provide teachers with diversified teaching methods and easy-to-use digital intelligent tools to improve students' blended learning attitudes and indirectly affect their initiative in behavioral intentions.

The direct impact of perceived usefulness on attitude and the indirect impact on behavioral intention rank fourth. From this, it can be concluded that the Teaching Affairs Office pays attention to the practicability in teaching in the arrangement of teaching guidelines, so teachers need to prepare useful practical projects, enhance students' enthusiasm towards blended learning, and indirectly affect the initiative of their behavioral intention.

The influence factor of social influence on behavioral intention ranks 5th, indicating that the Teaching Affairs Office needs to apply the mixed learning platform to construct an easy-to-use resource base related to society, build mixed and interactive learning methods related to society, assist teachers in teaching, and directly promote and influence students' behavioral intention.

Finally, convenience also has a certain impact on behavioral intention, ranking 6th, indicating that in the preparation of teaching equipment, the Teaching Affairs Office actively introduces equipment suitable for teaching, facilitates the teaching operation of teachers, and directly enhances the learning behavioral intention of students.

Recommendation

Table 8 Recommendation Diagram

Variable	Teacher	Office of Teaching Affairs
Perceived Ease of Use	1. Simple platform operation. 2. Diversified interface operation methods.	1. Support the educational administration system. 2. Easy application management.
Perceived Usefulness	1. Emphasize practical application. 2. Improve the practical efficiency of learning.	1. The arrangement of convenient practice tasks. 2. Make teaching management more practical.
Attitude	1. Share experiences and insights. 2. Keep a positive attitude.	1. Attitude positivity has data feedback. 2. Make graphic tables for reference.
Effort Expectancy	1. Real cases inspire effort	1. Monitor the achievement of effort goals through data. 2. Advise on desired goals



Variable	Teacher	Office of Teaching Affairs
	2. According to the data, determine the goal of teaching work	
Social Influence	1. Mutual influence, communication, and sharing. 2. Collaborate through the platform.	1. Collect suggestions from the system 2. Release social tasks
facilitating conditions	1. Provide a convenient Internet data-sharing platform. 2. Provides a convenient task and time lookup platform.	1. The rationality of the overall regulation of learning time and task 2. Easy to adjust layout convenience
behavioral intention	1. Interesting content online enhances learning intentions 2. Supporting diverse behaviors stimulates learning intentions	1. Conduct data statistics on the behavioral intention of learning. 2. Identify inadequate behavioral intentions and correct them

The above table content will be helpful to students' learning and education.

The researchers discovered through measures that to successfully deploy blended teaching in the art and design programmed, educational institutions must increase the building of blended learning platforms. First, detailed user manuals and technical instructions must be supplied to students who are unfamiliar with the blended learning platform to ensure that they comprehend the various learning operations of the learning platform. Second, when updates are made to the main learning platform, students should be presented with the new features as soon as possible. Simultaneously, services and support for the blended learning technology system should be improved.

In terms of perceived ease of use and perceived utility, schools should collaborate with software providers to create user-friendly blended learning platforms with a simple interface and smooth functioning to reduce student confusion. The blended learning platform should provide clear navigation, function labels, and guides to help students complete their learning tasks more easily. Emphasize the practical value and advantages of blended learning and show students how it can enhance learning effectiveness and flexibility.

In terms of promoting positive attitudes and expected effort, educators can encourage students to have positive attitudes towards blended learning by sharing success stories and student insights. Emphasize the sense of achievement and self-improvement in the learning process to stimulate students' interest and commitment. Provide real-life examples or data to demonstrate the positive impact of blended learning on academic performance and skill enhancement, thus enhancing students' expected efforts.

Promote interaction and cooperation among students in enhancing social impact and attitudes, and encourage them to share learning experiences and exchange ideas to increase positive social impact on blended learning. Teachers and parents should encourage students to actively participate in blended learning by providing positive support and feedback to increase students' motivation.

Simultaneously, it is critical to optimize facilitation and ensure that students have access to a solid internet connection and adequate hardware equipment to avoid disruption or annoyance to their learning. Provide students with flexible study schedules so that they can study at a time and location that is convenient for them. Finally, schools and tertiary teachers should stimulate behavioral intention and engagement by designing engaging online learning content, including diverse teaching and learning materials, interactive activities, and hands-on projects to stimulate students' interest and motivation to



learn. Provide real-time tracking and feedback on learning progress to encourage students to stay engaged and monitor their learning process.

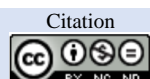
Taken collectively, the preceding recommendations are required for the successful deployment and continuing improvement of blended learning. Educational institutions can provide a more productive and satisfying blended learning experience that better contributes to student learning outcomes and development by improving PEOU, and PU, positively shaping ATT and EE, enhancing SI and support, optimizing FC, and stimulating BI and engagement.

Limitations and the Subsequence Research

Blended learning has significant advantages in providing flexibility and personalized learning experiences, however, there are some limitations. Firstly, blended learning relies on a stable Internet connection and appropriate technological equipment. Students who do not have adequate technical support or face a digital divide, they may face barriers to learning, which can reduce learning outcomes. Second, for some students, independent learning and self-management may lead to insufficient motivation to learn. Students' dedication and willingness to learn may be reduced if they do not receive face-to-face teacher direction and peer contact. Finally, the implementation of blended learning may require a sizable investment in both human and technology resources, such as the development of online course materials and maintenance of the learning platform. Certain obstacles may arise for schools or organizations with low resources.

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