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# Satisfaction and Behavioral Intention in Blended Learning: Evidence from Painting Undergraduates in China

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## Abstract

**Purpose:** This study examined the key factors influencing satisfaction (SAT) and behavioral intention (BI) toward blended learning among undergraduate painting majors at Sichuan Conservatory of Music (SCM) in Chengdu, China. **Research design, data and methodology:** A structured questionnaire was distributed to 500 students, with 456 valid responses collected using judgmental and quota sampling. Confirmatory factor analysis (CFA) verified construct validity, while structural equation modeling (SEM) evaluated relationships among seven latent variables: effort expectancy (EE), system quality (SYQ), perceived ease of use (PEOU), perceived usefulness (PU), performance expectancy (PE), SAT, and BI. **Results:** Perceived usefulness had the strongest direct effect on satisfaction ($\beta = 0.520$), while performance expectancy emerged as the most significant predictor of behavioral intention ($\beta = 0.311$). Satisfaction was also shown to mediate the indirect effects of SYQ, PEOU, and PU on behavioral intention. **Conclusions:** The findings extend the unified theory of acceptance and use of technology (UTAUT) and technology acceptance model (TAM) by emphasizing SAT's mediating role between system-related perceptions and intention. Practically, aligning digital platforms with artistic pedagogy and user expectations can enhance learning satisfaction and behavioral engagement. These insights offer guidance for institutions aiming to design effective blended learning strategies tailored to creative disciplines.

**Keywords:** Satisfaction, Behavioral Intention, Blended Education, Art Design, Undergraduates

**JEL Classification Code:** A22, C12, D91, I23, O30

## 1. Introduction

Blended learning is an increasingly common approach in education, combining traditional classroom instruction with digital technologies to support flexible and self-paced learning (Fernández-Batanero et al., 2021). Its importance was amplified during the COVID-19 pandemic, which underscored its role in minimizing educational disruption (Tempornsin et al., 2019). Blended models offer students control over when, where, and how they learn, while maintaining the benefits of face-to-face interaction (Banditvilai, 2016; Staker & Horn, 2012). This dual-mode approach is also adopted in professional and artistic training due to its adaptability (Lothridge et al., 2013). However, the flexibility of blended learning makes it difficult to create a universally effective framework, particularly across disciplines (Moskal et al., 2013).

While blended learning contributes to inclusive and quality education, aligning with Sustainable Development Goal 4, this background can be summarized as a global effort to promote lifelong learning for all (Boeren, 2019). However, the integration of digital tools in artistic disciplines like painting presents unique challenges compared to general education. The hands-on, process-oriented nature of visual arts requires more nuanced instructional design, especially when adapting to digital platforms.

In painting education, technology is increasingly used to enhance creative expression and student engagement. Applications, social media, and interactive content can enrich the learning process for students familiar with digital tools (Shahzad et al., 2021). However, technical limitations such as delayed system responses and complex interfaces, can reduce the effectiveness of these platforms (Kumarasamy et al., 2020; Paudel, 2021). Despite growing

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interest in blended learning, research specific to visual arts remains scarce. Existing studies often generalize findings across disciplines and overlook the pedagogical differences in art-based learning environments (Tan & Yi, 2023). This leaves a gap in understanding how blended learning functions within practice-intensive, sensory-driven fields such as painting.

One notable innovation in China is the Rain-Classroom Teaching System (RCTS), which integrates cloud technology, mobile access, and artificial intelligence to support blended learning. It connects seamlessly with WeChat and offers real-time quizzes, message boards, and discussion functions to facilitate interaction across learning stages (Shu et al., 2019; Yang et al., 2020).

In this study, satisfaction is defined as students' affective evaluation of the value and usability of blended learning systems (Liaw, 2008), while behavioral intention refers to their likelihood of continuing to use these systems based on perceived ease and usefulness (Davis, 1989). Although these constructs are grounded in technology acceptance models like the Technology Acceptance Model (TAM) and Unified Theory of Acceptance and Use of Technology (UTAUT), their application to painting education remains theoretically underexplored. Specifically, few studies have tested how these models perform in creative, discipline-specific contexts such as fine arts.

This research investigates satisfaction and behavioral intention toward blended learning among undergraduate painting majors at the Sichuan Conservatory of Music (SCM). It examines five key antecedents, effort expectancy, system quality, perceived ease of use, perceived usefulness, and performance expectancy, within the context of the RCTS. By focusing on a specialized student population in a creative discipline, this study contributes to both theoretical refinement of TAM and UTAUT and offers practical insights for designing effective blended learning strategies in the visual arts. The proposed model and hypotheses reflect this goal of contextualizing technology acceptance in an art-based educational environment.

## 2. Literature Review

### 2.1 Unified Theory of Acceptance and Use of Technology (UTAUT)

The Unified Theory of Acceptance and Use of Technology (UTAUT) by Venkatesh et al. (2003) identifies four core predictors of technology adoption: performance expectancy, effort expectancy, social influence, and facilitating conditions. These are influenced by user demographics such as age, gender, and experience.

UTAUT has been widely applied to understand user acceptance of digital systems across sectors, including education. In learning contexts, it has helped explain student intentions to adopt online and blended technologies (Dwivedi et al., 2019; Williams et al., 2015).

However, prior studies have shown inconsistent results across contexts. Constructs like effort expectancy and social influence have shown weak or variable effects, pointing to possible limitations in the model's generalizability.

Moreover, UTAUT does not explicitly address measurement invariance across cultures or academic disciplines. This is a concern in Chinese educational settings, especially in visual arts, where students may interact with technology differently than those in STEM fields.

This study contributes by applying UTAUT within a creative learning context, aiming to assess its relevance and robustness among painting undergraduates in China.

### 2.2 Effort Expectancy

Effort expectancy refers to students' perception of how much effort is required to learn and use a digital learning system (Venkatesh et al., 2003). It emphasizes the system's clarity, learnability, and the degree to which users feel they can comfortably operate it without technical strain (Raman et al., 2014). In the context of blended learning, this includes navigating features, accessing materials, and interacting with instructors or peers through the platform.

Indicators of effort expectancy typically include interface simplicity, response time, and the extent to which students can accomplish tasks without repeated guidance (Dwivedi et al., 2011). A system that supports quick familiarization and minimizes frustration tends to increase learners' motivation and engagement.

This construct is particularly relevant in art-related disciplines, where students may be more focused on creative expression than on technological fluency. A platform that reduces perceived complexity can encourage broader participation and lead to more positive learning experiences (Syamala, 2025).

Based on these considerations, the following hypothesis is proposed:

**H1:** Effort expectancy has a significant impact on satisfaction among painting major undergraduates

### 2.3 System Quality

System quality refers to the technical performance of a digital learning platform, including its reliability, processing speed, and ease of access (DeLone & McLean, 2003). It plays a critical role in shaping students' learning experiences by influencing how efficiently they interact with course content and tools. Core components such as platform

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stability, fast response times, and consistent functionality contribute directly to technology adoption and engagement in blended learning (Blieck et al., 2020).

Stable system performance fosters learner satisfaction and supports educational outcomes, particularly in virtual environments where system failures can disrupt the learning process (Sayaf, 2023). Within the DeLone and McLean IS Success Model, system quality is a foundational factor influencing user satisfaction and usage frequency.

In creative disciplines like painting, digital learning platforms must maintain visual clarity and real-time responsiveness to support interactive content, such as drawing simulations or visual critiques. A high-quality system enhances usability and perceived value, which can increase student motivation and focus (Nazira et al., 2024).

Given these demands in art-based education, this study examines how system quality affects learner satisfaction in a blended environment. To assess this relationship within the art education setting, the following hypothesis is proposed:

**H2:** System quality has a significant impact on satisfaction among painting major undergraduates.

## 2.4 Perceived Ease of Use

Perceived ease of use reflects students' belief that engaging with a learning system will be free from mental effort or confusion (Elkaseh et al., 2016). It centers on the user's confidence in navigating the platform and completing academic tasks without stress or steep learning curves. This construct is widely recognized as a key predictor of technology adoption (Tennakoon et al., 2023).

In blended learning, perceived ease of use influences students' willingness to rely on digital tools throughout their studies. When platforms are intuitive and clearly organized, learners are more likely to use them regularly and experience fewer barriers to task completion (Bakı et al., 2018; Juhary, 2014).

Moreover, ease of use often enhances students' perceptions of the system's value. A platform that feels natural to operate encourages deeper engagement, which can lead to increased satisfaction and improved academic performance (Eze et al., 2021).

Given its relevance in shaping positive learning experiences, especially in fields where technical fluency may vary, this study proposes the following hypothesis:

**H3:** Perceived ease of use has a significant impact on satisfaction among painting major undergraduates.

## 2.5 Perceived Usefulness

Perceived usefulness refers to students' belief that using a digital platform enhances their academic performance (Tennakoon et al., 2023). It reflects how well the system supports learning goals, such as improving understanding, saving time, or increasing study efficiency (Juhary, 2014).

In blended learning, students are more likely to engage with technology when they see clear academic benefits. This construct plays a central role in models like the Technology Acceptance Model (TAM), where system functionality is directly linked to user acceptance and satisfaction (Eze et al., 2021; López-Pérez et al., 2011).

In painting education, perceived usefulness may involve how digital tools assist with demonstrations, visual feedback, or virtual critiques. These functions are particularly valuable for hands-on, studio-based learning. For example, platforms that allow students to review techniques or receive feedback on their portfolios can enhance their learning experience.

Despite its importance, perceived usefulness has not been fully explored in creative disciplines. Further research is needed to understand how digital platforms contribute to learning in visual arts. To investigate this relationship in the blended learning context, the following hypothesis is proposed:

**H4:** Perceived usefulness has a significant impact on satisfaction among painting major undergraduates.

## 2.6 Performance Expectancy

Performance expectancy refers to students' belief that using a system will improve their academic performance and learning efficiency (Venkatesh et al., 2003). It has been widely recognized as a strong predictor of technology adoption, especially when users expect tangible academic benefits (Yee & Abdullah, 2021).

In blended learning, students often assess digital platforms based on their ability to support skill development, content mastery, or improved outcomes. For example, systems that provide immediate feedback, visual resources, or progress tracking can strengthen students' engagement and learning confidence (Bervell & Umar, 2017). This belief becomes even more relevant in practice-based disciplines where performance is closely tied to skill application.

In visual arts education, students may find blended tools valuable if they facilitate better technique demonstration, iterative feedback, or exposure to curated digital galleries. These perceived advantages influence their willingness to continue using the platform.

Despite its proven significance, limited research has investigated performance expectancy in the context of art-related disciplines. Understanding how it shapes technology adoption in this field fills an important theoretical gap. To explore this relationship in painting education, the following hypothesis is proposed:

**H5:** Performance expectancy has a significant impact on satisfaction among painting major undergraduates.

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### 2.7 Satisfaction

Satisfaction refers to how students evaluate their digital learning experience, including system functionality, instructional quality, and progress toward learning goals (Wong et al., 2014). It also reflects emotional responses and is often linked to future engagement in online or blended environments (Kuo et al., 2013).

In blended learning, satisfaction is shaped by perceived usefulness and ease of use. When students find a system effective and user-friendly, they are more likely to stay engaged and recommend it to others (Eom et al., 2006). The Information Systems Success Model identifies satisfaction as a key mediator between system performance and continued use (DeLone & McLean, 2003).

In painting education, satisfaction may depend on factors like visual clarity and interactive feedback, which are not always prioritized in traditional digital learning research. Addressing this gap offers practical insight into how creative learners respond to blended platforms. To assess satisfaction's role in shaping digital engagement among painting students, this study proposes:

**H6:** Satisfaction has a significant impact on behavioral intention among painting major undergraduates.

### 2.8 Behavioral Intention

Behavioral intention refers to students' mental commitment to continue using digital learning platforms. It reflects their evaluations of the system's usefulness and ease of use (Yee & Abdullah, 2021). This construct indicates learners' psychological readiness to adopt e-learning technologies and is a strong predictor of actual usage behavior (Ustun et al., 2023).

Behavioral intention involves the conscious decision to integrate blended learning tools into daily study routines. It directly influences how consistently students engage with digital resources over time (Bao & Zhu, 2022). Within the UTAUT framework, behavioral intention connects students' cognitive assessments with their practical adoption of technology in online learning environments (Agudo-Peregrina et al., 2014).

This factor also affects specific learning behaviors, including how often students participate, how deeply they interact with content, and whether they complete online courses (Songkram et al., 2023).

## 3. Research Methods and Materials

### 3.1 Research Framework

This study aims to examine the key factors influencing undergraduate students' satisfaction and behavioral intention toward blended learning using the Rain-Classroom Teaching System (RCTS) at a public university in Chengdu, China. The conceptual framework incorporates seven core constructs. These include five independent variables, Effort Expectancy (EE), System Quality (SYQ), Perceived Ease of Use (PEOU), Perceived Usefulness (PU), and Performance Expectancy (PE), as well as one mediating variable, Satisfaction (SAT), and one dependent variable, Behavioral Intention (BI).

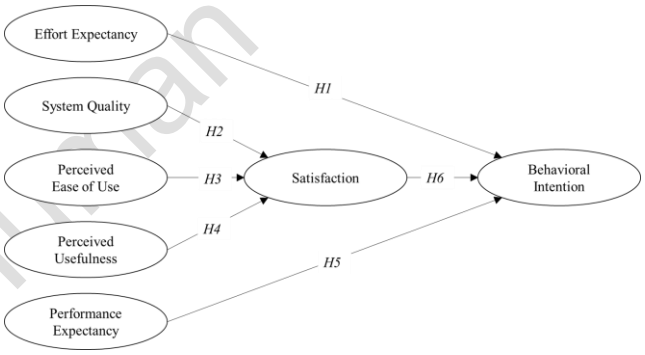


**Figure 1:** Conceptual Framework

The framework is designed to explore the causal relationships among these latent constructs. Specifically, the study investigates how the independent variables impact satisfaction, and in turn, how satisfaction influences students' behavioral intention to adopt blended learning. Based on this framework, the following hypotheses are proposed:

H1: Effort expectancy has a significant impact on satisfaction among painting major undergraduates.

H2: System quality has a significant impact on satisfaction among painting major undergraduates.

H3: Perceived ease of use has a significant impact on satisfaction among painting major undergraduates.

H4: Perceived usefulness has a significant impact on satisfaction among painting major undergraduates.

H5: Performance expectancy has a significant impact on satisfaction among painting major undergraduates.

H6: Satisfaction has a significant impact on behavioral intention among painting major undergraduates.

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### 3.2 Research Methodology

This quantitative study was conducted among undergraduate painting majors at the Sichuan Conservatory of Music (SCM), located in Sichuan Province, China. The target population included students currently enrolled in blended learning courses delivered through the Rain-Classroom Teaching System (RCTS). A multistage sampling approach was used, combining judgmental and quota sampling to ensure representation across academic years and painting programs.

Data were collected using a structured online questionnaire. All items were rated on a five-point Likert scale ranging from 1 ("strongly disagree") to 5 ("strongly agree"), based on established practices in technology acceptance research. The instrument measured seven latent variables: Effort Expectancy (EE), System Quality (SYQ), Perceived Ease of Use (PEOU), Perceived Usefulness (PU), Performance Expectancy (PE), Satisfaction (SAT), and Behavioral Intention (BI).

Content validity was evaluated using item-objective congruence (IOC), reviewed by a panel of five experts, three full professors and two associate professors, each with over ten years of experience in blended education. IOC values for all items met or exceeded the 0.60 threshold (Turner & Carlson, 2003), confirming satisfactory content alignment.

Internal consistency was examined through a pilot study involving 40 undergraduate painting students. Cronbach's alpha coefficients for all constructs exceeded 0.70, indicating strong internal reliability (Nunnally & Bernstein, 1994).

Following validation, the final survey was administered to a sample of 500 students, yielding 456 valid responses. Ethical approval was obtained from SCM's academic committee. Participation was voluntary, and informed consent was secured from all respondents. Participants were assured of confidentiality and had the option to withdraw at any point.

Confirmatory Factor Analysis (CFA) was conducted using JAMOVI 2.3.21, applying standard model fit indices including CFI, TLI, RMSEA, and $\chi^2$/df as per recommended thresholds. Structural Equation Modeling (SEM) was subsequently performed using AMOS 24.0 to test the hypothesized relationships among constructs.

### 3.3 Population and Sample Size

This study focused on undergraduate painting majors at the Sichuan Conservatory of Music (SCM) in Sichuan Province, China. All participants had experience with blended learning through the Rain-Classroom Teaching System (RCTS), the designated e-learning platform used in their coursework. The population included students enrolled in two programs: Oil Painting and Chinese Painting.

RCTS, jointly developed by Tsinghua University and XuetangX and endorsed by China's Ministry of Education, integrates online and in-person instruction through features like multimedia sharing, mobile-based interaction, and real-time feedback, making it well-suited for visual and practical learning in painting education (Han & Lu, 2020; Wang et al., 2024).

The minimum required sample size was determined using Hair et al.'s (2019) guideline for structural equation modeling (SEM), recommending at least 10 participants per observed variable. Based on 42 items across all constructs, a minimum of 420 responses was required to ensure robust analysis.

A total of 500 valid responses were collected from a population of 537 eligible students. The sampling process used a two-phase approach. Initially, judgmental sampling identified students with relevant RCTS experience. This was followed by quota sampling to ensure proportional representation based on academic year and major program.

While this sampling strategy prioritized contextual relevance and diversity across the population, additional randomization techniques could further enrich future sampling efforts.

To strengthen the study's measurement validity, procedural steps were taken to reduce the potential for common method bias. These included ensuring participant anonymity, varying item phrasing, and separating constructs within the survey instrument to minimize response tendencies.

Table 1 displays the sample distribution, proportionally aligned with the population structure:

**Table 1:** Distribution of Population and Quota-Based Sample

| Major Program | Grade | Population | Proportional Sample Size |
|---|---|---|---|
| Oil Painting | Freshman | 78 | 73 |
| | Sophomore | 90 | 84 |
| | Junior | 93 | 87 |
| | Senior | 59 | 55 |
| Chinese Painting | Freshman | 60 | 56 |
| | Sophomore | 51 | 47 |
| | Junior | 57 | 53 |
| | Senior | 49 | 45 |
| **Total** | | **537** | **500** |

## 4. Results and Discussion

### 4.1 Demographic Information

After data screening and validation, 456 completed responses were retained for analysis. The gender breakdown revealed a higher proportion of female participants, accounting for 62.1% of the sample, compared to 37.9%

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male students.

With regard to academic year, the distribution showed that juniors comprised the largest subgroup (28.1%), followed by sophomores (26.7%) and freshmen (23.5%). Seniors made up the remaining 21.7% of the respondents.

In terms of academic concentration, 59% of students specialized in oil painting, while 41% pursued Chinese painting. This distribution reflects the actual structure of the target population and supports the representativeness of the sample.

**Table 2:** Demographic Information

| Demographic and General Data (N=456) | | Frequency | Percentage |
|---|---|---|---|
| Gender | Male | 173 | 37.9 |
| | Female | 283 | 62.1 |
| Grade | Freshman | 107 | 23.5 |
| | Sophomore | 122 | 26.7 |
| | Junior | 128 | 28.1 |
| | Senior | 99 | 21.7 |
| Major | Oil Painting | 269 | 59.0 |
| | Chinese Painting | 187 | 41.0 |

**Note:** Constructed by the Author

## 4.2 Confirmatory Factor Analysis (CFA)

Confirmatory Factor Analysis (CFA) was conducted to evaluate the validity of the measurement model and assess the alignment between observed data and the hypothesized factor structure. CFA is commonly applied in educational and behavioral research to test the relationships between theoretical constructs and their associated indicators.

To evaluate model fit, several Goodness-of-Fit (GOF) indices were used, each offering a different perspective on how well the model represents the data. As shown in Table 3, the model met all recommended thresholds. The ratio of chi-square to degrees of freedom (CMIN/DF = 2.076) was below the upper limit of 3.00, indicating an acceptable level of fit (Hair et al., 2019). Fit indices such as GFI, AGFI, CFI, TLI, and NFI all exceeded recommended values (typically ≥ 0.90 for most indices and ≥ 0.80 for AGFI), while RMSEA was 0.049, which falls below the 0.08 threshold, suggesting minimal approximation error. Collectively, these results support the adequacy of the model.

**Table 3:** Goodness of Fit for Confirmatory Factor Analysis

| Index | Criterion | Statistical Value |
|---|---|---|
| CMIN/DF | < 5 (Al-Mamary & Shamsuddin, 2015; Awang, 2012) | 2.076 |
| GFI | ≥ 0.80 (Baumgartner & Homburg, 1996) | 0.919 |
| AGFI | ≥ 0.80 (Sica & Ghisi, 2007) | 0.895 |
| NFI | ≥ 0.80 (Wu & Wang, 2006) | 0.909 |
| CFI | ≥ 0.80 (Wu & Wang, 2006) | 0.950 |
| TLI | ≥ 0.80 (Wu & Wang, 2006) | 0.941 |
| RMSEA | < 0.08 (Hu & Bentler, 1999) | 0.049 |

**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 = normalized fit index, CFI = comparative fit index, TLI = Tucker Lewis index and RMSEA = root mean square error of approximation

To assess convergent validity, three metrics were examined: factor loadings, composite reliability (CR), and average variance extracted (AVE). Updated guidelines suggest that factor loadings should exceed 0.50, CR should be above 0.70, and AVE should be greater than 0.50 for each construct to ensure satisfactory convergence (Hair et al., 2019; Henseler et al., 2015). As shown in Table 4, all constructs met these benchmarks. Factor loadings ranged from 0.567 to 0.977, CR values ranged from 0.762 to 0.883, and AVE scores were all above 0.50.

**Table 4:** Confirmatory Factor Analysis (CFA), Composite Reliability (CR), and Average Variance Extracted (AVE) Results

| Variable | Source of Questionnaire (Measurement Indicator) | No. of Item | Cronbach's Alpha | Factor Loading | CR | AVE |
|---|---|---|---|---|---|---|
| Effort Expectancy (EE) | Rudhumbu (2022) | 3 | 0.838 | 0.567-0.959 | 0.870 | 0.637 |
| System Quality (SYQ) | Pyo et al. (2021) | 3 | 0.911 | 0.567-0.803 | 0.832 | 0.502 |
| Perceived Ease of Use (PEOU) | Nadlifatin et al. (2020) | 4 | 0.803 | 0.774-0.793 | 0.825 | 0.612 |
| Perceived Usefulness (PU) | Keržič et al. (2019) | 5 | 0.814 | 0.774-0.793 | 0.762 | 0.517 |
| Performance Expectancy (PE) | Patil and Undale (2023) | 5 | 0.851 | 0.672-0.977 | 0.883 | 0.660 |
| Satisfaction (SAT) | Bonilla-Priego et al. (2024) | 4 | 0.746 | 0.737-0.817 | 0.835 | 0.628 |
| Behavioral Intention (BI) | Anthony et al. (2022) | 5 | 0.778 | 0.737-0.817 | 0.823 | 0.608 |

**Note:** CR = Composite Reliability, AVE = Average Variance Extracted

Discriminant validity was assessed by examining the inter-construct correlation matrix. According to Rönkkö and Cho (2022), discriminant validity is achieved when the correlation between any two latent constructs is less than 0.80. As shown in Table 5, all pairwise correlation coefficients remained below this threshold, with the highest correlation observed at 0.436 (between Perceived Usefulness and Satisfaction). These results confirm that each construct is distinct from the others in the model.

**Table 5:** Discriminant Validity

| Variable | Factor Correlations | | | | | | |
|---|---|---|---|---|---|---|---|
| | EE | SYQ | PEOU | PU | PE | SAT | BI |
| **EE** | **0.798** | | | | | | |
| **SYQ** | 0.081 | **0.709** | | | | | |
| **PEOU** | 0.036 | 0.126 | **0.782** | | | | |
| **PU** | 0.139 | 0.040 | 0.127 | **0.719** | | | |
| **PE** | 0.009 | 0.134 | 0.079 | 0.070 | **0.812** | | |

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| Variable | Factor Correlations | | | | | | |
|---|---|---|---|---|---|---|---|
| | EE | SYQ | PEOU | PU | PE | SAT | BI |
| SAT | 0.136 | 0.192 | 0.227 | 0.436 | 0.137 | **0.792** | |
| BI | 0.134 | 0.226 | -0.002 | 0.057 | 0.350 | 0.275 | **0.780** |

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

## 4.3 Structural Equation Model (SEM)

The Structural Equation Model (SEM) is a powerful multivariate statistical technique used to evaluate complex relationships among latent constructs. It is particularly useful in educational research, where it enables the testing of theoretical frameworks and the examination of both direct and indirect effects among variables.

SEM extends the capabilities of Confirmatory Factor Analysis (CFA) by incorporating structural path analysis. This approach allows researchers to assess the causal influence of exogenous (independent) variables on endogenous (dependent) variables, as well as the interrelationships among the endogenous constructs themselves.

Before testing the structural model, Goodness-of-Fit (GOF) indices were examined to confirm the model's adequacy. The same GOF benchmarks applied in the CFA were used here to ensure consistency in model evaluation. As shown in Table 6, all SEM fit indices met the recommended thresholds, indicating that the model demonstrates a satisfactory fit to the data. These results confirm the structural model's appropriateness for hypothesis testing and further analysis.

**Table 6:** Goodness of Fit for Structural Equation Modeling

| Index | Criterion | Statistical Value |
|---|---|---|
| CMIN/DF | < 5 (Al-Mamary & Shamsuddin, 2015; Awang, 2012) | 1.928 |
| GFI | ≥ 0.80 (Baumgartner & Homburg, 1996) | 0.919 |
| AGFI | ≥ 0.80 (Sica & Ghisi, 2007) | 0.901 |
| NFI | ≥ 0.80 (Wu & Wang, 2006) | 0.910 |
| CFI | ≥ 0.80 (Wu & Wang, 2006) | 0.954 |
| TLI | ≥ 0.80 (Wu & Wang, 2006) | 0.949 |
| RMSEA | < 0.08 (Hu & Bentler, 1999) | 0.045 |

**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 = normalized fit index, CFI = comparative fit index, TLI = Tucker Lewis index and RMSEA = root mean square error of approximation

## 4.4 Research Hypothesis Testing Result

The structural model results confirmed that all six proposed hypotheses were supported, with each path coefficient showing statistical significance. Among the variables influencing satisfaction, Perceived Usefulness (PU) had the most substantial effect, followed by Perceived Ease of Use (PEOU) and System Quality (SYQ). As for behavioral intention, the most influential predictors were Performance Expectancy (PE), Satisfaction (SAT), and Effort Expectancy (EE).

The model also demonstrated acceptable explanatory power. The $R^2$ value for Satisfaction (SAT) was 0.328, indicating that 32.8% of the variance in satisfaction could be explained by PU, PEOU, and SYQ. Meanwhile, the $R^2$ for Behavioral Intention (BI) was 0.180, suggesting that 18.0% of the variance in behavioral intention was accounted for by PE, EE, and SAT.

**Table 7:** Hypothesis Testing Result

| Hypothesis | Standardized path coefficients (β) | t-value | Test Result |
|---|---|---|---|
| H1: BI ← EE | 0.117 | 2.331* | Supported |
| H2: SAT ← SYQ | 0.154 | 3.054* | Supported |
| H3: SAT ← PEOU | 0.184 | 3.616* | Supported |
| H4: SAT ← PU | 0.520 | 8.616* | Supported |
| H5: BI ← PE | 0.311 | 5.984* | Supported |
| H6: BI ← SAT | 0.263 | 4.833* | Supported |

**Note:** *=p-value<0.05

H1 confirmed that Effort Expectancy (EE) significantly influences Behavioral Intention (BI) (β = 0.117). This finding aligns with prior studies indicating that when students perceive a system as requiring less effort, they are more likely to adopt and continue using it (Al-Qeisi et al., 2014; Huang & Teo, 2021; Venkatesh et al., 2003).

H2 demonstrated that System Quality (SYQ) has a positive effect on Satisfaction (SAT) (β = 0.154). This supports previous research highlighting the importance of platform reliability, speed, and ease of access in shaping users' satisfaction with educational technologies (Aparicio et al., 2017; Bharati, 2003; Bhuasiri et al., 2012).

H3 showed that Perceived Ease of Use (PEOU) significantly contributes to Satisfaction (SAT) (β = 0.184). This relationship reflects established technology adoption theory, suggesting that systems perceived as user-friendly tend to enhance user satisfaction in blended learning environments (Alshammari & Babu, 2025; Joo et al., 2014; Nuryakin et al., 2023).

H4 revealed that Perceived Usefulness (PU) was the strongest predictor of Satisfaction (SAT) (β = 0.520). This supports the Technology Acceptance Model (TAM) and subsequent studies showing that students are more satisfied when they believe the system enhances their academic performance (Bhattacherjee, 2001; Holmes et al., 2019; Joo et al., 2014).

H5 confirmed that Performance Expectancy (PE) significantly affects Behavioral Intention (BI) (β = 0.311). This outcome is consistent with UTAUT-based studies, where individuals' belief in the performance benefits of a system strongly influences their intention to adopt it (Alblooshi & Abdul Hamid, 2022; Strzelecki & ElArabawy, 2024; Venkatesh et al., 2003).

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H6 indicated a significant relationship between Satisfaction (SAT) and Behavioral Intention (BI) ($\beta = 0.263$). This is in line with previous findings that satisfaction not only reflects users' emotional responses but also acts as a key driver of continued use and positive word-of-mouth in digital learning environments (Bhattacherjee, 2001; DeLone & McLean, 2003; Shahijan et al., 2016).

## 5. Conclusions and Recommendation

### 5.1 Conclusions

This study investigated the determinants of satisfaction and behavioral intention toward blended learning among undergraduate painting majors at the Sichuan Conservatory of Music. The research framework integrated seven latent constructs: Effort Expectancy, System Quality, Perceived Ease of Use, Perceived Usefulness, Performance Expectancy, Satisfaction, and Behavioral Intention, based on established technology acceptance theories.

A quantitative survey was conducted with 500 students, and 456 valid responses were analyzed using Confirmatory Factor Analysis to assess the measurement model and Structural Equation Modeling to test hypothesized relationships. The model showed acceptable fit, and all six hypotheses were supported.

Perceived Usefulness emerged as the strongest predictor of Satisfaction, which may be attributed to the visually intensive and hands-on nature of painting education, where learners expect digital platforms to support skill development and enhance efficiency. When students perceive that a system contributes directly to their improvement in technique, creativity, and coursework, they are more likely to feel satisfied with its use. Performance Expectancy was the most influential factor on Behavioral Intention, indicating students' prioritization of tangible learning outcomes when deciding whether to continue using blended learning systems. Satisfaction also played a mediating role, linking System Quality, Perceived Ease of Use, and Perceived Usefulness to Behavioral Intention. These findings are consistent with prior literature, such as Bhattacherjee (2001), Joo et al. (2014), and Venkatesh et al. (2003), confirming the significance of these constructs across disciplines.

This research contributes theoretically by demonstrating that core constructs from models like UTAUT and TAM remain relevant in creative education, extending their applicability beyond business and technical domains. The study validates that user beliefs about usefulness and performance outcomes also predict technology adoption in studio-based learning, where interaction with content is tactile, expressive, and experiential. The importance of Perceived Ease of Use and System Quality in shaping satisfaction also echoes the IS Success Model (Aparicio et al., 2017; DeLone & McLean, 2003), reinforcing their continued relevance.

Practically, the findings offer guidance for institutions seeking to implement blended learning in creative disciplines. Enhancing the perceived usefulness of digital tools by aligning platform features with artistic learning processes such as incorporating visual materials, personalized feedback, and flexible access, can boost satisfaction. Likewise, system performance should be optimized to ensure seamless delivery. Although the sample was drawn from painting majors, the results may apply to other practice-based programs such as design, sculpture, and media arts, where visual engagement and hands-on interaction are equally critical. Future research could further explore generalizability across diverse creative and performance-related fields.

In conclusion, this study confirms that psychological, technological, and system-related factors work together to shape students' satisfaction and intention to adopt blended learning. These findings support the design of digital learning environments that meet the expectations of creative learners and contribute to the broader integration of technology in the arts.

### 5.2 Recommendations

To enhance the effectiveness of blended learning for art and design students, particularly painting majors, several strategic measures can be implemented. These recommendations are based on the insights gathered from the students' experiences and perceptions of the Rain-Classroom Teaching System.

First, improving students' initial comfort and confidence with digital platforms should be a priority. This can be achieved by embedding clear, visual onboarding tutorials and aligning digital activities with studio-based tasks. These adjustments respond to the finding that perceived ease and effort play important roles in engagement, particularly when students feel that digital tasks align with their practical learning experiences.

Second, platform performance and visual presentation quality are crucial in the artistic context. Painting students rely heavily on visual clarity, color accuracy, and seamless access to materials. Ensuring stable system functionality, high-resolution content delivery, and a clean interface will significantly improve their learning satisfaction. Since system quality was shown to indirectly influence behavioral intention through satisfaction, platform refinement should prioritize responsiveness and visual fidelity to support learning in visually intensive subjects.

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Third, learning tools should be designed to minimize unnecessary complexity. Streamlined navigation, simplified user interfaces, and contextual help features reduce the cognitive load and allow students to focus on applying artistic techniques. This supports the observed effect of ease of use on satisfaction, which suggests that reducing technical friction enhances user experience in creative domains.

Additionally, content should be structured to clearly support students' artistic development. Practical applications such as recorded demonstrations, asynchronous critiques, and digital sketchbook submissions can extend learning beyond the studio. This is grounded in the strong influence of perceived usefulness on satisfaction, indicating that students value digital content when it contributes meaningfully to skill acquisition.

Educators can also strengthen student commitment by drawing connections between online participation and academic progress. Introducing blended assignments that bridge virtual preparation with in-class outcomes helps students recognize the benefits of sustained engagement. These strategies reflect the key role of performance expectancy in shaping behavioral intention, especially when students perceive a link between online practice and studio performance.

Finally, maintaining long-term student satisfaction requires ongoing support and responsiveness. Institutions should incorporate regular feedback loops through surveys, monitor platform performance, and provide timely technical assistance. Offering hybrid activities such as online masterclasses paired with hands-on workshops can enrich the experience and maintain students' interest throughout the course. These actions help sustain satisfaction, which was found to be a key mediator in the model, suggesting its importance in sustaining continued use of blended platforms.

By implementing these tailored strategies, blended learning environments can better meet the creative and pedagogical needs of painting students while also encouraging long-term adoption and satisfaction with digital learning systems.

### 5.3 Limitation and Further Study

This study focused exclusively on undergraduate painting majors at a single public university in Sichuan, China. While the setting provided valuable insights into a creative discipline, the findings may not reflect the experiences of students from other institutions, academic backgrounds, or cultural contexts. The study's cultural specificity may limit the generalizability of results to other regions or educational systems, particularly outside China. A more diverse sample would help improve the external validity of future research.

The use of a cross-sectional survey design also restricts the ability to draw causal inferences. Although statistical relationships were observed, the directionality of these effects remains uncertain. Longitudinal studies could offer a more robust understanding of how student perceptions and intentions evolve over time.

The model was constructed around seven variables derived from the Unified Theory of Acceptance and Use of Technology (UTAUT), which offered a structured framework for analysis. However, this focus may have excluded other factors relevant to the adoption of blended learning in artistic education. Alternative explanations, such as instructor influence, peer dynamics, or prior digital learning experience, were not explored and may have affected the observed relationships.

Future research should expand the sample to include students from different universities, disciplines, and regions. Researchers might also consider integrating variables from other theoretical models, such as the Expectation-Confirmation Model (ECM), Theory of Planned Behavior (TPB), Theory of Reasoned Action (TRA), Technology Acceptance Model (TAM), or the Information Systems Success Model (ISSM). A broader and more integrated framework would enhance both the theoretical richness and practical relevance of future investigations into blended learning within creative fields.

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