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What Factors Drive Satisfaction and Continuance Intention Of Art Major Students Towards Cloud-Based E-Learning in Chongqing, China?

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Abstract

Purpose: The cloud-based e-learning system has rapidly developed in China, with over 21 platforms dedicated to online higher education teaching. This research, therefore, investigates the factors influencing the satisfaction and continuance intention of postgraduate students majoring in art in Chongqing, China, when using cloud-based e-learning system services. **Research design, data, and methodology:** The quantitative research study will collect data from 500 art postgraduate students in nine art majors at Sichuan Fine Arts Institute, Chongqing, China, through a questionnaire survey. Sample methods include judgmental sampling, quota sampling, and convenience sampling. Before data collection, an initial pilot study with a sample size of 30 will be conducted to establish the Index of Congruence (IOC) and perform a validity and reliability trial assessment. Confirmatory Factor Analysis (CFA) will be used to evaluate the convergence and discrimination validity of the measurement model. **Results:** The results indicated that perceived usefulness is the strongest factor influencing satisfaction, followed by information and system quality. However, e-learning effectiveness and service quality do not significantly impact the satisfaction of graduate students in the arts field. **Conclusions:** The administrators of the cloud-based e-learning system and the instructors of art courses should enhance student satisfaction from two perspectives: system level and course quality.

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

JEL Classification Code: E44, F31, F37, G15

1. Introduction

Cloud-based e-learning system, otherwise called CELS, is an academic platform that facilitates anytime, anywhere access and on-demand E-learning resources in a Saas model (Chang et al., 2016). Education is shifting towards cloud computing, allowing users to benefit from increased accessibility and the capacity to access and store informational resources on cloud-based platforms (Attaran et al., 2017). The CELS distinguishes itself from the traditional online learning system in its capability to be highly scalable while ensuring that the user terminal is not overwhelmed by large amounts of data, thereby not affecting user experience (Hew & Kadir, 2016). Furthermore, Educational institutions can benefit from this technology, as it provides a more malleable yet commercial Zable option than traditional E-learning. Additionally, it avoids the drawbacks commonly associated with the latter, such as slow network speed, inadequate storage capacity, and costly hardware (Bamiah et al., 2018). This is one of the important reasons why China is vigorously developing a Cloud-based e-learning system. At present, the Smart Education of China is responsible for the oversight and governance of China's online educational resources, comprising the Smart Education Platform of

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China-Primary & Secondary Schools, the Smart Education Platform of China-Vocational Education, and the Smart Education of China-Higher Education. Fifteen Chinese provinces, autonomous regions, and municipalities were involved in the pilot project. By 2023, 21 online teaching platforms were included in the Smart Education of China-Higher Education (Ma & Mendez, 2023).

The National Virtual Simulation Experiment Teaching Curriculum Sharing Platform (lab-x) is the largest cloud-based virtual simulation experiment platform in China. In contrast to the conventional laboratory, VSTP has the benefits of abundant content, precise localization, prominent openness, and dependability and trustworthiness (Zhang & Yang, 2021). Universities have developed various virtual simulation experiment platforms, which are stored in a distributed mode across the servers of various universities. The National Virtual Simulation Experiment Platform displays a data interface provided by ilab-x centrally. The evaluation of the virtual simulation experiment projects developed by universities, conducted by experts of various disciplines organized by the Ministry of Education of China, has been undertaken (Huang, 2023). They are divided into national, provincial, and general experiment projects. The ilab-x is a repository for the dissemination of experimental projects. Learners who cannot access experimental resources can partake in experimental courses made available by other higher education institutions on this cloud platform, receiving online advice from professionals to satisfy the requirements of individuals to augment their specialist expertise (Xiong et al., 2021).

While the growth of cloud-based e-learning platforms in China, particularly for higher education, has been rapid, there is still a notable gap in the understanding of factors influencing the satisfaction and continuance intention of postgraduate students majoring in art in Chongqing, China, when using these platforms. While there has been research on e-learning satisfaction and continuance intention in the broader context, there is limited research that specifically examines these factors within the unique context of postgraduate students majoring in art. Art education often involves specialized content and teaching methods, which may have distinct factors influencing satisfaction and continuance intention. Therefore, this research investigates the factors influencing the satisfaction and continuance intention of postgraduate students majoring in art in Chongqing, China, when using cloud-based e-learning system services.

2. Literature Review

2.2 Perceived Usefulness

Davis (1989) and Roca et al. (2006) The Perceived Usefulness (PU), defined as "the level that someone considers that utilizing a specific system would improve their work effectiveness," may play an important role in influencing satisfaction with the system. According to Park et al. (2009), PU refers to how users believe utilizing online library resources (OLRs) would enhance their ability to accomplish their jobs. According to Lee (2010), Lin and Wang (2012), and Cheng (2014), the learner's PU of the e-learning system is a favorable indicator of their satisfaction with the system. According to Lin and Lin (2019), PU is the term used to describe users of the system who are persuaded that utilizing this service will have a better outcome. Lin et al. (2011) The perceived utility of e-learning can be described as the degree to which a person feels that online education may be a driving force towards attaining objectives.

In the context of online education, PU has a major effect on users' intentions to use (Abdullah et al., 2016; Al-Gahtani, 2016; Budu et al., 2018; Chen & Tseng, 2012). According to Limayem and Cheung (2008), PU significantly affects and influences whether distance learning services are continued. According to certain investigations (Joo et al., 2017), PU considerably and favorably impacts satisfaction across the online learning platform. According to several studies (Islam & Azad, 2015; Larsen et al., 2009; Mouakket & Bettayeb, 2015), PU considerably benefits teachers' satisfaction. Users' PU of cloud computing (CC) services may influence their satisfaction with the services (Cheng, 2018; Xu et al., 2017). 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

According to Tai (2006), the success of educational objectives is referred to as e-learning effectiveness. According to Compeau and Higgins (1995) and Ladyshewsky (2004), learning effectiveness describes the extent to which a person learns a skill via instruction. Stability, security, dependability, and responsiveness, together with user-friendliness, simplicity of use, organization, and customization, are the criteria for determining how successful a system for electronic learning is. According to Piccoli et al. (2001), Sun et al. (2008), and Bobadilla et al. (2010), enhanced reliability and superior quality of technology can potentially facilitate improved

learning outcomes among students. In order to investigate the efficacy of e-learning, Noesgaard and Ørngreen (2015) performed a systematic search of library databases. The findings indicated 19 different definitions of e-learning efficacy, with "learning outcome" being the most often used description.

According to research by Piccoli et al. (2001) and Keller (1983), E-learning effectiveness is an important indicator of learning outcomes in gaining information; this indicator may also contribute to total learning satisfaction. According to Yengin et al. (2011), user satisfaction and net benefits are two metrics that may be used to assess the efficiency of e-learning. According to Cuadrado-Garcia et al. (2010), self-perception of the impact of time spent on e-learning on one's grades and moods has been linked to e-learning efficacy. Urdan (2000) proposed four distinct success metrics for evaluating the efficacy of corporate e-learning systems. These included cost-return measures, measures focusing on performance, measures focusing on culture, and measures evaluating the effectiveness of e-learning. Using both objective (test scores) and subjective (reported satisfaction) measurements, Zhang et al. (2004) evaluated the efficiency of the learning process. Therefore, one hypothesis is formulated:

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

2.3 System Quality

According to Chen et al. (2015), System Quality (SY) refers to the quality of knowledge/data gained from (or via) systems in the study. The SY measures the information system procedures, which is claimed to impact user satisfaction (DeLone & McLean, 1992). According to Hassanzadeh et al. (2012), SY denotes the caliber of the characteristics and abilities of the system utilized to aid and enhance both teaching and learning. The sense that users have of how well a digital library retrieves and delivers information is what SY means (Balog, 2011). According to Gorla et al. (2010), SY is the efficiency of processing the information system. An e-learning system's SY will increase directly to how user-friendly and organized a website is (Zheng et al., 2013).

The Information Systems Success Model acknowledges that the perceived ease of use can replace SY (Rai et al., 2002). This demonstrates that instructional features and amenities offered by e-learning systems, such as discussion forums and collaborative learning tools, boost user satisfaction and system use (Al-Fraihat et al., 2020). According to Yan et al. (2014), it can gauge how robust and trustworthy the information system is regarding its software and data components. DeLone and McLean's model of IS Success was partly tested. SY positively impacts user satisfaction (Seddon & Kiew, 1996). As a result, a hypothesis is put forth:

H4: System quality has a significant impact on satisfaction.

2.4 Information Quality

Negash et al. (2003) define Information Quality (IQ) as a function of how valuable the output provided by a system as judged by the user. IQ is defined as information's relevance, timeliness, correctness, format, and utility (Cyr et al., 2018; Faisal et al., 2017). According to Mirabolghasemi et al. (2021), IQ refers to how well the materials uploaded to learning management systems (LMS) are received by English language learners (EFL). IQ was described as users' perceptions of the information a digital library offers to meet information demands. IQ is described as the completeness, correctness, and currency of IS-generated outputs, which might be web screens or online reports (Gorla et al., 2010). The standard of the content may be used to determine IQ. Content quality has been incorporated as a dimension by one term or another in practically all research on e-learning (Gudigantala et al., 2011).

According to Yakubu and Dasuki (2018), IQ qualities include timeliness, availability, ease of understanding, relevance, and content requirements. In an e-learning system, IQ significantly impacts satisfaction (Freeze et al., 2010; Ramayah & Lee, 2012; Roca et al., 2006). According to DeLone and McLean (1992, 2003), the semantic success of IS may be gauged by the quality of the information. Wang et al. (2007) provided other criteria for effective information quality. For example, an e-learning system should strive to deliver accurate, sufficient, and timely information relevant to the workplace and easy to understand and learn. According to Ranganathan and Ganapathy (2002), IQ considerably impacts satisfaction and the likelihood that a user would return. Therefore, this research posits the following hypothesis:

H5: Information quality has a significant impact on satisfaction.

2.5 Service Quality

Gorla et al. (2010) believe that Service Quality (SQ)is the degree of service that information system (IS) service providers give to consumers, encompassing four aspects: (1) dependability, (2) responsiveness, (3) assurance, and (4) empathy. According to Santos (2003), the quality of the service plays an important part in strengthening a company's competitive advantage. According to Roca et al. (2006) and Cho et al. (2009), SQ is the extent to which a student believes the whole level of the individual support services provided by the e-learning system. According to Gronroos (1984), SQ may be described as technical and functional elements that

describe the services offered and the methods used to provide them. SQ reflects an organization's capacity to offer visitors the promised services. Support services are provided by IT experts in the context of e-learning (Mtebe & Raphael, 2018).

Tam (2000) states that SQ greatly impacts user satisfaction and perceived value. According to Ahn et al. (2007), consumers who experience higher SQ are more likely to get completely absorbed in their work and find it enjoyable. The capacity to give individualized information in a safe setting by comprehending user demands and preferences, paired with individualized interaction, is referred to as the notion of SQ in e-learning (Jung et al., 2015). According to Yakubu and Dasuki (2018), responsiveness, dependability, assurance, and empathy are the four main components of SQ. According to DeLone and McLean (2003), SQ reflects client requests for help from IS suppliers. Consequently, a hypothesis is formulated:

H6: Service quality has a significant impact on satisfaction.

2.6 Satisfaction

Xinli (2015) pointed out that user satisfaction measures how much a user finds a system helpful and how likely they are to use it again. Theng et al. (1999) satisfaction is the "sense of being satisfied with the digital library for helping accomplish the task." According to Sweeney and Ingram (2001), the user's perceived interest and success in an e-learning environment constitutes satisfaction. According to Hu et al. (2007), learning satisfaction is a person's overall opinion of the learning process that results in an experience and may be connected to the outcome. Kim and Malhotra (2005) explained that user satisfaction was the anticipated quantity of learning gained from a certain e-learning system. According to research by Rust and Oliver (1994), satisfaction is defined as the "level at which one perceives that an experience provokes positive feelings." As Elliott and Shin (2002) defined, satisfaction occurs when one's wants and needs are met.

According to Masrek and Gaskin (2016), users' expectations for digital library services are highly connected to their satisfaction with the digital library. According to Chen et al. (2018), user satisfaction plays a key role in deciding whether they will continue to utilize the information system. The characteristics that contribute to educator satisfaction in an electronic learning environment were discovered by (Tratnik et al., 2019). The connection between customers and service providers has become more amorphous due to modern technology, making it imperative for online businesses to evaluate customer satisfaction levels (Salimon et al., 2016), as shown by the subsequent hypothesis:

H7: Satisfaction has a significant impact on continuance intention.

2.7 Continuance Intention

Chang (2013) pointed out that a person's willingness to continue using and recommending an IS is measured by their level of intent. The intention to continue using IS refers to the elements that support its long-term use. Understanding the long-term elements that influence the effectiveness of the IS is necessary (Bhattacherjee, 2001; Lin et al., 2017; Wang, 2015). According to Hsu and Lin (2019), CI is a client's persistent behavior to utilize the service frequently. The notion shown to consistently impact user intention across the temporal phases of IS usage is known as the "IS continuance intention" (Davis et al., 1989; Karahanna et al., 1999). According to the literature, "user's decision to continue using an individual's Information Technology (IT) that the user has already been using" is the definition of "user's intention to continue using that IT" (Nabavi et al., 2016). According to Choi-Meng et al. (2020), behavioural intention may be explained using subjective norms, perceived utility, and perceived ease of use from e-learning.

According to Huang et al. (2017) and Wu and Chen (2017), Researchers have lately investigated factors such as learners' CI in connection to their varied motivations and perspectives towards MOOCs. It has been argued that maintaining regular access to IT services is more crucial than gaining access to them for the first time (Yuan et al., 2018). The role of environmental elements and social influence on behavioural intention was outlined (Panigrahi et al., 2018). The study material significantly impacts effort expectations and CI, which is why they believe that distant education systems' success and efficacy rely greatly on it (Zabidi et al., 2017), such as perceived usefulness and satisfaction also impact CI.

3. Research Methods and Materials

3.1 Research Framework

Previous relevant research informed the construction of the conceptual framework, which was established using three theoretical frameworks. One of the studies by Cheng (2023) examined the dual-pathway model of cloud-based e-learning continuance intention and performance outcomes. Another study by Chopra et al. (2019) focused on the effectiveness of the E-learning portal from students' perspective. Lastly, Chang (2013) explored the determinants of sustained intention toward electronic learning systems in university libraries. Figure 1 illustrates the conceptual framework for this investigation.

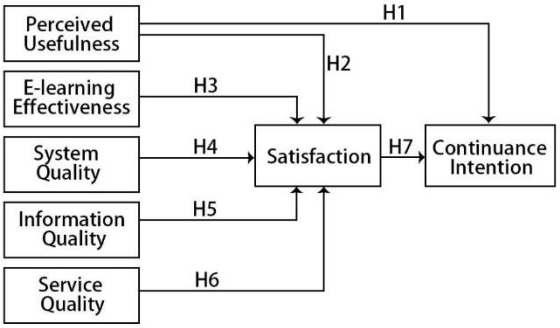

Figure 1: Conceptual Framework

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 sampling methods used in this study were non-probability sampling. A questionnaire survey was distributed to college students from nine art majors at Sichuan Academy of Fine Arts (SCFAI) who had previous experience using a cloud-based electronic learning system (CELS). The survey was conducted online to collect data on students' sustained intention towards CELS. The survey consisted of screening questions, demographic information, and observation variables. Standardized screening questions were used to identify and analyze different attributes. Demographic questionnaires gathered background information such as gender, academic expertise, and institution details. The Likert five-point scale was used for evaluation.

In this research, the questionnaire was evaluated by the index of item-objective congruence (IOC), inviting three specialists and academics from three Chongqing public universities. They are all familiar with using e-learning platforms, which helps to guarantee the impartiality of the assessment findings. This study initially has 7 constructs and 33 items. After expert evaluation, there are three items below 0.6, They were "I learned better in cloud-based e-learning system" in terms of E-learning effectiveness, "Performing an operation in the cloud-based e-learning system always leads to a predicted result" in terms of system quality and "The information from the the cloud-based e-learning system is up-to-date enough for my purposes" information quality, which need to be deleted. The remaining 30 indicators are all above 0.6, so the adjusted items can be used as the final instruments.

A pilot test was conducted with 30 participants, and the questionnaire was evaluated for effectiveness and reliability using Cronbach's Alpha. The results of Cronbach's alpha coefficients were above the recommended threshold of 0.7 (Nunnally & Bernstein, 1994), confirming each item's internal consistency and reliability. The results are 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 reliability test, the questionnaire was sent to the intended respondents, resulting in 500 acceptable responses. The obtained data was analyzed using SPSS AMOS 26.0, and confirmatory factor analysis (CFA) was conducted to assess the convergence validity and confirmability of the data. The effectiveness and reliability of the model were evaluated through comprehensive testing of the provided data. Finally, researchers used Structural Equation Modeling (SEM) to examine the relationships between variables.

3.3 Population and Sample Size

The research participants in this study include graduate students from nine art majors at the Sichuan Fine Arts Institute (SCFAI) in Chongqing, China. According to the Structural Equation Model Calculator, 425 responses were recommended. Kline (2011) suggests including a minimum of 200 respondents to reduce the likelihood of duplication in the study. Hair et al. (2007) state that a sample size between 30 and 500 is generally considered adequate for most studies. As a result, a target population of 1,116 students was selected for the survey. After that, screening tests were conducted, and from a pool of 692 respondents, 500 valid questionnaires were chosen for this study.

3.4 Sampling Technique

The study conducted by researchers employed a combination of sampling methods, including judgment, quota, and convenience. In the initial phase, the researchers employed judgmental sampling to select 1116 postgraduate students from the Sichuan Fine Arts Institute (SCFAI) in Chongqing, China. These students were specifically chosen from nine different art majors and had previous experience in CELS. In the next stage, a subset of 500 students was selected as quota sampling. Finally, the researchers distributed online surveys to the selected students using convenience sampling techniques, such as questionnaire stars.

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	114	51
School of Plastic Arts	297	133
School of Arts and Humanities	183	82
Academy of Art Education	78	35
Design Academy	177	79
New Media Art Department	45	20
Architecture Art Department	105	47
Film-Video-Animation School	111	50
School of Public Arts	6	3
Total	**1116**	**500**

Source: Constructed by author

4. Results and Discussion

4.1 Demographic Information

Table 2 displays the demographic information of 500 participants. Among these individuals, 203 were male, making up 40.6% of the total respondents, while 297 were female, accounting for 59.4%. The distribution of respondents across the nine majors was 10.2%, 26.6%, 16.4%, 7%, 15.8%, 4%, 9.4%, 10%, and 0.6%, respectively. It is worth noting that the School of Plastic Arts had the highest number of participants, while the School of Public Arts had the lowest number.

Table 2: Demographic Profile

Demographic and General Data (N=500)		Frequency	Percentage
Gender	Male	203	40.6%
	Female	297	59.4%
Major Direction	Academy of Chinese Painting and Calligraphy	51	10.2%
	School of Plastic Arts	133	26.6%
	School of Arts and Humanities	82	16.4%
	Academy of Art Education	35	7%
	Design Academy	79	15.8%
	New Media Art Department	20	4%
	Architecture Art Department	47	9.4%
	Film-Video-Animation School	50	10%
	School of Public Arts	3	0.6%

Source: Constructed by author

4.2 Confirmatory Factor Analysis (CFA)

In this study, Confirmatory Factor Analysis (CFA) was employed to evaluate the reliability and validity of the measurements used. The reliability of the measures was assessed using various methods, including Cronbach's alpha, factor loadings, t-values, Average Variance Extraction (AVE), and Composite Reliability (CR). The results in Table 3 indicate that the factor loadings of all items exceeded 0.50, with the majority exceeding 0.64, ranging from 0.621 to 0.834, as suggested by Stevens (1992). Furthermore, all CR scores in this study were higher than 0.7, ranging from 0.758 to 0.872, indicating satisfactory internal consistency. The AVE values were also above 0.4, ranging from 0.440 to 0.579. As a result, all the predictions made by the CFA were found to be 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	0.621-0.690	0.758	0.440
E-learning Effectiveness (EE)	Saifullah et al. (2022)	4	0.726-0.834	0.845	0.578
System quality (SQ)	Chang (2013)	4	0.686-0.813	0.832	0.554
Information quality (IQ)	Chang (2013)	5	0.681-0.708	0.821	0.478
Service quality (SQ)	Chen et al. (2015)	5	0.640-0.808	0.872	0.579
Satisfaction (SAT)	Cheng (2021)	4	0.678-0.794	0.824	0.541
Continuance intention (CI)	Cheng (2021)	4	0.647-0.707	0.777	0.466

The data shown in Table 4 illustrates, CMIN/DF = 1.538, GFI = 0.930, AGFI = 0.915, NFI = 0.907, CFI = 0.965, TLI = 0.960 and RMSEA = 0.033. During the CFA test, the study's indicators were determined to be feasible and met the criteria for Goodness of Fit. This indicates that the measurement model effectively 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)	590.692/384 = 1.538
GFI	≥ 0.85 (Sica & Ghisi, 2007)	0.930
AGFI	≥ 0.80 (Sica & Ghisi, 2007)	0.915
NFI	≥ 0.80 (Wu & Wang, 2006)	0.907
CFI	≥ 0.80 (Bentler, 1990)	0.965
TLI	≥ 0.80 (Sharma et al., 2005)	0.960
RMSEA	≤ 0.08 (Pedroso et al., 2016)	0.033

Fit Index	Acceptable Criteria	Statistical Values
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.

According to Fornell and Larcker (1981), testing for discriminant validity was evaluated by computing the square root of each AVE. Based on this study, the value of discriminant validity is larger than all inter-construct/factor correlations. Therefore, the discriminant validity is supportive. The convergent and discriminant validity were proved. Consequently, the evidence is sufficient for establishing construct validity.

Table 5: Discriminant Validity

	SQ	PU	EE	SY	IQ	CI	SAT
SQ	**0.761**						
PU	0.227	**0.663**					
EE	-0.069	-0.084	**0.761**				
SY	0.148	0.442	-0.054	**0.744**			
IQ	0.233	0.531	-0.070	0.151	**0.692**		
CI	0.226	0.628	-0.040	0.284	0.640	**0.683**	
SAT	0.173	0.572	-0.077	0.382	0.504	0.632	**0.736**

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

4.3 Structural Equation Model (SEM)

As Bentler and Chou (1987) defined, the structural model demonstrates a causal relationship between variables. This approach connects internal and external variables to show how they influence each other. Model fitting, an essential aspect of structural equation modeling (SEM), assesses whether the model fits the data well (Hair et al., 2010). Table 6 presents the fitness index of the structural model, including values for CMIN/DF, GFI, AGFI, NFI, CFI, TLI, and RMSEA. The results of these indices indicate that the SEM validation in this study has a satisfactory Goodness of Fit.

Table 6: Goodness of Fit for Structural Model

Index	Acceptable	Statistical Values
CMIN/DF	< 3.00 (Hair et al., 2006)	833.542/398 = 2.094
GFI	≥ 0.85 (Sica & Ghisi, 2007)	0.900
AGFI	≥ 0.80 (Sica & Ghisi, 2007)	0.883
NFI	≥ 0.80 (Wu & Wang, 2006)	0.868
CFI	≥ 0.80 (Bentler, 1990)	0.926
TLI	≥ 0.80 (Sharma et al., 2005)	0.919
RMSEA	≤ 0.08 (Pedroso et al., 2016)	0.047
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

Based on Table 7, hypotheses testing results reveal that H1, H2, H4, H5, and H7 are supported, and H3 and H6 are not. The satisfaction variable demonstrated the strongest and most direct impact on continuance intention, with a standardized path coefficient (β) of 0.450 (t-value = 7.309*). Perceived usefulness had the second most significant influence on continuance intention, with a β coefficient of 0.409 (t-value of 6.668*), and it also positively influenced satisfaction, with a β coefficient of 0.334 (t-value of 5.884*). Information quality also impacted satisfaction, with a β coefficient of 0.397 (t-value of 7.008*). Furthermore, System quality significantly impacted satisfaction, with a β coefficient of 0.247 (t-value of 4.872*). In addition, the E-learning effectiveness has a β coefficient of -0.024 (t-value of -0.511), and service quality has a β coefficient of 0.030 (t-value of 0.641), both with p-values < 0.05. Therefore, these factors do not have a direct impact on satisfaction.

Table 7: Hypothesis Results of the Structural Equation Modeling

Hypothesis	(β)	t-Value	Result
H1: PU→CI	0.409	6.668*	Supported
H2: PU→SAT	0.334	5.884*	Supported
H3: EE→SAT	-0.024	-0.511	Not Supported
H4: SY→SAT	0.247	4.872*	Supported
H5: IQ→SAT	0.397	7.008*	Supported
H6: SQ→SAT	0.030	0.641	Not Supported
H7: SAT→CI	0.450	7.309*	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 0.409. PU significantly affects the CI of distance learning services (Limayem & Cheung, 2008).

Second, **H2** has provided evidence that PU is a crucial determinant of SAT, as it has a standardized coefficient of 0.334. The satisfaction of learners with the e-learning system can be inferred through examining the learner's PU of the

system (Cheng, 2014; Lin & Wang, 2012).

Additionally, **H3** shows that EE has no significant impact on SAT, with a standardized coefficient value for the structured method of -0.024. The result conflicts with previous studies that e-learning effectiveness is a crucial factor in determining learning outcomes and can also enhance overall satisfaction with the learning process (Keller, 1983; Piccoli et al., 2001).

The statistical results for **H4** support the hypothesis that SY has a significant impact on SAT, as indicated by a standardized coefficient value of 0.247. The measurement of information system operations is assessed via the concept of SY, which has been posited to have a significant influence on user satisfaction (DeLone & McLean, 1992).

In addition, the results indicate a strong impact of IQ on SAT scores, with a standardized coefficient value of 0.397 for hypothesis **H5.** E-learning system researches have indicated that satisfaction is greatly influenced by IQ (Freeze et al., 2010; Ramayah & Lee, 2012; Roca et al., 2006).

Moreover, according to condition **H6,** the results indicate that SQ has has no significant impact on SAT, with a consistent coefficient value of 0.030. The result conflicts with previous studies that SQ has a big impact on user satisfaction (Tam, 2000).

Finally, according to **H7,** SAT has a significant impact on CI with a standardized coefficient value of 0.450. The determination of whether users will continuance intention to use the information system is significantly influenced by their level of satisfaction (Chen et al., 2018).

5. Conclusion and Recommendation

5.1 Conclusion and Discussion

This study examines the factors that impact Chinese art college students' satisfaction and continuance intention using a Cloud-based E-learning System (CELS), drawing on responses from 500 postgraduate students at Chongqing Sichuan Fine Arts Institute (SCFAI). Using Confirmatory Factor Analysis (CFA) and Structural Equation Modeling (SEM) to analyze the data and identify factors that influence student Satisfaction and Continuance Intention to use the CELS., the collected data was analyzed, revealing that factors such as perceived usefulness, system quality, and information quality significantly impact student satisfaction. Furthermore, both perceived usefulness and satisfaction are significant factors in determining continuance intention among postgraduate students. However, the variables E-learning effectiveness and service quality do not significantly impact postgraduate student satisfaction with using the CELS.

This study offers additional insights into theory and practice, shedding light on the factors influencing the intention to continue using an information system. First, student satisfaction has the greatest impact on continuance intention to use the CELS. The satisfaction level experienced by users significantly impacts their decision to continue utilizing the information system (Chen et al., 2018). Ultimately, users' satisfaction levels affect their trust and perception of CELS, leading to sustained support from graduate students in the arts.

Second, perceived usefulness (PU) strongly supports continuance intention (CI) and satisfaction (SA). PU significantly affects the CI of distance learning services (Limayem & Cheung, 2008). The satisfaction of e-learners can be determined by assessing their perceived usefulness of the e-learning system (Cheng, 2014; Lin & Wang, 2012). Therefore, it is crucial to consider strategies that enhance cloud-based e-learning platforms' perceived usefulness to further improve students' learning experiences. Some practical approaches include implementing personalized recommendation algorithms, providing real-time feedback and evaluation, and promoting interactive and cooperative learning environments. These initiatives can effectively increase students' enthusiasm and active participation, leading to better learning outcomes in cloud-based e-learning.

Third, student satisfaction is affected by information quality (IQ). Previous studies on e-learning systems have shown that IQ significantly impacts SAT levels (Freeze et al., 2010; Ramayah & Lee, 2012; Roca et al., 2006). From the viewpoint of the instructors, course design should concentrate on developing a clear course structure, supplying premium learning resources, and providing a variety of learning resources. The educational system and technology should be optimized, timely feedback and direction should be given, and the platform should be continually assessed and improved according to the platform management perspectives. These actions are intended to boost learning effectiveness, improve overall student happiness, and improve the learning environment.

Fourth, system quality (SY) significantly affects SAT. SY measures information system operations and is thought to affect user SAT (DeLone & McLean, 1992). To increase user learning experience and satisfaction, platform management and design should concentrate on user-friendly interfaces, varied learning modalities, individualized learning suggestions, and prompt technical assistance.

Last, E-learning Effectiveness (EE) and Service quality (SQ) had no significant influence on SAT in this study, which contradicted many scholars (Keller, 1983; Piccoli et al., 2001; Tam, 2000). EE, SQ, and SAT may not have a direct relationship. Before the COVID-19 outbreak, Cloud-based e-learning was in the experimental stage in Chinese higher education and needed more widely implemented. However,

due to the pandemic, all courses were shifted online as a necessity, making Cloud-based e-learning the only option for students to continue their studies. The rapid transition to e-learning has shown inadequacies in online education platforms and institutions, leading to shortcomings in EE and SQ that still need to meet anticipated standards. Moreover, the research object of this paper is graduate students, which is a higher level of talent cultivation, which often requires one-on-one communication and long discussions with supervisors.

5.2 Recommendation

In this study, satisfaction and perceived usefulness were the strongest predictors of continued intention to use. Therefore, efforts should be focused on providing high-quality learning resources and content, improving the system's user interface and interactive experience, and promptly and professionally responding to user feedback and needs. Furthermore, attention should be given to training and support measures to assist students in fully utilizing the e-learning system and providing personalized learning support and guidance. By striving to improve graduate students' satisfaction and perceived usefulness in art-related disciplines, their intention to continue using the e-learning system can be increased.

In addition, information quality, perceived usefulness, and system quality significantly impact the satisfaction of Cloud-based e-learning. Cloud-based e-learning systems (CELS) should ensure that students can access accurate and comprehensive learning materials and information, minimizing errors and confusion as much as possible. This can be achieved by screening and reviewing textbooks, online resources, etc., to provide high-quality learning materials. When designing course content and learning methods, it is important to consider the practicality and value of learning for students. This can be achieved by integrating with practical artistic practice, providing examples and case studies, etc., to increase students' sense of identity and interest in learning. At the same time, the stability and usability of the e-learning platform should also be ensured. Optimizing the system interface, providing clear operational guidance and feedback, and ensuring students can smoothly use the learning platform for studying. These factors can stimulate or increase the positive attitude and satisfaction toward using CELS in the exemplary art learning process.

In summary, this study elucidates the factors influencing the intention of arts graduate students to continue using CELS. This research provides arts school teachers, as well as managers and developers of electronic learning platforms, with the ability to identify variables that impact user satisfaction and the continuance intention to use CELS for arts-related professional knowledge. These variables can be applied in project and investment decisions and in the design of online arts education courses and software development.

5.3 Limitation and Further Study

The study's limitations pertain to the restricted scope of the target population and the specific forms of online art education. Specifically, the study primarily concentrates on an academy of fine arts in Chongqing, focusing on investigating potential disparities in utilizing cloud service-based e-learning systems among graduate students pursuing nine different art majors. The results and recommendations do not include the eight art academies in various provinces and cities in China. In addition, this research only uses quantitative methodologies. When using a qualitative method, it is advisable to enhance comprehension of the significance of certain aspects and the lack thereof.

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