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Assessment of Satisfaction and Continuance Intention of Art Major Students at Sichuan Fine Arts Institute towards Cloud-based E-learning Systems

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Abstract

Purpose: China is persistently allocating resources towards investment in cloud-based e-learning systems (CELS) to enhance higher education. Hence, the objective of this research is to investigate the determinants of satisfaction, and continuance intention to use CELS among undergraduate students specializing in art at the Sichuan Fine Arts Institute (SFAI) in Chongqing, China. **Research design, data, and methodology:** A quantitative research methodology was employed to investigate art students at the Sichuan Fine Arts Institute in Chongqing, China. The study involved a sample size of 500 participants who were administered questionnaires. The data collection encompasses various sampling methods, including judgmental, quota, and convenience sampling techniques. The utilization of Confirmatory Factor Analysis (CFA) and Structural Equation Model (SEM) was employed in the statistical analysis, encompassing assessments of model fit, construct validity, reliability, and hypothesis testing. **Results:** The findings confirmed the causal relationship between e-learning effectiveness, system quality, service quality, and information quality. Additionally, they indicated a positive correlation between perceived usefulness, satisfaction, and continuance intention. **Conclusions:** This study aims to assist educators by providing suggestions for higher education management, curriculum design, and academia to enhance their understanding and active utilization of CELS. This is due to students' high perceived usefulness, satisfaction, and continuance intention in using CELS.

Keywords : Cloud-based E-learning System, Satisfaction, Continuance Intention, Art Education, China

JEL Classification Code: E44, F31, F37, G15

1. Introduction

E-learning is an educational modality that utilizes modern technology to disseminate information, enabling students and instructors to guide and undertake courses without geographic or temporal limitations (Al-Samarraie et al., 2018). The basic entry point for cloud computing (CC) is the integration, storage, and sharing of information through network services, which enables educators to integrate educational resources to the greatest extent possible. The emergence of CC has recently offered an impetus for advancing E-education (Rajabion et al., 2019). CELS has the benefit of enabling the E-learning system to be operational across multiple hardware pieces of equipment, eliminating the obstacles between multiple systems and hardware devices, and synonymously storing the user's pertinent educational data to the cloud, allowing users to access data at any time. An increasing number of academics are undertaking deep studies into using CELS (Cheng et al., 2018). The Internet has revolutionized the pedagogical model of education about learning and training. In order to ensure E-learning systems stay abreast of the evolution of the Internet and can integrate novel communication technologies, cloud computing appears to be the most optimal solution or

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a feasible choice for educational institutions with a constrained budget (Siddiqui et al., 2019). Therefore, CELS data can also be used as part of the reference of e-learning research.

The Ministry of Education of the People's Republic of China (MOE of PRC) has revealed that in 2020, there were almost 2,000 universities and colleges providing art majors, and more than 1.15 million students enrolled in these art majors, constituting around 10 percent of the total College Entrance Examination Student population. There is considerable demand from art students on a large scale for art-based online courses, and this market has considerable potential for growth. The engagement of art teachers and learners across various universities has fostered the advancement of distance art education in China. Taking the iCourse platform as an example, it is integrated into the Smart Education of China-High Education platform and other online education systems, boasting partnerships with 799 universities in the country. The iCourse platform will provide 426 art courses from 125 universities and institutions by February 23, 2023. The courses offered encompass a range of disciplines such as art, fine arts, drama and film, design, and music and dance, with 140,5406 art students enrolled in online learning. This offers excellent ease of access for art students at public universities to pursue their studies online and broader prospects for their professional development. As a result, the primary topic of the educational institution's future development has been implementing the reform and innovation of cloud-based e-learning concepts in art colleges and universities.

Currently, the Sichuan Fine Arts Institute (SCFAI) has provided 11 online courses through the Smart Education of China-High Education platform, and three virtual experimental projects have been set up on the ilab-x platform. The aggregate of online course materials for SCFAI is congruent to the total number of web-based course supplies of Xi'an Academy of Fine Arts, placing it second in the eight major art academies. The China Academy of Fine Arts holds the highest accumulative quantity of online course resources, securing its position as the most significant service.

Local context is essential to understand user behaviors fully. Art education often relies heavily on visual and interactive elements, which may pose different challenges and opportunities in an e-learning context compared to traditional classroom settings. These nuances require exploration. While some studies have explored factors influencing satisfaction, fewer have delved into the critical aspect of continuance intention—whether students plan to continue using these e-learning platforms in the long term. Understanding what drives students to persist with these platforms is essential for platform providers and educators. Hence, the objective of this research is to investigate the determinants of satisfaction, and continuance intention to use CELS among undergraduate students specializing in art at the Sichuan Fine Arts Institute (SFAI) in Chongqing, China.

2. Literature Review

2.1 Perceived Usefulness

The definition of Perceived Usefulness (PU) is faith in the mechanism and the belief that it will enhance one's work efficiency (Davis, 1989). According to Davis et al. (1992), perceived usefulness is a key driver of using behavior and intent. How a person perceives utilizing an approach would enhance productivity (Hossain et al., 2020). PU is a precursor of Continuance Intention (Cheng et al., 2018). PU is a crucial determinant of user mindset toward and intent to utilize information technologies (Joo & Choi, 2015). Cheng (2021a) defines PU as "the confidence with which one believes that adopting a specific method will lead to enhanced productivity." Another indicator of the Technology Acceptance Model (TAM), according to Almarashdeh (2016) and Davis (1989), is PU, which refers to the teaching staff's perception that utilizing a certain learning management system (LMS) would increase the efficiency and quality of instruction.

Hsu and Lu (2004) showed that Perceived Usefulness (PU) is a crucial component that significantly influences the users' acceptance level of systems. It is the consumers' view of the anticipated advantages of information systems (IS) or information technology (IT) usage (Bhattacherjee, 2001). They discovered that, among the variables that predicted this construct, PU had the greatest impact on student satisfaction (Davis, 1989; Drennan et al., 2005; Hsieh & Cho, 2011; Joo et al., 2011). The TAM model assumes that usefulness will be a crucial structure and immediate indicator of behavioral intentions while utilizing the chosen technology (Al-Fraihat et al., 2020; Park et al., 2014). According to Rahmi et al. (2018), PU in online educational platforms significantly influences learners' intentions to continue using them. Thus, the following possibilities are proposed:

H1: Perceived usefulness has a significant impact on continuance intention.

H2: Perceived usefulness has a significant impact on satisfaction.

2.2 E-learning Effectiveness

Kashive and Powale (2021) asserted that e-learning effectiveness indicates that students believe it has a significant role in enhancing the learning efficiencies of system users and is a beneficial feature of educational programs and learning sessions. Two criteria may be used to quantify the efficacy of e-learning: user experience and

overall benefits (Chopra et al., 2019). Effective e-learning system characteristics include reliability, safety, dependability, reactivity, usability, user-friendliness, organization, and customization (Tseng et al., 2011). The more the technology's efficiency and dependability, the more the learners will gain. E-learning effectiveness is the degree to which a person obtains a skill via instruction (Sharma et al., 2022). A training program aims to improve workers' knowledge, abilities, behaviors, or attitudes; consequently, training effectiveness refers to accomplishing training goals (Chien, 2012).

Holsapple and Lee-Post (2006) and DeLone and Mclean were leaders in characterizing the accomplishments of an information system by specifying a few factors, i.e., quality of information, system, and services. They developed a succession of dependent variables progressively subdivided into sub-variables of a single dependent variable, such as additional incentives. Users who have never finished an e-learning program may be apprehensive regarding its application and efficacy as a learning resource (Fuller et al., 2006). DeLone and McLean (2003) established a successful model and stated that the idea of e-learning success is multifaceted. The efficacy of student learning was evaluated using objective and subjective metrics (test scores and reported pleasure). Chou and Liu (2005) highlighted e-learning effectiveness as a crucial indicator of learning outcomes in gaining information. Current training assessment study focuses on the response of workers to the training program as well as the amount of experience or knowledge that may be gained from the initiative (Chung & Yang, 2006). Therefore, one hypothesis is formulated:

H3: E-learning Effectiveness has a significant impact on satisfaction.

2.3 System Quality

Chang (2013) states that CELS as an educational platform and the system are evaluated based on competence. It relies not only on how well the system can fulfill the clients' functional needs but also on its ability to satisfy their non-functional needs. To explain system quality (SY) aspects connected to software architectural design, usability, modifiability, productivity, safety, trialability, and user-friendliness are most prominent. Users' perceptions of a digital library's effectiveness in obtaining and presenting information affect the system's overall quality (Masrek & Gaskin, 2016). Pour et al. (2021) specify how much an information system (IS) can enable users to meet their requirements and is represented in the system's general performance. If the system is too complicated to operate, user satisfaction may decline.

Wu and Wang (2006) system quality (SY) was considered a significant factor for contentment in various IS contexts. It relies on the demands of the users, as determined during the study and design of the system. It is also a significant aspect of consumer satisfaction with online purchases. Important issues include appearance, technological sufficiency, lag, navigation, safety, and confidential information (Ahn et al., 2007). If consumers think the system is high quality, their desire to utilize it will increase (Zhang et al., 2020). According to their research, a digital library's information system must contain the following qualities to be of high quality (Tsakonas & Papatheodorou, 2008). Therefore, this research posits the following hypothesis:

H4: System quality has a significant impact on satisfaction.

2.4 Information Quality

Information quality (IQ) indicates the quality of the material supplied by CELS as an educational platform at the equipment interface, for example, in the mode of a display panel and digital evaluation, which is primarily represented in the information's integrity, authenticity, and recirculation (Yan et al., 2014). Since its inception, DeLone and McLean's model has been extensively empirically validated in several IS domains (Ramírez-Correa et al., 2018). Consequently, it is widely acknowledged in the scientific establishment (Al-Fraihat et al., 2020). IQ measures the semantic performance of a system. The quality characteristics include punctuality, accessibility, readability, relevancy, and content requirements (Mirabolghasemi et al., 2021). Chen et al. (2015) define IQ as the knowledge/data quality gained from (or through) systems.

Gable et al. (2008) asserted that information and system quality are crucial elements for analyzing the effectiveness of IS. Information quality (IQ) evaluates the reporting quality and screen display of data a system generates. Completeness refers to users' confidence that IS offers all necessary data. In contrast, precision refers to their assurance that the data is valid, and currency refers to their confidence that the information is up to date (Wixom & Todd, 2005). IQ is connected to output quality (Wang & Wang, 2009). Through analyzing the IS success model developed by DeLone and McLean, they claimed that a high degree of correlation exists between satisfied customers and high-quality data (Seddon & Kiew, 1996). According to Ahn et al. (2004), indicators of IQ include a diversity of material, comprehensive information, detailed information, correct information, timely information, dependable information, and suitable format. As a result, a hypothesis is put forth:

H5: Information quality has a significant impact on satisfaction.

2.5 Service Quality

Cheng (2014) reckoned that during the CELS procedure, the service delivered corresponds to the quantity of service utilized to provide supportive physiotherapy. This metric focuses mostly on the quality of assistance teachers get from the LMS to streamline their use (Hussein et al., 2021). Darawong and Widayati (2021) claimed that the technical elements indicating what services are supplied and functionality describing how services are delivered may be used to determine service quality (SQ). According to research, the SQ of electronic platforms is a crucial prerequisite for satisfaction with these platforms (Yuce et al., 2019). The following characteristics define SQ: tangibles, dependability, responsiveness, assurance, functionality, interaction, and empathy (Aldholay et al., 2018).

Roca et al. (2006) asserted that the support service quality is a strong determinant of learner contentment and behavior intent for the e-learning system. According to reports, service quality (SQ) exhibits a considerable beneficial impact on teachers' experience with the learning management system (LMS) (Al-Busaidi & Al-Shihi, 2012). Regarding Higher education institutions, SQ has also been described as the extent to which students' basic assumptions about online learning differ from their judgments of its advantages. Chiu et al. (2016) point out that it also strongly impacts satisfaction and actual use. According to Gorla (2011) and Goncalves et al. (2007), dependability specifically refers to the extent to which the service team offers accurate and reliable services or the success likelihood of the service over a certain period. Consequently, a hypothesis is formulated:

H6: Service quality has a significant impact on satisfaction.

2.6 Satisfaction

Chen et al. (2018) asserted that satisfaction is characterized as the user's perceived interest and feeling of success in an online learning environment. Customers' perceptions of their digital experience over a certain period constitute satisfaction (Salimon et al., 2021). Customers perceive that their overall online experience over a given period indicates their e-satisfaction (Szymanski & Hise, 2000). Students' satisfaction is a measurement of the good or negative sensations that come from using e-learning technologies (Alrousan et al., 2022). Learners' validation of expectations about the e-learning system determines satisfaction with the mechanism as a whole (Cheng, 2020). User satisfaction with electronic learning platforms can be described as a summary psychological reaction that varies in intensity and is experienced following engagement in e-learning activities (Wang, 2003).

Satisfaction is essential since it determines whether people will continue utilizing a distribution channel (Al-Hawari & Mouakket, 2010). In e-learning literature, learner satisfaction has been deemed an essential aspect since it significantly influences learners' choices to embrace or not embrace e-learning systems (Pham et al., 2019). Satisfaction is a crucial component in deciding whether or not consumers will remain using the information system. The simplicity of use may influence student satisfaction, quality of course content, internet service, and level of involvement (Horzum, 2015). Xu et al. (2017) asserted that cloud computing, accordingly, refers to a user's satisfaction level with the services, which may be determined by the extent to which their expectations about cloud computing services are confirmed by their user experiences, as shown by the subsequent hypothesis:

H7: Satisfaction has a significant impact on continuance intention.

2.7 Continuance Intention

Continuance intention (CI) is the extent to which a user is committed to continuing to use CELS and suggesting it to other users (Mouakket & Bettayeb, 2015). CI of IS denotes the elements that lead to long-term information systems (IS) use (Franque et al., 2021). Cheng (2020), "CI" describes a user's subsequent actions after adopting a service. According to the theory, users' continuous desire for IS depends on their estimation of its perceived usefulness, the extent of the validation, and the degree to which they are satisfied with their story (Rajeh et al., 2021). CI refers to a person's deliberate planning to engage in a given conduct (Faisal et al., 2020). An individual's propensity to keep utilizing a service after first agreeing to act is what is meant by the term "CI" (Bhattacherjee, 2001). Ajzen (1991) The individual's ongoing conscious intentions to engage in a certain behavior are called their CI to use.

It entails analyzing the aspects that lead to the IS's long-term success (Lin et al., 2005). In the context of e-learning, students' increased use of LMS might result in enhanced views of the effect of learning (McGill & Klobas, 2019). Dehghani (2018) defined the term as a person's desire to use the service being utilized continuously. According to Lin et al. (2005) and Limayem et al. (2007), the perception that an IS is useful positively impacts users' satisfaction with the system and their intention to continue using it. According to Chiu and Wang (2008) and Zhou (2011), the factors included in the previous TAM study, such as perceived usefulness and satisfaction, also impact CI.

3. Research Methods and Materials

3.1 Research Framework

The construction of the conceptual framework was informed by previous research relevant to the topic. The establishment was made using three theoretical frameworks. Cheng (2023) investigated the dual-pathway model of cloud-based e-learning continuance intention and performance outcomes. The subsequent is Chopra et al. (2019), which studied the E-learning Effectiveness portal from students' perspective. The final study, by Chang (2013), Explored the determinants of the sustained intention of electronic learning systems in university libraries. The conceptual framework for this investigation is shown in Figure 1.

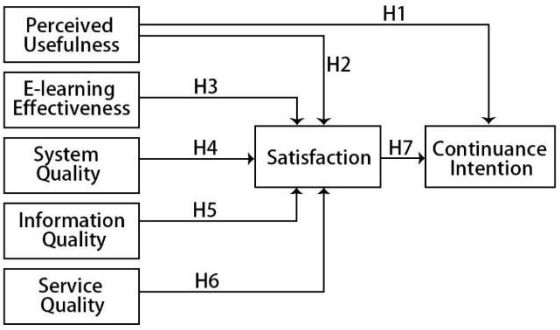

Figure 1: Conceptual Framework

H1: Perceived usefulness has a significant impact on continuance intention.
H2: Perceived usefulness has a significant impact on satisfaction.
H3: E-learning Effectiveness has a significant impact on satisfaction.
H4: System quality has significant impact on satisfaction.
H5: Information quality has a significant impact on satisfaction.
H6: Service quality has a significant impact on satisfaction.
H7: Satisfaction has a significant impact on continuance intention.

3.2 Research Methodology

The present research used a non-probability sampling methodology. A questionnaire survey was sent to college students enrolled in nine art majors at the Sichuan Fine Arts Institute (SCFAI) with prior experience with Cloud-Based e-learning Systems (CELS). The survey was administered in an online electronic questionnaire to gather data to examine the attributes of students' continuance intentions towards CELS. The survey instrument was structured into three portions: screening inquiries, demographic data, and observation variables. Initially, a standardized screening question was developed to aid in the differentiation and examination of diverse characteristics.

Furthermore, demographic questionnaires were used to gather pertinent background information from the participants, including their gender, academic major, and essential details about their institution affiliation. Furthermore, the Likert five-point scale was used for assessment.

In this study, the questionnaire underwent a rigorous evaluation process using the index of item-objective congruence (IOC), involving three specialists and academics hailing from three prominent public universities in Chongqing. These experts possessed substantial familiarity with e-learning platforms, ensuring the impartiality and credibility of the assessment. Initially, the research comprised seven constructs and 33 individual items. However, following the expert evaluation, it was found that three items fell below the threshold of 0.6. These items were related to the effectiveness of e-learning, the quality of the system, and the up-to-dateness of information provided by the cloud-based e-learning system. Consequently, these three items were excluded from the questionnaire. The remaining 30 items, all exceeding the 0.6 threshold, were deemed suitable for inclusion in the final instruments.

To further validate the questionnaire, a pilot test was administered to a group of 30 participants. The effectiveness and reliability of the questionnaire were assessed using Cronbach's Alpha. The results of the Cronbach's alpha coefficients surpassed the recommended threshold of 0.7, as established by Nunnally and Bernstein (1994). These high coefficients affirmed the internal consistency and reliability of each item within the questionnaire. The Cronbach's alpha coefficients for the constructs were as follows: e-learning effectiveness (0.966), system quality (0.983), information quality (0.981), service quality (0.981), perceived usefulness (0.977), satisfaction (0.982), and continuance intention (0.974).

After the completion of reliability testing, the questionnaire was sent to the intended respondents, acquiring 500 acceptable replies. The acquired data was analyzed using SPSS AMOS 26.0 by the researchers. Subsequently, the use of Confirmatory Factor Analysis (CFA) was employed to assess the convergent validity and confirmability of the data. The model's validity and reliability are assessed by conducting a comprehensive test on the provided data. Ultimately, the researchers used the Structural Equation Model (SEM) to investigate the relationships between variables.

3.3 Population and Sample Size

The research participants in this study consist of nine art students enrolled at the Sichuan Fine Arts Institute (SCFAI) in Chongqing, China. According to the SEM Calculator, a total of 425 responses were recommended. Boomsma (1985) suggested that an appropriate sample size of at least 100 or 200 is necessary for applying structural equation modeling. According to Hair et al. (2007), most studies require a sample size of between 30 and 500 in order to be adequate. Consequently, a sample size of 500 students was chosen as the target population for the survey. Subsequently, after conducting screening tests, 500 valid questionnaires were picked from a pool of 750 respondents for this study.

3.4 Sampling Technique

The researcher utilized multiple sampling methods in this study, including quota, proportional stratified random sampling, and convenience random sampling. The first stage involved selecting 500 students as quota samples. The second stage we chose undergraduate students from 9 art majors at the SCFAI (stratum) in Chongqing, China, who had previous experience in CELS.

Table 1: Sample Units and Sample Size

Nine art majors of Sichuan Fine Arts Institute (SCFAI)	Population Size	Proportional Sample Size
Academy of Chinese Painting and Calligraphy	496	41
School of Plastic Arts	531	44
School of Arts and Humanities	360	30
Academy of Art Education	608	50
Design Academy	1136	94
New Media Art Department	304	25
Architecture Art Department	604	50
Film-Video-Animation School	728	60
School of Public Arts	1296	106
Total	**6063**	**500**

Source: Constructed by author

4. Results and Discussion

4.1 Demographic Information

Table 2 presents the demographic information of 500 respondents. Of these respondents, 156 were male, accounting for 31.2%, while 344 were female, accounting for 68.8%. The proportion of respondents from each of the nine majors was 8.2%, 8.8%, 6%, 10%, 18.8%, 5%, 10%, 12%, and 21.2%, respectively. The School of Public Arts had the highest number of respondents, whereas the New Media Art Department had the lowest.

Table 2: Demographic Profile

Demographic and General Data (N=500)		Frequency	Percentage
Gender	Male	156	31.2%
	Female	344	68.8%
Major Direction	Academy of Chinese Painting and Calligraphy	41	8.2%
	School of Plastic Arts	44	8.8%
	School of Arts and Humanities	30	6%
	Academy of Art Education	50	10%
	Design Academy	94	18.8%
	New Media Art Department	25	5%
	Architecture Art Department	50	10%
	Film-Video-Animation School	60	12%
	School of Public Arts	106	21.2%

Source: Constructed by author

4.2 Confirmatory Factor Analysis (CFA)

In this research, Confirmatory Factor Analysis (CFA) was used to assess the reliability and validity of the measures. The reliability of the measures was evaluated using Cronbach's alpha, factor loadings, t-values, Average Variance Extraction (AVE), and Composite Reliability (CR). In Table 4, according to Stevens (1992), the factor loading of all loading items was greater than 0.50, most of which were above 0.70, with values between 0.563 and 0.894. In this study, all of the CR scores were higher than 0.7. They ranged from 0.775 to 0.908. AVE was also higher than 0.4, with values between 0.452 and 0.713. So, all of the predictions of CFA were significant

Table 3: Confirmatory Factor Analysis Result, Composite Reliability (CR) and Average Variance Extracted (AVE)

Variables	Source of Questionnaire (Measurement Indicator)	No. of Item	Factors Loading	CR	AVE
Perceived usefulness (PU)	Cheng (2023)	4	0.674-0.730	0.804	0.506
E-learning Effectiveness (EE)	Saifullah et al. (2022)	4	0.669-0.777	0.808	0.514
System quality (SQ)	Chang (2013)	4	0.633-0.765	0.794	0.493
Information quality (IQ)	Chang (2013)	5	0.632-0.709	0.805	0.452
Service quality (SQ)	Chen et al. (2015)	5	0.666-0.791	0.853	0.538
Satisfaction (SAT)	Cheng (2021a)	4	0.563-0.748	0.775	0.465
Continuance intention (CI)	Cheng (2021b)	4	0.803-0.894	0.908	0.713

The data shown in Table 4 illustrates CMIN/DF = 1.508, GFI = 0.929, AGFI = 0.914, NFI = 0.916, CFI = 0.970, TLI = 0.966 and RMSEA = 0.032. The study's indicators were found to be feasible and met the criteria for Good of Fit during the CFA test. As a result, the measurement model validates this study's discriminant and convergent validity.

Table 4: Goodness of Fit for Measurement Model

Fit Index	Acceptable Criteria	Statistical Values
CMIN/DF	< 3.00 (Hair et al., 2006)	578.930/384 = 1.508
GFI	≥ 0.85 (Sica & Ghisi, 2007)	0.929
AGFI	≥ 0.80 (Sica & Ghisi, 2007)	0.914
NFI	≥ 0.80 (Wu & Wang, 2006)	0.916
CFI	≥ 0.80 (Bentler, 1990)	0.970
TLI	≥ 0.80 (Sharma et al., 2005)	0.966
RMSEA	≤ 0.08 (Pedroso et al., 2016)	0.032
Model Summary		**In harmony with empirical data**

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

Fornell and Larcker (1981) reported that the square root of each Average Variance Extracted (AVE) was used to assess the discriminant validity. Table 5 displays the findings of the discriminant validity test. It is important to notice that each latent variable's AVE square roots are represented by the diagonal values in the table. These values must be higher than the relationships between various constructs for discriminant validity to be deemed acceptable. Accordingly, based on these standards, the findings show that the research attained reasonable discriminant validity.

Table 5: Discriminant Validity

	SQ	PU	EE	SY	IQ	CI	SAT
SQ	**0.733**						
PU	0.186	**0.712**					
EE	0.125	0.225	**0.717**				
SY	0.401	0.566	0.193	**0.702**			
IQ	0.301	0.657	0.271	0.701	**0.672**		
CI	0.335	0.544	0.306	0.541	0.657	**0.844**	
SAT	0.488	0.526	0.267	0.666	0.669	0.672	**0.682**

Note: The diagonally listed value is the AVE square roots of the variables
Source: Created by the author.

4.3 Structural Equation Model (SEM)

The structural approach that demonstrates a causal relationship between the variables is called a "structural model" (Bentler & Chou, 1987). Similarly, a structural model shows how internal and exterior variables are causally connected (Ramlall, 2017). Alternatively, Chen (2018) argued that the structural model for the SEM only shows the connections between the concealed factors. The fitness index of the structural model is presented in Table 6 and Figure 2, which includes values for CMIN/DF, GFI, AGFI, NFI, CFI, TLI, and RMSEA. The results of these indices indicate that the Goodness of Fit of the SEM validation in this study is acceptable.

Table 6: Goodness of Fit for Structural Model

Index	Acceptable	Statistical Values
CMIN/DF	< 3.00 (Hair et al., 2006)	1074.144/398 = 2.699
GFI	≥ 0.85 (Sica & Ghisi, 2007)	0.869
AGFI	≥ 0.80 (Sica & Ghisi, 2007)	0.847
NFI	≥ 0.80 (Wu & Wang, 2006)	0.845
CFI	≥ 0.80 (Bentler, 1990)	0.896
TLI	≥ 0.80 (Sharma et al., 2005)	0.886
RMSEA	≤ 0.08 (Pedroso et al., 2016)	0.058
Model Summary		**In harmony with Empirical data**

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

4.4 Research Hypothesis Testing Result

According to the results in Table 7, the satisfaction variable demonstrated the strongest and most direct impact on continuance intention, with a standardized path coefficient (β) of 0.597 (t-value = 9.160*). Information quality had the second most significant influence on satisfaction, with a β coefficient of 0.513 (t-value of 7.805*). Service quality also had a notable impact on satisfaction, with a β coefficient of 0.329 (t-value of 6.250*). Furthermore, System quality significantly influenced satisfaction, with a β coefficient of 0.314 (t-value of 5.614*). In addition, perceived usefulness directly impacted continuance intention, with a β coefficient of 0.227 (t-value of 4.739*), and it also positively influenced satisfaction, with a β coefficient of 0.142 (t-value of 4.739*). Lastly, E-learning effectiveness had a minor influence on satisfaction, with a β coefficient of 0.136 (t-value of 2.771*).

Table 7: Hypothesis Results of the Structural Equation Modeling

Hypothesis	(β)	t-Value	Result
H1: PU→CI	0.227	4.739*	Supported
H2: PU→SAT	0.142	2.790*	Supported
H3: EE→SAT	0.136	2.771*	Supported

Hypothesis	(β)	t-Value	Result
H4: SY→SAT	0.314	5.614*	Supported
H5: IQ→SAT	0.513	7.805*	Supported
H6: SQ→SAT	0.329	6.250*	Supported
H7: SAT→CI	0.597	9.160*	Supported

Note: * p<0.05
Source: Created by the author

The results in Table 7 can be interpreted in the following extensions. The correlation results of **H1** support the hypothesis that PU significantly influences CI with a standardized coefficient of 0.227. As Chiu and Wang (2008) demonstrated, the factors included in the previous Technology Acceptance Model (TAM) study, such as perceived usefulness, impact CI.

Second, **H2** has provided evidence that PU is a crucial determinant of SAT, as it has a standardized coefficient of 0.142. Additionally, Hsu and Lu (2004) have found that PU significantly influences SAT.

Additionally, **H3** confirms that EE is one of the critical factors affecting SAT, with a standardized coefficient value for the structured method of 0.136. In a study of the Effectiveness of e-learning portals from students' perspective, Chopra et al. (2019) discovered that the EE loads well on user SAT.

The statistical results for **H4** support the hypothesis that SY significantly impacts SAT, as indicated by a standardized coefficient value of 0.314. According to the findings of Pour et al. (2021), system performance (SY) is a measure of how effectively an information system (IS) enables users to fulfill their needs. It is reflected in the overall performance and functionality of the system. The study also revealed a strong positive correlation between SY and user satisfaction (SAT).

In addition, the results indicate a strong impact of IQ on SAT scores, with a standardized coefficient value of 0.513 for hypothesis **H5.** Seddon and Kiew (1996) analyzed the IS success model developed by DeLone and McLean and found a strong correlation between SAT customers and IQ.

Moreover, according to condition **H6,** the results indicate that SQ significantly impacts SAT, with a consistent coefficient value of 0.329. According to Chiu et al. (2016), SQ strongly emphasized that it significantly impacts SAT and actual use.

Finally, according to **H7,** SAT significantly impacts CI with a standardized coefficient value of 0.597. Horzum (2015) argued that SAT primarily impacts consumer CI.

5. Conclusion and Recommendation

5.1 Conclusion and Discussion

This study examines the factors contributing to Satisfaction and Continuation Intention among Chinese college students using Cloud-based E-learning Systems (CELS). The study focuses on students from the Sichuan Fine Arts Institute (SCFAI) in Chongqing, China. A total of 500 students from the academy completed an online questionnaire. The researchers used Confirmatory Factor Analysis (CFA) and Structural Equation Modeling (SEM) to analyze the data and identify factors influencing student Satisfaction and Continuance Intention to use the CELS. The results reveal that factors such as Perceived Usefulness, E-learning Effectiveness, System Quality, Information Quality, and Service Quality significantly impact student Satisfaction. Additionally, students' Perceived Usefulness and Satisfaction significantly affect their Continuance Intention to use the CELS.

Research has found that satisfaction (SAT) significantly impacts continuance intention (CI). Additionally, perceived usefulness (PU) also significantly affects CI. Horzum (2015), Chiu and Wang (2008), and Hsu and Lu (2004) have pointed out that SAT primarily influences CI, while PU affects both SAT and CI. Furthermore, information quality, service quality, system quality, perceived usefulness, and e-learning effectiveness significantly impact satisfaction. In this study, information quality significantly impacts satisfaction, followed by service and system quality. This is consistent with the findings of Seddon and Kiew (1996), Chiu et al. (2016), Pour et al. (2021), Hsu and Lu (2004), and Chopra et al. (2019).

5.2 Recommendation

Based on a survey on the acceptance of cloud-based e-learning systems (CELS) among students at the Sichuan Fine Arts Institute in Chongqing, useful suggestions can be made for the future development of CELS, considering the current state of art discipline teaching.

Firstly, satisfaction is key to promoting students' continuance intention to use CELS. Currently, the COVID-19 pandemic has greatly promoted the development of online education in Chongqing. However, as the pandemic ends and offline teaching resumes, the enthusiasm for online teaching is decreasing. To maintain the enthusiasm for online education, the advantages of CELS in art design education must be highlighted. The administrators of CELS should make efforts to improve the system quality, service quality, and information quality. In addition, university administrators and course designers should strengthen the quality control of online courses. Specific measures can

include actively listening to suggestions from different stakeholders, such as teachers, students, parents, and service companies involved in system development, to fully understand the different needs of various groups and determine the optimal solutions enabled by modern information technology.

Secondly, information quality has the greatest impact on satisfaction with CELS, which in turn significantly promotes students' continuance to use CELS. In art teaching, teachers can use CELS more, allowing students to access resource libraries that provide professional knowledge and theories for art learning and accumulate efficient, timely, and contemporary artistic knowledge, transforming content into methods. Furthermore, teachers can integrate excellent CELS both domestically and internationally, such as iCourse, ilab-x, SMART EDUCATION OF CHINA, xuetangX, edX, Future Learn, Coursera, etc., allowing students to choose and further learn from diverse course resources according to their interests, broadening their knowledge and even establishing their artistic knowledge system, laying a solid foundation for artistic innovation learning. In the future, educational administrators and teachers should increase their introduction and explanation of domestic CELS and their usage methods. Students need to feel the usefulness and necessity of this new teaching method through learning professional and in-depth knowledge or industry-relevant knowledge from CELS. Based on this, they will develop a positive and good learning attitude, ultimately influencing the formation of their continuance to use e-learning.

Regarding perceiving usefulness, attention should be focused on user experience, the quality and diversity of learning materials, feedback and assessment, social participation and collaborative learning, and mobile learning support—for example, 1. A good user experience enhances the practicality of CELS. 2. CELS should include high-quality and diverse learning materials, including text, graphics, videos, and audio. 3. CELS should provide timely feedback and assessment to help learners understand their learning levels and abilities. 4. CELS should encourage social participation and collaborative learning to promote shared learning and growth. 5. With the popularity of mobile devices, learners should be able to learn anytime, anywhere, and ensure continuity.

Regarding system and service quality, the focus should be on improving the online learning experience for students. This includes ensuring system stability and security to prevent crashes and protect personal data. The user interface should be simple and easy to navigate so that students can use the system without any difficulties. The system should be compatible with multiple devices and operating systems. Providing alternative learning resources such as text, audio, and video is crucial, and their quality and accuracy should be guaranteed. Online chat and study groups promote student engagement and collaboration. Timely feedback and assessments allow students to evaluate their progress and make necessary adjustments. Technical and user support should be available 24/7 to address any system-related issues.

Finally, E-learning effectiveness depends on compelling and interactive material, tailored learning, timely feedback, and technological assistance. Multimedia content design and interactive features like online quizzes and discussion boards engage students. Effectiveness increases with personalized learning, which lets students' study at their speed. E-learning technologies give rapid evaluations and feedback to help students change their learning practices. Tech assistance and training help students and instructors utilize e-learning systems efficiently. These elements assist pupils in grasping and assimilating content in e-learning.

5.3 Limitation and Further Study

Research on student satisfaction and continuance intention in developed countries such as the USA and EU has a relatively mature theoretical foundation and indicator system. However, in the higher education environment of China, research on student satisfaction and continuance intention, especially for art students, still needs to be developed more. There are still some things that could be improved in terms of survey scale and theoretical research depth in China. The combination of theoretical research and practice needs to be closer, and it is necessary to draw on foreign experience rather than solely innovating in building student satisfaction models. Therefore, there is still much research space and value in exploring student satisfaction for art students, and further exploration is needed. Especially from the perspective of cloud-based art online education, how to better meet the learning needs of art students to improve their satisfaction and continuance intention requires in-depth research and joint efforts in practice.

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