

pISSN: 1906 - 6406 The Scholar: Human Sciences  
eISSN: 2586 - 9388 The Scholar: Human Sciences  
<https://assumptionjournal.au.edu/index.php/Scholar>

# Examining the Key Drivers of Art Major Undergraduates' Adoption of Drawing Software for Painting Education in Chongqing, China

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Received: September 25, 2024. Revised: January 15, 2025. Accepted: February 18, 2025

## Abstract

**Purpose:** This study aims to explore the behavioral intentions of art undergraduate students in Chongqing, China, when using drawing software to learn painting and to analyze the key factors influencing these intentions. The conceptual framework proposes that perceived enjoyment, perceived ease of use, perceived usefulness, satisfaction, self-efficacy, effort expectancy, and attitude influence behavioral intentions. **Research design, data, and methodology:** The research employed the Index of Item-Objective Congruence (IOC) for validity and a Cronbach's Alpha in a pilot test (n=50) for reliability. They employed quantitative techniques (n=100) to survey undergraduate art students from three universities. The 102 validated questionnaires were recovered using multiple linear regression analysis to verify the significant relationship between variables. Following this, 30 students underwent a 20-week Intervention Design Implementation (IDI). Afterward, the quantitative results from post-IDI and pre-IDI were analyzed in the paired-sample t-test for comparison. **Results:** In multiple linear regression, the study revealed that perceived enjoyment, self-efficacy, effort expectancy, and attitude have a significantly positive impact on students' behavioral intentions to use drawing software for learning painting, while the impacts of perceived ease of use, perceived usefulness and satisfaction are not significant. Through the Intervention Design and Implementation (IDI), these psychological factors of the students were significantly enhanced, thereby strengthening their intentions to use drawing software. **Conclusions:** By integrating these elements into the curriculum and pedagogical strategies, educators can foster a more positive and effective learning environment that embraces digital tools for artistic expression and skill development.

**Keywords:** Leadership, Emotion, Commitment, Knowledge, Climate, Loyalty, Performance

**JEL Classification Code:** I23, J28, L2

## 1. Introduction

The rapid advancement of digital technology has ushered in a new era for artists, significantly impacting the way art is created and taught. This study delves deeply into the behavioral intentions of art undergraduate students in Chongqing, China, when using drawing software to learn painting. As a new art form in the 21st century, software painting, as a two-dimensional art form, parallels the main traditional painting forms in the art world. (Annum, 2014). Nowadays, drawing software is gradually applied in the

teaching courses of art colleges and universities and has become an important link in the curriculum system. Drawing software, like word processing programs, provides new potential for teaching (Freedman & Relan, 1990). In recent years, the rapid development of digital technology has led to an increasing number of artists using various software tools in their creations. Therefore, mastering these tools has become necessary for art school students. However, learning to draw with software is not a skill everyone can easily master, as it requires a degree of willingness and practice. How to train high-quality artistic talents in all aspects has

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attracted more and more attention from art professional colleges and universities (Yang & Duangekanong, 2022).

"Drawing software" refers to computer programs facilitating digital drawing and graphic creation. These applications provide tools and features that empower users to create, edit, and manipulate digital images, vector graphics, or drawings (Jünger & Mutzel, 2002). Adobe Photoshop is a prominent example of software developed by Adobe Incorporated, an American software company. As Norr (2010) noted in his article, "The Company was founded in 1982 by John Warnock and Charles Geschke." Adobe Incorporated, once fully operational, established business relationships with Apple Inc. In addition to software development, they also produced PostScript typefaces, which were utilized for desktop publishing at the time. Norr (2010) also described that the first application introduced by Adobe in 1987 was Adobe Illustrator, a PostScript-based drawing package tailored for artists, designers, and technical illustrators. This began a new chapter in digital art and design, providing professionals with a powerful tool to bring their creative visions to life.

This study aims to bridge the gap in understanding the behavioral intentions of undergraduate art students when incorporating drawing software into their painting studies. A digital painting teaching environment has been established after the introduction of drawing software in the Environmental Art Design curriculum at Chongqing Mechanical and Electrical Vocational and Technical University. This research investigates the factors influencing students' behavioral intentions to learn painting using drawing software. Consequently, this study focuses on examining the behavioral intentions of first-year art major students in Chongqing, China, in utilizing drawing software to learn painting. Key factors considered are perceived usefulness, self-efficacy, attitude, and effort expectancy, as derived from previous studies.

## 2. Literature Review

### 2.1 Behavior Intention

Behavior intention points out an individual's effort to accomplish a particular behavior. Individuals use a specific technology if they intend to use it (Davis et al., 1989). User willingness to use any interface or application is influenced by many variables (Landicho, 2020). Major variables through which Behavioral intention to use can be measured and determined are mainly concerned with the regularity of use, the total time spent on use, the actual frequency of use, and, finally, the diversity in usage (Griffith & Arnold, 2019). Prior research has reported that user behavior significantly positively affects using e-learning and LMS (Abdullah &

Toycon, 2018; Fathema et al., 2018). Behavioral intention demonstrates the cognitive presentation of humankind and whether or not to employ a specific system rapidly (Asadi et al., 2016).

### 2.2 Perceived Enjoyment

Perceived enjoyment is an intrinsic motivation that results from an activity because people are interested in that activity (Iqbal & Qureshi, 2012). For students learning drawing software, this internal motivation or perceptual enjoyment can originate from their interest in the drawing software and the pleasure and satisfaction experienced in using the software. According to Lohbeck et al. (2016), pleasure occurs when someone thinks an activity is fun. Fun is one element that is expected to be created when the learning process carried out by students is not boring. Previous studies suggest that happiness is a key factor that actively triggers the emergence of motivation for further learning (Dudley et al., 2013); (Bonavolontà et al., 2020). Perceived delight is a natural urge that describes how much pleasure may be received from using a system (Chao, 2019). Numerous studies have examined the contingent relationship between perceived enjoyment and behavioral intention and have proposed hypotheses regarding the influence of perceived enjoyment on behavioral intention, which is reflected in the following hypotheses.

**H1:** Perceived enjoyment has a significant impact on users' behavioral intentions.

### 2.3 Perceived Ease of Use

Perceived ease of use is "the degree to which a person believes that using a particular technology would be free from effort" (Davis et al., 1989). explained that TAM pointed to the significant role of perceived ease of use in ascertaining perceived usefulness and attitude towards using technology (Venkatesh & Davis, 2000). the degree to which an individual believes using the system would be free of cognitive effort (Ajzen & Fishbein, 2000). Perceived ease of use is "the degree to which a person believes that using a particular system would be free of effort." This follows from the definition of "ease": "freedom from difficulty or great effort." Effort is a finite resource that a person may allocate to the various activities for which he or she is responsible (Radner & Rothschild, 1975). Based on the above literature, the following research hypotheses emerged from this paper.

**H2:** Perceived ease of use has a significant impact on behavioral intentions.

## 2.4 Perceived Usefulness

Perceived usefulness is defined here as “the degree to which a person believes that using a particular system would enhance his or her job performance.” This follows the definition of usefulness: “capable of being used advantageously.” Students who feel that drawing software is useful may be motivated and use it more actively to improve their learning outcomes and creativity. (Pfeffer, 1982; Schein, 1980; Vroom, 1964). Definition of perceived usefulness: refers to people's belief that using this tool could enhance their work efficiency and performance to a certain extent. Perceived usefulness is the perceived effect of improving user efficiency (Wu & Gao, 2011). Based on the above literature, the following research hypotheses emerged from this paper.

**H3:** Perceived usefulness has a significant impact on behavioral intention.

## 2.5 Satisfaction

Satisfaction can be defined as the student’s perception of drawing software learning and the perceived value of the education received in that school (Astin, 1993; Bollinger & Martindale, 2004). satisfaction measures pleasant sentiments when the services meet or exceed customer expectations. The purchase of a commodity and the consistent application of a product/service by a consumer are similar. Users’ satisfaction is one of the most critical factors in assessing the effectiveness of information technologies (Shin & Kang, 2015). Satisfaction describes completing and completing successful tasks (Blanche & Valette, 2012). satisfaction relates to the personal sense that students have positive feelings or pleasure about their learning experience, including the content, tactics, process, and consequences of learning activities (Liestiawati & Agustina, 2018). Based on the above literature, the following research hypotheses emerged from this paper.

**H4:** Satisfaction has a significant impact on behavioral intention.

## 2.6 Self-Efficacy

Self-efficacy is a critical aspect of human behavior and is characterized by how people motivate themselves and their activities (Kim et al., 2010). In some technological contexts, self-efficacy was also characterized as an exceptional knowledge of one’s ability to use information technology to fulfill tasks (Compeau & Higgins, 1995). The researchers discovered self-efficacy can contribute to behavioral intention (Johnson et al., 2008). Much literature has

confirmed the relationship between users’ self-efficacy and behavioral intention to use system technology (Eom, 2012). Self-efficacy measures the ability of an individual to perform a particular task using technology (Venkatesh et al., 2003). Several studies have endorsed the influence of Self-efficacy on effort expectancy toward adopting technology (Balkaya & Akkucuk, 2021; De Veer et al., 2015). Self-efficacy was confirmed as a significant predictor of effort expectancy toward consumers’ adoption intention of Internet technology (De Veer et al., 2015). Based on the above literature, the following research hypotheses emerged from this paper.

**H5:** Self-efficacy has a significant impact on behavioral intention.

## 2.7 Effort Expectancy

Effort expectancy reflects students' belief that adopting drawing software learning would be simple and effortless (Mtebe & Raisamo, 2014). Effort expectation conceptualizes the degree to which users are likelier to use a technology that can motivate them to express a behavioral intention (Hosizah et al., 2016). When students expect to use the drawing software, learning will be simple and free, described as an effort expectation. Effort expectation is a key predictor of the education system (Ssekakubo et al., 2011), which refers to the acceptance of blended learning depending on students' perception of the simplicity of its use (Wang et al., 2009). Before embracing the specific technology, an individual observes or forecasts the effort to encounter the use procedure. Effort expectancy has been evidenced to significantly impact behavioral intention to use drawing software (Bervell et al., 2017; Venkatesh et al., 2003). Based on the above literature, the following research hypotheses emerged from this paper.

**H6:** Effort expectancy has a significant impact on behavioral intention.

## 2.8 Attitude

Attitude definitions that refer to affective reactions to an object (Thurstone, 1931) or to “implicit drive-producing” reactions (Doob, 1947) have focused the conception of attitude on the conditioned stimulus function. Students learning attitudes play a vital role in learning software painting (Fang et al., 2011). According to the report, drawing software learning is affected by many external factors, but by two main elements: first, perception of useful learning platforms, including practical programs and learning; student participation, data security, feedback and results, content accessibility, entertainment, and user interface, secondly, that ease of use including accessibility, entertainment, and

user interface (Abdullah et al., 2016). Attitude is an individual's positive or negative disposition toward integrating a proposed technology (Davis, 1989). Based on the above literature, the following research hypotheses emerged from this paper.

**H7:** Attitude has a significant impact on behavioral intention.

### 3. Research Methods and Materials

#### 3.1 Research Framework

This study references fundamental theories including the Technology Acceptance Model (Davis, 1989), Venkatesh et al.'s (2003) Unified Theory of Acceptance and Use of Technology (UTAUT), Fishbein and Ajzen (1975) Theory of Planned Behavior (TPB), as well as theoretical models by Sun and Zhang (2006), Yang and Duangekanong (2022), Huang et al. (2022), and Singh and Kushwaha (2022). Building upon these theories, researchers have developed a conceptual framework for this study, as shown in Figure 1.

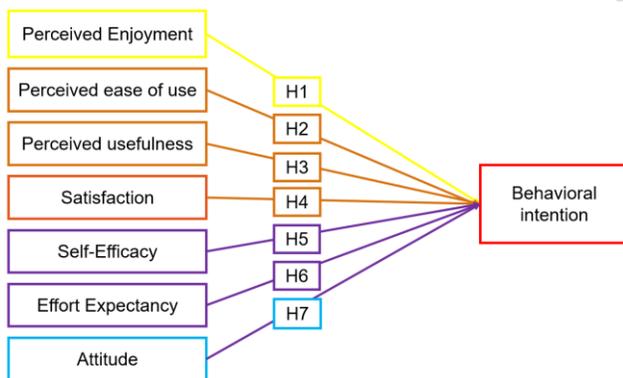


Figure 1: Conceptual Framework

**H1:** Perceived enjoyment has a significant impact on behavioral intentions.

**H2:** Perceived ease of use has a significant impact on behavioral intentions.

**H3:** Perceived usefulness has a significant impact on behavioral intention.

**H4:** Satisfaction has a significant impact on behavioral intention.

**H5:** Self-efficacy has a significant impact on behavioral intention.

**H6:** Effort expectancy has a significant impact on behavioral intention.

**H7:** Attitude has a significant impact on behavioral intention.

#### 3.2 Research Methodology

The research process comprises four distinct stages. The entire research population (n=100) was initially surveyed to collect data for the proposed conceptual framework. Subsequently, all hypotheses underwent rigorous testing using multiple linear regression to determine their significance at a p-value threshold of < 0.05. As a result, hypotheses that received support were retained, while those that did not meet the criteria were eliminated.

The second stage involved conducting pre-IDI surveys on the remaining population of 100 students within the supported hypotheses. The third stage introduced the Intervention Design Implementation (IDI), specifically implemented with 30 participants.

In the final stage, 30 IDI participants completed a course, generating the necessary data for conducting a paired sample t-test analysis to compare the pre-and post-IDI results. This comprehensive process allowed for thoroughly examining the research's objectives and hypotheses.

#### 3.3 Research Population, Sample Size, and Sampling Procedures

##### 3.3.1 Research Population

Leedy and Ormrod (2014) emphasized that a cross-sectional design involves sampling and comparing people from different demographic groups, enabling researchers to gather the required data effectively. This study's target population includes all undergraduate art students from Chongqing University, Southwest University, and Chongqing Mechanical and Electrical Vocational and Technical University who are learning to use drawing software for painting. Table 1 demonstrates the specific sampling for this study.

##### 3.3.2 Sample size

The researcher randomly implemented a pilot survey of 50 students and verified its reliability by pilot test. Afterward, the researcher identified 100 Art major students as the research population and gained 102 valid responses. Then, the researcher investigated through multiple linear regression, identifying the relationship between independent and dependent variables. Finally, the researcher selected 30 voluntary students involved in the IDI intervention stage.

##### 3.3.3 Sampling Procedures

The researcher conducted several sampling and related sampling procedures as follows:

**Sampling 1:** Sampling for pilot survey and pilot test The Researcher randomly sampled 50 students by asking them to fill out the survey questionnaire and give feedback on the pilot survey and pilot test.

### Sampling 2: Sampling for Pre-survey

The researcher sampled 100 Art major students from different student years for the pre-survey by distributing a survey questionnaire on printed paper. After collecting the responses, the researcher meticulously checked each one to ensure its validity, confirming that 102 responses were indeed valid.

### Sampling 3: Sampling for IDI

The researcher randomly selected and sampled 30 voluntary students to implement IDI.

## 3.4 Research Instruments

### 3.4.1 Design of Questionnaire

Researcher designed survey questionnaire by following three steps.

**Step1:** Identifying questionnaire sources from seven openly published articles (Chahal & Rani, 2022; Lee et al., 2018; Mulik et al., 2018; Shaya et al., 2023; Singh & Kushwaha, 2022; Rahmat & Au, 2013)

**Step2:** Adjusting and Presenting survey questionnaires on Art class freshman student in Chongqing Context.

**Step3:** Implementing IOC.

### 3.4.2 Components of Questionnaire

Survey questionnaire items were composed of the following three parts:

Part 1: Screening Questions. There were screening questions to filter out the non-research population.

Part 2: Basic info Questions. Questions were asked to obtain basic information about the research population, including gender, age, major, grade, and so on.

Part 3: Pre-survey Questions. A total of 100 art major students were asked questions to determine their current levels of IV and DV.

### 3.4.3 IOC Results

To improve the validity of the student behavioral intention questionnaire, this study invited five experts to provide professional evaluations on the effectiveness of the questionnaire design. Among them, two are associate professors of vocational education, one is a university leader in charge of teaching art majors, and two have doctorate degrees in education management and leadership. In this IOC process, independent experts, scholars, or doctors are marked +1 for Congruent, 0 for Questionable, and -1 for Incongruent. In this research, all questionnaire items were greater than 0.67, so the researcher retained all questionnaire items.

### 3.4.4 Pilot survey and Pilot test results

The researcher randomly implemented a pilot survey of 50 students by asking them to fill out the questionnaire and give feedback. Afterward, the researcher implemented Cronbach's Alpha's internal consistency reliability test, in which values should be equal to or greater than 0.7 (Nunnally & Bernstein, 1994). Therefore, the table below demonstrates the approved results for the high reliability of each construct.

**Table 1:** Pilot Test Result

Variables	No. of Items	Sources	Cronbach's Alpha	Strength of Association
Perceived Enjoyment (PEN)	4	Iqbal and Qureshi (2012)	0.879	Good
Perceived Ease of Use (PEoU)	3	Davis et al. (1989)	0.929	Excellent
Perceived Usefulness (PU)	4	Pfeffer (1982)	0.893	Acceptable
Satisfaction (SA)	4	Astin (1993)	0.941	Excellent
Self-Efficacy (SE)	4	Kim et al. (2010)	0.942	Excellent
Effort Expectancy (EE)	3	Mtebe and Raisamo (2014)	0.951	Excellent
Attitude (ATT)	3	Doob (1947)	0.898	Good
Behavioral Intention (BI)	3	Davis et al. (1989)	0.926	Excellent

## 4. Results and Discussion

### 4.1 Results

#### 4.1.1 Demographic Profile

All the participants in this study are students from three undergraduate universities in Chongqing, ranging in age from 18 to 20 years old. The following table summarizes the demographic characteristics of the research participants. In the surveyed population, there were 64 females, accounting for 65.05%, and 36 males, accounting for 34.95%. Among them, 97 individuals (97.09%) were first-year students, two individuals (1.94%) were second-year students, and one person (0.97%) was a third-year student. In terms of major, four people (4%) were in the painting major, 6 people (6%) were in the graphic design major, 81 people (81%) were in the environmental art design major, and 19 people (9%) were from other majors. Table 2 provides the demographic information of this study.

**Table 2:** Demographic Profile

Entire Research Population (n=100)		Frequency	Percent
Gender	Male	36	34.95%
	Female	64	65.05%
Grade	Freshman Year	97	97.09%
	Second Grade In College	2	1.94%
	Junior Year	1	0.97%
Major	Painting Major	4	4%
	Graphic Design	6	6%
	Environmental Art Design	81	81%
	Other	9	9%
<b>Total</b>		<b>100</b>	<b>100%</b>
IDI Participants (n=30)		Frequency	Percent
Gender	Male	10	33.33%
	Female	20	66.67%
Grade	Freshman Year	30	100%
	Second Grade In College	0	0%
	Junior Year	0	0%
<b>Total</b>		<b>30</b>	<b>100</b>

**4.1.2 Results of multiple linear regression**

After the data collection, Multiple Linear Regression (MLR) will be used to verify whether the independent variables have significant influences on the dependent variables. It was widely used in various fields, including psychology, sociology, economics, and marketing, to analyze data and make predictions (Montgomery et al., 2021). Results of multiple linear regression shows the relationship between the independent variables, such as perceived enjoyment (PEN), perceived ease of use (PEoU), perceived usefulness (PU), satisfaction (SA), self-efficacy (SE), effort expectancy (EE) and attitude (ATT) the dependent variable, behavioral intention (BI), in the diagnosis stage. The results of the linear regression analysis conducted using Jamovi 2.3.12 are presented below. On the one hand, from the variable level perspective: Firstly, Perceived Enjoyment (PEN) with a p-value of 0.020, Self-Efficacy (SE) with a p-value of 0.010, Effort Expectancy (EE) with a p-value of 0.025, and Attitude (ATT) with a p-value less than 0.001 exhibits highly significant impact. With all p-values less than 0.05, this indicates that Perceived Enjoyment (PEN), Self-Efficacy (SE), Effort Expectancy (EE), and Attitude (ATT) have a significant influence on the dependent variable, namely, behavioral intention (BI).

**Table 3:** The multiple linear regression of five independent variables on behavior intention

Variables	Standardized Coefficients Beta	t-value	P-value	R	R Square
Perceived Enjoyment (PEN)	0.24287	2.3674*	0.020	0.872	0.761
Perceived Ease of Use (PEoU)	-0.07834	-0.7457	0.458		
Perceived Usefulness (PU)	0.18745	1.4048	0.163		
Satisfaction (SA)	0.00242	0.0192	0.985		
Self-Efficacy (SE)	0.31462	2.6411*	0.010		
Effort Expectancy (EE)	0.26177	2.2714*	0.025		
Attitude (ATT)	0.46695	5.0755**	<.001		
Dependent variable: Behavioral Intention					

Note: p-value <0.05\*, p-value <0.001\*\*

In sum, for the first seven hypotheses, H1, H5, H6 and H7 were supported, while H2, H3, H4 were not. The questionnaire analysis of 100 first-year art major undergrads from three universities in Chongqing reveals that Perceived Enjoyment (PEN), Effort Expectancy (EE), Attitude (ATT), and Self-Efficacy (SE) are above average, while Perceived Usefulness (PU), Satisfaction (SA), and Perceived Ease of Use (PEoU) are below average. Overall, Behavioral Intention (BI) is average. The current scenario indicates that low PU, SA, and PEoU are hindering the BI of art students to adopt software painting. In these circumstances, the researcher removed the independent variables Usefulness (PU), Satisfaction (SA), and Perceived Ease of Use (PEoU) and made related adjustments. Therefore, the hypotheses were developed in stages based on results from multiple linear regression analyses. Afterwards, IDI was conducted to follow below hypotheses:

H8: There is a significant mean difference in Perceived Enjoyment (PEN) between pre-IDI and post-IDI.

H9: There is a significant mean difference in Perceived Self-Efficacy (SE) between pre-IDI and post-IDI.

H10: There is a significant mean difference in Perceived Effort Expectancy (EE) between pre-IDI and post-IDI.

H11: There is a significant mean difference in Perceived Attitude (ATT) between pre-IDI and post-IDI.

H12: There is a significant mean difference in Behavioral Intention (BI) between pre-IDI and post-IDI.

### 4.2 IDI Intervention Stage

The IDI Intervention plan lasted for 20 weeks. It was based on quantitative and qualitative data collected at the pre-IDI stage to achieve the purpose of this research, which was to use the drawing software to learn the behavioral intention of painting. The researcher illustrated the IDI intervention chronologically, as in Table 4.

**Table 4:** Implementation time and activities as a IDI

No.	Time and Duration	Implementation keywords
1	Week 1	Team establishment
		Goal setting
		SWOT diagnostic analytic tool
2	Week 2-10	Group mentoring
3	Week 3-18	Training (Practical courses)
4	Week 19	Creating paintings with Photoshop software
5	Week 20	Evaluate Students

### 4.3 Results Comparison between Pre-IDI and Post-IDI

The researcher implemented a paired-sample t-test analysis on all four variables to identify whether there were any differences between Students' drawing software to learn the drawing behavior intention between the pre-IDI and post-IDI phases. The below tables to illustrates paired-sample t-test analysis on four variables as follows:

**Table 5:** Paired-Sample T-Test Results

Variables	Mean	SD	t-value	p-value	df
<b>Perceived Enjoyment (PEN)</b>					
Pre-IDI	3.74	0.658	-4.76	29.0	<.001
Post-IDI	4.42	0.510			
<b>Self-Efficacy (SE)</b>					
Pre-IDI	3.45	0.860	-5.26	29.0	< .001
Post-IDI	4.47	0.597			
<b>Effort Expectancy (EE)</b>					
Pre-IDI	3.23	0.915	-4.77	29.0	<.001
Post-IDI	4.32	0.730			
<b>Attitude (ATT)</b>					

Variables	Mean	SD	t-value	p-value	df
Pre-IDI	3.57	0.728	-6.16	29.0	<.001
Post-IDI	4.49	0.585			
<b>Behavioral Intention (BI)</b>					
Pre-IDI	3.81	0.791	-3.81	29.0	<.001
Post-IDI	4.44	0.657			

Table 5 illustrates the results of paired-sample t-test analysis of pre-IDI and post-IDI comparison as follows:

There was a significant difference in Perceived Enjoyment between pre-IDI (M=3.74, SD=0.658) and post-IDI (M=4.42, SD=0.510) condition; t (29) =-4.76, p <.001 (<0.05) and the mean difference was -0.675.

There was a significant difference in Self-Efficacy between pre-IDI (M=3.45, SD=0.860) and post-IDI (M=4.47, SD=0.597) condition; t (29) =-5.26, p <.001 and the mean difference was -1.02.

There was a significant difference in Effort Expectancy between pre-IDI (M=3.23, SD=0.915) and post-IDI (M=4.32, SD=0.730) condition; t (29) =-4.77, p <.001 and the mean difference was -1.09.

There was a significant difference in attitude pre-IDI (M=3.57, SD=0.728) and post-IDI (M=4.49, SD=0.585) condition; t (29) =-6.16, p<.001, and the mean difference was -0.922.

There was a significant difference in behavioral intention pre-IDI (M=3.84, SD=0.791) and post-IDI (M=4.44, SD=0.657) condition; t (29) =-3.81, p<.001, and the mean difference was -0.633.

According to the paired-sample t-test results demonstrated above, the researcher came up with the following conclusions. First, all four variables had a significant mean difference between the post-IDI stage and the pre-IDI stage. Second, the researcher found that there was a significant increase in students using drawing software to learn the behavioral intention of painting.

## 5. Conclusions, Recommendations and Limitations

### 5.1 Conclusions & Discussions

The core conclusions of this study unveil the pivotal factors that influence the behavioral intentions of undergraduate art majors when using drawing software for learning painting. The research findings, which indicate that Perceived Enjoyment, Self-Efficacy, Effort Expectancy, and

Attitude significantly and positively predict students' behavioral intentions, are of profound significance. The positive impact of these factors suggests that when students find pleasure in their interaction with the drawing software, feel confident in their operational skills, consider the learning process to be relatively effortless, and hold a positive attitude toward the software, they are more likely to continue using the software for painting studies.

The target population of this study is undergraduate art students in Chongqing, China. This study investigated the behavioral intentions of first-year art students in Chongqing to use drawing software to learn painting. We surveyed 100 Chongqing University, Southwest University, and Chongqing Electromechanical Vocational Technology University students. The data obtained from these questionnaires were analyzed, and the analysis supported the conceptual framework of this paper, which is based on previous literature, particularly the Technology Acceptance Model (TAM) proposed by Davis (1989).

The previous literature provided the hypothetical conceptual framework, including factors such as Perceived Enjoyment, Perceived Ease of Use, Perceived Usefulness, Satisfaction, Self-Efficacy, Effort Expectancy, and Attitude, and their influence on behavioral intentions. The 100-sample data in this study were analyzed using JAMOVI to conduct a multiple linear regression analysis, which validated and supported the hypotheses of this study. Specifically, Cronbach's alpha coefficient was used to assess the internal consistency of the questionnaire with a sample size of 50. In contrast, the Item-Objective Congruence (IOC) index was used to evaluate the validity and reliability of the questionnaire items.

A paired-sample t-test with a sample size 30 confirmed that the data before and after the Intervention Design and Implementation (IDI) were reasonably well-fitted. This indicates that after the IDI intervention, there were significant differences in students' Perceived Enjoyment, Self-Efficacy, Effort Expectancy, and Attitude, further supporting the research hypotheses and identifying effective ways to enhance the behavioral intentions of undergraduate art students to use drawing software for learning painting.

The results indicate that the behavioral intentions of undergraduate art majors regarding using drawing software in learning painting are influenced by various factors. Firstly, Perceived Enjoyment significantly and positively affects students' behavioral intentions, suggesting that the enjoyment and satisfaction students derive from using drawing software are key motivators for their continued use (Davis, 1989). Secondly, Self-Efficacy also significantly impacts behavioral intentions, indicating that students' confidence in their ability to use drawing software is strongly associated with their intention to engage with it. Additionally, Effort Expectancy has a significant positive effect on

behavioral intentions, indicating that students perceive the use of drawing software as not requiring substantial effort, which reduces psychological barriers to usage. Attitude exerts the most substantial positive influence on behavioral intentions, highlighting the importance of students' overall evaluation and affective reactions to the software in shaping their intentions to use it.

However, Perceived Ease of Use, Perceived Usefulness, and Satisfaction have relatively lower impacts on behavioral intentions, suggesting that while these factors are important, they may be less decisive in the context of art learning compared to the emotional and cognitive factors. Following the Intervention Design and Implementation (IDI), significant improvements in students' Perceived Enjoyment, Self-Efficacy, Effort Expectancy, and Attitude further substantiate the research hypotheses, indicating effective pathways to enhance the behavioral intentions of undergraduate art majors to use drawing software for learning painting. These findings underscore the crucial role of educators in understanding student needs and designing more engaging and supportive educational tools and strategies, making them feel valued and integral to the process.

## 5.2 Recommendations

Based on the research findings, we recommend enhancing students' engagement with drawing software through interactive features that boost perceived enjoyment. Educators should provide structured training to strengthen students' self-efficacy and simplify the software's user interface to reduce effort expectancy. It is also crucial to cultivate a positive attitude towards the software by highlighting its practical benefits in artistic creation.

Furthermore, while perceived usefulness and satisfaction may have a lower direct impact, they still contribute to the overall attitude toward the software. Cultural sensitivity in software design and equal access to resources are also recommended. Balancing traditional and digital painting techniques can provide a comprehensive learning experience.

Finally, continuous learning opportunities for educators and regular evaluations of the software's impact will ensure its ongoing relevance and effectiveness in art education. These recommendations aim to integrate drawing software seamlessly into the art curriculum, enriching students' learning experiences and preparing them for the digital age.

## 5.3 Limitations for Future Research

Although this study has provided profound insights into understanding the behavioral intentions of undergraduate art majors when using drawing software, there are several

limitations. The sample is mainly concentrated in the Chongqing area, which may affect the generalizability of the results. The study conducted within a specific cultural context may limit the broad applicability of the findings, and the rapid development of technology may render the research outcomes quickly outdated. Moreover, the short-term nature of the intervention measures may not be sufficient to reveal long-term effects. Future research should expand the sample size to increase diversity, conduct longitudinal studies to assess long-term impacts, explore cross-cultural differences, and consider the potential influence of emerging technologies on art education. Research should focus on effectively integrating drawing software into the curriculum and ensure all students have equal access to and use these tools.

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