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Influential Factors of Satisfaction and Continuance Intention on E-Learning Among Students Majoring in Radio and Television Directing in Eastern China

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Abstract

Purpose: This research investigates the factors that impact the satisfaction and continuance intention of students majoring in Radio and Television Directing at private art schools in Eastern China. The key variables are perceived ease of use, perceived usefulness, informative quality, service quality, system quality, satisfaction and continuance intention. **Research design, data, and methodology:** This study adopts a quantitative research approach, and the researcher collected data from students majoring in Radio and Television Directing at three private art schools in Eastern China. Confirmatory factor analysis was employed to assess the reliability and discriminant validity of the framework model, and Structural Equation Modeling was used to examine the relationships and influences among the variables. **Results:** The research results demonstrate that information quality is the most significant factor influencing students' satisfaction with online learning, followed by perceived usefulness, ease of use, and system quality. Additionally, the relationship between satisfaction and continuance intention to use online learning is supported. Nevertheless, service quality has no impact on satisfaction. **Conclusions:** The conceptual framework proposed in this study exhibits high reliability and validity. Educational institutions should allocate resources more effectively, and online learning platforms should provide a better online learning experience to help students enhance their motivation and engagement, ultimately leading to better learning outcomes.

Keywords : E-learning, Service Quality, System Quality, Satisfaction, Continuance Intention

JEL Classification Code: E44, F31, F37, G15

1. Introduction

The impact of educational technology on higher education worldwide has undergone significant changes, with digital education and e-learning profoundly influencing higher education philosophies across the globe. EU Digital Education Action Plan (2021) is to enhance both the quality and quantity of teaching with digital technologies and develop a high-performance digital education ecosystem. Russia's education modernization goal (2018-2024) aims to create a digital education environment, increase online courses in higher education, and implement digital education management. The Ministry of Education of the People's Republic of China (MOE of PRC, 2019) has also emphasized the importance of holistic development, education for all, and lifelong learning to establish a modern education system that serves lifelong learning for all citizens by 2035 (Piattoeva & Gurova, 2020)

China recognizes that in the next 30 years, the greatest development dividend and strategic impetus lie in higher education. The primary goal of China's "14th Five-Year Plan" for higher education is to achieve high-quality development, aiming to become a strong higher education

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nation by 2035, focusing on developing new forms of education, especially online education, to lead globally (Wu, 2021). As of 2022, China's gross enrollment rate in higher education reached 59.6%, with over 46.5 million students enrolled, making it the world leader. China also leads in the number of MOOCs (Massive et al.) and MOOC learners, with a rapidly growing trend (Wu, 2021). In the spring semester 2020, 1.08 million university teachers offered 1.1 million online courses. By February 2022, the proportion of university teachers using blended teaching had increased from 34.8% in 2019 to 84.2%, forming a comprehensive digital development plan for higher education in China, encompassing concepts, technologies, standards, methods, and assessments (Wu, 2022).

The eastern region of China leads in both economic development and education. According to the "Alumni Association 2022 Ranking of Chinese Art Universities," released by the third-party university evaluation and research consulting, 48 universities were listed, 30 located in the eastern region of China. In E-learning research, a significant focus has been on research-oriented majors, with fewer studies on practical majors. This paper investigates students majoring in Radio and Television Directing (a practical major) in eastern China's three outstanding private art schools. The aim is to assess students' acceptance of e-learning, their satisfaction with using e-learning, and the factors influencing their use of e-learning, with the goal of better meeting the needs of teacher-led educational reform and professional development.

2. Literature Review

2.1 Perceived Ease of Use

Perceived Ease of Use involves users' perceptions and beliefs about operating a specific entity. When a system is perceived as complex, cumbersome, or hard to understand, users may become frustrated and confused, ultimately developing a negative attitude toward the system (Rakoczy et al., 2019). Developers must ensure the platform is simple, intuitive, and equipped with a clear interface and navigation structure that allows users to understand and operate the system easily. Additionally, it is crucial to incorporate user feedback and suggestions to continuously improve and optimize the system's usability (Aharony & Bar-Ilan, 2016). Prioritizing a user-centric environment can ensure that learners or users have a positive experience and fully realize the potential of the learning system in achieving their educational and career aspirations.

PEU plays a critical role in determining user satisfaction with and willingness to continue using an e-learning platform (Lim et al., 2007). When users perceive an e-learning platform as user-friendly and easy to use, it fosters a positive attitude toward the system and enhances their overall experience. This positive perception of usability encourages user acceptance of the system and leads to users recognizing and appreciating the system's various benefits (Saadé & Kira, 2009).

The consensus among various researchers, like Arbaugh and Duray (2002) as well as Arbaugh (2000b), underscores the direct link between perceived ease of use (PEU) and satisfaction with the learning experience. These researchers have consistently highlighted that PEU is pivotal in shaping users' satisfaction levels when actively engaged in learning. Accordingly, below hypotheses are proposed:

H1: Perceived ease of use has a significant impact on perceived usefulness.

H3: Perceived ease of use has a significant impact on satisfaction.

2.2 Perceived Usefulness

Perceived Usefulness encompasses two fundamental dimensions: relevance to the organization and impact on the individual (Robey & Farrow, 1982). In the context of this study, our primary focus is on exploring various aspects of individual PU. Specifically, PU reflects users' subjective judgments and beliefs regarding how much a specific application system can enhance their work performance or task execution (Davis, 1989). Consistency between this perceived usefulness and their prior expectations is considered a yardstick for measuring user PU (Bhattacherjee, 2001). Students' belief that an Educational Learning System (ELS) enhances their learning or work directly influences their perception of its usefulness (Al Natour & Woo, 2020).

Researchers have extensively explored Perceived Usefulness (PU) from various angles, sometimes treating it as an external factor and at other times as an internal influencing factor. However, they consistently regard it as a fundamental indicator for evaluating the effectiveness of learning systems. Sela and Sivan (2009) emphasized the indispensability of PU among the many factors that determine the success of e-learning. Their research underscored the importance of PU as a critical factor in determining user satisfaction and adopting e-learning platforms. Through the careful research of Davis et al. (1989), the pivotal role of PU in predicting users' continued use of systems has been validated, thus confirming its effectiveness and reliability as a determinant of users' intentions to continue using these systems. Studies on technology use in learning environments by Larsen et al. (2009) and Stone and Baker-Eveleth (2013) confirmed a positive correlation between perceived usefulness and user satisfaction with technology. This applies to procedural learning within YouTube (Lee et al., 2013) or cloud computing environments.

If users recognize the usefulness of cloud services or system platforms, their satisfaction with the service is significantly higher (Cheng, 2019). Accordingly, below hypothesis is proposed:

H2: Perceived usefulness has a significant influence on satisfaction.

2.3 Information Quality

Information Quality is a metric that reflects the overall value and reliability of information available within a specific system as perceived by users (Chang, 2013). In academic research, INFQ is often referenced in educational materials in various formats, including PDF files, PowerPoint presentations, audio files, videos, and more (Chopra et al., 2019). These educational materials' accuracy, relevance, and timeliness is crucial in determining students' learning outcomes. They serve as tools for delivering accurate and contextually relevant knowledge content, and the timeliness of accessing this information significantly enhances the learning process and overall student learning outcomes.

Researchers assess INFQ from different perspectives. Swaid and Wigand (2009) propose that users evaluate INFQ based on accuracy, completeness, reliability, timeliness, relevance, conciseness, and comprehensibility. INFQ enables users to understand learning materials better and provides the necessary knowledge and skills for practical learning and career development (Lin, 2010). High-quality information cultivates a positive learning environment and experience, igniting users' motivation and interest in learning and facilitating knowledge absorption and assimilation. When examining the relationship between Information Quality (INFQ) and user satisfaction (SAT), Al-Samarraie et al. (2017) emphasize the significant impact of INFQ, while Aparicio et al. (2017) identify it as a key factor. Accordingly, below hypothesis is proposed:

H4: Information quality has a significant influence on satisfaction.

2.4 System Quality

DeLone and McLean (2003) suggest that SYSQ encompasses users' evaluations of system usability, accessibility, learnability, and user-friendliness. In e-learning platforms, learners can significantly enhance their learning efficiency by easily accessing courses or learning materials (Chopra et al., 2019). Improved website structure and enhanced user-friendliness in ELS positively correlate with the SYSQ level (Zheng et al., 2013). These factors contribute to an enhanced user experience, simplify interactions between learners and the system, and facilitate the achievement of learning objectives.

In online learning platforms, SYSQ is a crucial indicator of technological effectiveness (Lee & Lee, 2008). Ozkan and Koseler (2009) proposed ten indicators to assess SYSQ: maintainability, organization, usability, availability, reliability, personalization, usefulness, user-friendliness, interactivity, and effective organization. Implementing and improving these SYSQ indicators can significantly enhance the performance of online learning platforms and user experiences, enabling learners to fully utilize technological tools for learning, effectively achieve their educational goals, and increase satisfaction. Multiple studies consistently support the important role of SYSQ in shaping user satisfaction (Hossain, 2016). The research findings of Almarashdeh (2016), Seddon and Kiew (1996), and Cheng et al. (2008) all confirm a positive correlation between SYSQ and user satisfaction. Accordingly, below hypothesis is proposed:

H5: System quality has a significant influence on satisfaction.

2.5 Service Quality

Lewis (1993) defines Service Quality (SERQ) as the performance of a platform's services in meeting user expectations. When a system platform provides efficient, reliable, personalized services, it increases user satisfaction (SAT). SERQ is a comprehensive evaluation of the various services provided by the system platform to users (Farid et al., 2018). By offering reliable, efficient, personalized, and user-centered services, the system platform can enhance its SERQ, increase user recognition and SAT, and drive its success and sustainability.

Service Quality (SERQ) is a multi-dimensional concept in online learning systems. Ozkan and Koseler (2009) adopted a four-index approach to measuring SERQ, including student tracking, course authorization, course management, and knowledge capability. Alsabawy et al. (2016) emphasized key factors like responsiveness and course management. Cheng (2012) assessed SERQ by aiding tutors and online administrators who provide learner support and ensure the smooth functioning of the platform. By focusing on and optimizing the different dimensions and indicators of SERQ, platforms can offer higher-quality learning experiences, meet users' learning needs, and establish successful online learning environments. Accordingly, below hypothesis is proposed:

H6: Service quality has a significant influence on satisfaction.

2.6 Satisfaction

Jamal and Naser (2003) describe SAT as the feelings users have after using a product or service. In the context of

an Electronic Learning System (ELS), SAT refers to users' perceptions of their overall online experience (Szymanski & Hise, 2000) or the learning outcomes they achieve through the learning system (Kim & Malhotra, 2005). This understanding allows for targeted measures and optimization strategies to enhance the system. Improving SAT can increase user acceptance and loyalty, promoting active participation and sustainability in online learning.

SAT is closely related to users' willingness to continue using the system (Chen et al., 2018) and their perceptions of perceived usefulness (PU), as well as their intention to use the system again (Xinli, 2015). User experience, system functionality, user learning outcomes, and the sense of achievement facilitated by the system are also important considerations in assessing SAT (Chiu et al., 2007). In summary, the SAT is a key benchmark for evaluating the quality of services in an electronic learning platform because it comprehensively reflects users' overall perception of the system. According to Petrick and Backman (2002), satisfaction helps reveal the motivations behind users' willingness to continue using the system. The impact of user satisfaction on user behavior is evident, as research shows that it directly influences user actions (Bhattacherjee, 2001). Accordingly, below hypothesis is proposed:

H7: Satisfaction has a significant impact on continuance intention.

2.7 Continuance Intention

Continuous Intention (CI) is a critical factor for any platform, whether it is an online community (Lin & Lee, 2006) or a social media website (Chiu et al., 2013). Al-Gahtani (2016) suggests that User Satisfaction (SAT), Perceived Ease of Use (PEU), and Perceived Usefulness (PU) are all important indicators that influence the intention to continue using a platform. By increasing user satisfaction, enhancing perceptions of the system's ease of use and usefulness, and building trust and reliance on the platform, the willingness of users to continue using can be promoted, ultimately achieving sustainable growth and long-term user engagement for the platform.

Different researchers have studied factors affecting CI from various perspectives, such as User Satisfaction (SAT) (Bhattacherjee, 2001), Perceived Ease of Use (PEU) (Liao et al., 2007), Perceived Usefulness (PU) (Davis et al., 1989), Attitude (Shih, 2004), System Quality (Chiu et al., 2005), and Negative Critical Incidents (Lin et al., 2010). All these factors influence users' intention to continue using a system platform in the future. User satisfaction is the most critical indicator among them. Users' assessments of overall system quality and user experience directly impact their willingness to persist in usage.

3. Research Methods and Materials

3.1 Research Framework

The framework of this study is built upon three core theories and three research frameworks. The three core theories consist of the Technology Acceptance Model (TAM) by Davis (1986), the Updated Information System Success Model (UISSM) by DeLone and McLean (2003), and the Post-Acceptance Model of Information System Continuance (ECM) by Bhattacherjee (2001). These three theories, proposed by different researchers, collectively contribute seven variables to this study. The first theoretical framework, from Singh and Sharma (2021), encompasses three variables: Perceived Usefulness, Perceived Ease of Use, and Satisfaction. The second theoretical framework, presented by Chang (2013), comprises four variables: System Quality, Information Quality, Service Quality, and Satisfaction. The third theoretical framework, proposed by Cheng (2020), includes two variables: Satisfaction and Continuance Intention.

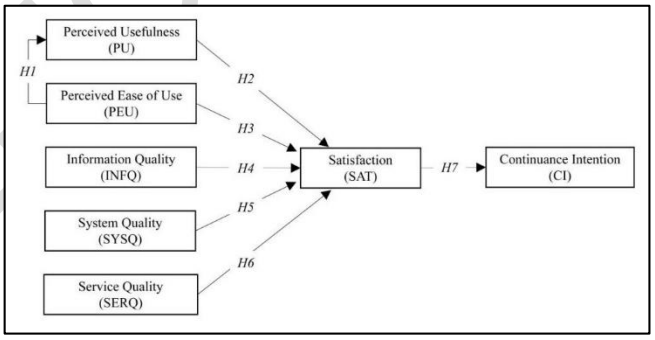

Figure 1: Conceptual Framework

H1: Perceived ease of use has a significant impact on perceived usefulness.
H2: Perceived usefulness has a significant influence on satisfaction.
H3: Perceived ease of use has a significant impact on satisfaction.
H4: Information quality has a significant influence on satisfaction.
H5: System quality has a significant influence on satisfaction.
H6: Service quality has a significant influence on satisfaction.
H7: Satisfaction has a significant impact on continuance intention.

3.2 Research Methodology

This study conducted a questionnaire survey among broadcast and television directing majors who have used E-learning. These students were from three private art colleges located in eastern China. The questionnaire was divided into screening questions, demographic questions, and measurement variables. The measurement variables were assessed using Likert's five-point scale (Likert, 1932). Before the large-scale questionnaire survey, the researchers evaluated content validity using the Item Objective Consistency Index (IOC) and conducted a pilot test by distributing the questionnaire to 40 target respondents. The IOC assessment was performed by a panel of three experts, and all items surpassed the acceptable threshold of 0.6. The pilot test results confirmed the questionnaire's reliability through Cronbach's Alpha coefficient at over 0.7. Subsequently, the questionnaires were distributed to 1,000 target students, resulting in 699 valid responses. From these responses, 500 were randomly selected to complete this study. The study's outcomes were examined utilizing AMO software (version 26) utilizing Confirmatory Factor Analysis (CFA) and Structural Equation Modeling (SEM) techniques.

3.3 Population and Sample Size

The target population refers to all potential subjects or participants from whom researchers intend to collect relevant data, and the elements within the target population are defined by the specific focus of the study and directly related to the information researchers aim to gather (Hair et al., 2007b). The target population for this study consists of students majoring in broadcast television directing from three private art colleges in eastern China who have used E-learning. The sample size represents the specific population size for the study (Malhotra & Birks, 2007). DeCuir-Gunby and Schutz (2017) proposed determining an appropriate sample size based on statistical techniques. In this study, researchers used a calculator Soper (2015) developed to calculate the suitable sample size, with a recommended minimum sample size of 425. Therefore, this study distributed 1000 questionnaires to the target population and received 699 responses, from which 500 responses were randomly selected to complete this research.

3.4 Sampling Technique

This study employed three non-probability sampling techniques for data collection: purposive sampling (or judgment sampling), stratified random sampling, and convenience sampling. Firstly, the target population for this study was determined based on three specific criteria: students enrolled in broadcasting and television directing programs at three private art colleges in eastern China with prior experience in E-learning. Secondly, a stratified proportional sampling method was used to collect data from the three schools following the predetermined proportions, as outlined in Table 1. Subsequently, after obtaining consent from the students, an online questionnaire survey was conducted across the three schools.

Table 1: Sample Units and Sample Size

Discipline	Population Size	Proportional Sample Size
Communication University of China, Nanjing (CUCN)	1452	134
Hebei Institute of Communications (HEBIC)	1980	184
Hebei Academy of Fine Arts (HBAFA)	1958	182
Total	**5390**	**500**

Source: Constructed by author

4. Results and Discussion

4.1 Demographic Information

As indicated in Table 2, among the 500 respondents, 27.2% were male, while 72.8% were female. Most participants were second-year undergraduate students, accounting for 84.4%, with 12.2% fourth-year students and 3.4% first-year students. Concerning their experience with E-learning, 35% of the students had less than one year of experience, 39.8% had 1-2 years of experience, and 25.2% had over two years of experience. Regarding usage frequency, 32% of students used E-learning for less than one hour per week, 52.6% for 1-5 hours per week, and 15.4% for more than 5 hours per week. Regarding the courses they used E-learning for, the majority (80.6%) utilized it for general elective courses, while 19.4% used it for courses related to their majors.

Table 2: Demographic Profile

Demographic and General Data (N=500)		Frequency	Percentage
Gender	Male	136	27.2%
	Female	364	72.8%
Grade	Freshman	17	3.4%
	Sophomore	422	84.4%
	Senior	61	12.2%
Duration of use	Within one year	175	35.0%
	One to two years	199	39.8%
	More than two years	126	25.2%
Frequency of Study	Less than 1 hour per week	160	32.0%
	1-5 hours per week	263	52.6%

Demographic and General Data (N=500)		Frequency	Percentage
	More than 5 hours per week	77	15.4%
Main Study Courses	General Elective Courses	403	80.6%
	Major Courses	97	19.4%

4.2 Confirmatory Factor Analysis (CFA)

Confirmatory Factor Analysis monitors variations and covariances among indicators and represents a measurement model (Allen et al., 2009). The reliability of the questionnaire was evaluated using Cronbach's Alpha. Table 3 demonstrates that the alpha coefficient values for all groups exceed 0.8, confirming the reliability of all constructs. According to Campbell and Fiske (1959), construct validity comprises convergent and discriminant validity. This study used Factors Loading, average variance extracted (AVE), and composite reliability (CR) to examine the research framework. In this study, all variables have Factors Loading greater than 0.5, p-values less than 0.05, CR values exceeding 0.7, and AVE values greater than 0.5, indicating appropriate convergent validity.

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

Variables	Source of Questionnaire (Measurement Indicator)	No. of Item	Cronbach's Alpha	Factors Loading	CR	AVE
Perceived Usefulness (PU)	Cheng (2020)	4	0.949	0.857-0.935	0.950	0.825
Perceived Ease of Use (PEU)	Lin and Lee (2006)	3	0.888	0.860-0.875	0.889	0.728
Information Quality (INFQ)	Chang (2013)	4	0.953	0.896-0.922	0.953	0.836
System Quality (SYSQ)	Cheng et al. (2013)	4	0.955	0.910-0.929	0.956	0.844
Service Quality (SERQ)	Cheng et al. (2013)	3	0.953	0.924-0.939	0.953	0.871
Satisfaction (SAT)	Cheng (2020)	3	0.957	0.913-0.957	0.957	0.882
Continuance Intention (CI)	Cheng (2020)	4	0.962	0.917-0.956	0.962	0.864

According to Hair et al. (2010), conducting Goodness-of-Fit (GoF) measurements during research is essential to assess the model's fit. As shown in Table 3, the GoF values are CMIN/DF = 1.805, GFI = 0.933, AGFI = 0.914, NFI = 0.967, CFI = 0.985, TLI = 0.982, and RMSEA = 0.040.

Table 4: Goodness of Fit for Measurement Model

Fit Index	Acceptable Criteria	Statistical Values
CMIN/DF	< 3.00 (Hair et al., 2015)	1.805
GFI	≥ 0.90 (Hair et al., 2006)	0.933
AGFI	≥ 0.85 (Schermelleh-engel et al., 2003)	0.914
NFI	≥ 0.90 (Hair et al., 2006)	0.967
CFI	≥ 0.90 (Hair et al., 2006)	0.985
TLI	≥ 0.90 (Hair et al., 2006)	0.982
RMSEA	< 0.05 (Hu & Bentler, 1999)	0.040
Model Summary		**Acceptable Model Fit**

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

Researchers can enhance their confidence in the discriminant validity of the measurement model by analyzing structural correlations and average variance extracted (AVE) to determine if constructs are sufficiently distinct from one another (Fornell & Larcker, 1981). In this study, all inter-construct correlations are lower than AVE values, indicating an acceptable measurement model (Table 5).

Table 5: Discriminant Validity

	PU	PEU	INFQ	SYSQ	SERQ	SAT	CI
PU	**0.908**						
PEU	0.320	**0.853**					
INFQ	0.326	0.194	**0.914**				
SYSQ	0.316	0.248	0.200	**0.919**			
SERQ	0.291	0.145	0.207	0.172	**0.933**		
SAT	0.504	0.358	0.496	0.330	0.265	**0.939**	
CI	0.211	0.199	0.237	0.378	0.077	0.248	**0.929**

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

4.3 Structural Equation Model (SEM)

Structural Equation Modeling (SEM) integrates components from traditional multivariate models, including factor analysis and regression analysis, to provide a comprehensive and powerful statistical framework for analyzing complex relationships among variables in research (Ainur et al., 2017) and for testing whether assumptions are consistent with the data (Hair et al., 2010). Table 6 displays the statistical values, including CMIN/DF = 2.221, GFI = 0.912, AGFI = 0.891, NFI = 0.958, CFI = 0.976, TLI = 0.973, and RMSEA = 0.049. Consequently, based on these values, the suitability of the structural models is confirmed.

Table 6: Goodness of Fit for Structural Model

Index	Acceptable	Statistical Values
CMIN/DF	< 3.00 (Hair et al., 2015)	2.221
GFI	≥ 0.90 (Hair et al., 2006)	0.912
AGFI	≥ 0.85 (Schermelleh-engel et al., 2003)	0.891

Index	Acceptable	Statistical Values
NFI	≥ 0.90 (Hair et al., 2006)	0.958
CFI	≥ 0.90 (Hair et al., 2006)	0.976
TLI	≥ 0.90 (Hair et al., 2006)	0.973
RMSEA	< 0.05 (Hu & Bentler, 1999)	0.049
Model Summary		**Acceptable Model Fit**

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

SEM consists of two primary components: Confirmatory Factor Analysis (CFA) (Measurement Model) and the Structural Model (Schreiber et al., 2006). The Measurement Model identifies the associations between latent variables and their observable indicators, while the Structural Model examines the relationships between endogenous and exogenous constructs. According to Table 7, the results of hypothesis testing indicate that H1, H2, H3, H4, H5, and H7 are supported, while H6 is not. The explanations for the hypothesis testing in the study are provided as follows:

Table 7: Hypothesis Results of the Structural Equation Modeling

Hypothesis	(β)	t-value	Result
H1: PEU→PU	0.340	6.772*	Supported
H2: PU→SAT	0.324	7.451*	Supported
H3: PEU→SAT	0.302	4.408*	Supported
H4: INFQ→SAT	0.380	9.504*	Supported
H5: SYSQ→SAT	0.136	3.499*	Supported
H6: SERQ→SAT	0.071	1.824	Not Supported
H7: SAT→CI	0.246	5.353*	Supported

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

H1: Perceived Ease of Use has a significant positive effect on Perceived Usefulness, with a standardized path coefficient of 0.340 and a T-value of 6.772*. This means that when students perceive the online learning platform as easy to use, their assessment of the usefulness of online learning increases (Cheng, 2012). This is consistent with the findings of Arteaga Sánchez et al. (2013), Mohammadi (2015), and others who suggest that when users perceive the system as easy to use, they are more likely to believe in its usefulness.

H2: Perceived Usefulness has a significant positive effect on Satisfaction, with a standardized path coefficient of 0.324 and a T-value of 7.451*. This indicates a positive relationship between students' perception of the system's usefulness (PU) and their satisfaction with the learning platform (Arbaugh, 2000a). Previous research by Cheng (2019), Lee et al. (2013), Lee and Lehto (2013), and others also reached similar conclusions, suggesting that if users perceive a service or platform as useful, they tend to have higher satisfaction with it, with PU being considered an important predictor of student satisfaction with online learning platforms.

H3: Perceived Ease of Use has a significant positive effect on Satisfaction, with a standardized path coefficient of 0.302 and a T-value of 4.408*. The results indicate a direct relationship between students' perception of the system's ease of use (PEU) and their satisfaction with the learning experience (Arbaugh, 2000b). This finding aligns with previous research by Arif et al. (2017), Lim et al. (2007), and Aharony and Bar-Ilan (2016), suggesting that PEU significantly influences user satisfaction with the learning process and may even impact course completion rates. Prioritizing PEU in platform development can increase user satisfaction, improve engagement, and enhance learning outcomes.

H4: Information Quality significantly positively affects Satisfaction, with a standardized path coefficient of 0.380 and a T-value of 9.504*. This implies that students' assessment of the information quality of the online learning platform significantly influences their satisfaction with the platform (Ranganathan & Ganapathy, 2002). Research by Jung et al. (2015), Ramirez-correa et al. (2016), Aparicio et al. (2017), Urbach and Müller (2012), Mirabolghasemi et al. (2021), and others also support the significant relationship between INFQ and user satisfaction, considering INFQ a key determinant of user satisfaction.

H5: System Quality significantly positively affects Satisfaction, with a standardized path coefficient of 0.136 and a T-value of 3.499*. This suggests that when the system quality (SYSQ) of online education is satisfactory, it can lead to higher levels of student satisfaction with online learning (Chopra et al., 2019). This is consistent with the findings of DeLone and McLean (2003), Hossain (2016), Almarashdeh (2016), and others, who consider SYSQ a key dimension affecting user satisfaction and playing an important role in shaping user satisfaction.

H6: With a standardized path coefficient of 0.071 and a T-value of 1.824, Service Quality does not significantly affect Satisfaction. Similar to the study by Al-Busaidi and Al-Shihi (2012), this research investigated additional factors. As a result, service quality may be an important factor but is not a key factor compared to other factors tested in this study regarding student satisfaction with online learning.

H7: Satisfaction significantly positively affects Continuance Intention, with a standardized path coefficient of 0.246 and a T-value of 5.353*. This indicates that user satisfaction in the online learning context positively influences students' intentions to continue using online learning (Hsiao et al., 2016). Previous research by

Ranaweera and Prabhu (2003), Tan and Kim (2015), Xu et al. (2017), Baturay (2011), Petrick and Backman (2002), and others has also observed that user satisfaction directly affects user behavior, leading to an increased likelihood of continued usage.

5. Conclusion and Recommendation

5.1 Conclusion and Discussion

In the current higher education system, the significance of online learning is on the rise. This study investigates the factors influencing online learning and targets students majoring in Radio and Television Directing at three private art colleges in western China. Our research framework is constructed based on three core theories and three previous theoretical frameworks, encompassing key variables such as Perceived Usefulness (PU), Perceived Ease of Use (PEU), Information Quality (INFQ), System Quality (SYSQ), Service Quality (SERQ), Satisfaction (SAT), and Continuance Intention (CI). Additionally, the researcher proposed seven hypotheses to validate our research questions. Before the formal large-scale testing, the researcher collected 40 questionnaire responses and employed Item Objective Consistency (IOC) and Cronbach's Alpha to verify the validity and reliability of the questionnaire. Subsequently, data from 500 Radio and Television Directing students at three private art colleges in western China were collected using an electronic questionnaire. Finally, Confirmatory Factor Analysis (CFA) was used to assess the credibility and discriminant validity of the framework model. At the same time, Structural Equation Modeling (SEM) was employed to examine the relationships and influences among various variables.

The findings of this study can be summarized as follows. First and foremost, our research results indicate that students' willingness to continue using online learning for their studies is influenced by their perceived satisfaction with the online learning experience. Satisfaction (SAT) is a prerequisite for continued usage of online learning (Tan & Kim, 2015). Therefore, educators and online learning platforms should strive to enhance students' satisfaction with online learning if they intend to foster its continued usage. Furthermore, students' perception of the ease of use of online learning positively correlates with their perception of its usefulness. Perceived Usefulness (PU) increases as Perceived Ease of Use (PEU) rises (Aharony & Bar-Ilan, 2016).

Consequently, educators or platforms should pay special attention to improving their usability when designing online learning systems. Secondly, Information Quality (INFQ) exerts the most substantial influence on SAT, making it a key determining factor for SAT (Sharma et al., 2017). Students' satisfaction with online learning is shaped by the quality of content provided by the online learning platform. Students express higher satisfaction when the learning platform offers higher-quality educational materials. Therefore, educators guiding students using online learning platforms should offer or select higher-quality instructional content. Thirdly, PU emerges as the second most significant factor affecting SAT. PU is a direct and crucial factor influencing SAT (Lee et al., 2013). When students believe online learning effectively meets their educational needs, their satisfaction is significantly positively impacted. Lastly, our study results reveal that PEU and SYSQ are primary factors affecting SAT and positively correlate with SAT (Cheng et al., 2008; Najmul Islam, 2015), exerting different perspectives on SAT.

In conclusion, the decisive factors influencing students' satisfaction with online learning encompass INFQ, PU, PEU, and SYSQ. Additionally, students' willingness to continue using online learning is influenced by their perceived satisfaction with the online learning experience.

5.2 Recommendation

The researcher constructed the conceptual framework of this study based on three core theories: the Technology Acceptance Model (TAM), the Updated D&M Information System Success Model (UISSM), and the Expectation-Confirmation Model (ECM). Firstly, this study confirmed TAM, showing that students' willingness to continue using online learning is influenced by their perceptions of usability and usefulness when engaging in online learning. This finding is supported by previous research by Liaw (2008) and Lin and Wang (2012). Secondly, this study partially confirmed UISSM, with INFQ and SYSQ having a significant impact on SAT and CI, while SERQ was not confirmed to have an impact. This discrepancy might be due to the higher degree of educational reform in Eastern China, where students may prioritize the quality of learning content over the services provided by the system. Lastly, this study confirmed in ECM that CI is influenced by SAT, and both SAT and CI are significantly affected by PU. These results are supported by prior research by Najmul Islam (2015) and Arif et al. (2017).

The findings of this study indicate that student's continued use of online learning platforms for their studies is influenced by their satisfaction with online learning. Moreover, students' satisfaction is influenced by their perceived usefulness, ease of use, information quality, and system quality of online learning. The practical significance of this research lies in several aspects: Firstly, this study can assist educational institutions in more effectively allocating resources by focusing on areas that can maximize student satisfaction, ultimately leading to better learning outcomes. Secondly, it can aid in the reform of online learning

platforms, helping to improve educational content and platforms based on these factors, thus enhancing the overall online learning experience. Lastly, it can benefit students by improving the key factors influencing satisfaction, thereby increasing the likelihood of their continued use of online learning platforms. This, in turn, can boost students' motivation and enthusiasm for learning, leading to better learning outcomes and growth.

In summary, this study has practical implications for resource allocation in educational institutions, improving online learning platforms, and enhancing students' learning experiences and outcomes.

5.3 Limitation and Further Study

Although the researchers carefully designed the research framework and rigorously analyzed the data, this study still has certain limitations. Here are suggestions for future research: Firstly, future studies can broaden the sample scope to include a wider range of regions or different types of colleges, aiming to gather more diverse data and enhance the generalizability of research results. Secondly, consider using a longitudinal research design in future studies. This approach involves tracking long-term changes in students' satisfaction and continuous intention, providing a deeper understanding of the dynamic relationships between these variables over time. Thirdly, in future research, conduct an in-depth analysis of course content to determine the impact of different types of courses on student satisfaction. This can contribute to further refining the research framework.

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