pISSN: 1906 - 6406 The Scholar: Human Sciences
eISSN: 2586 - 9388 The Scholar: Human Sciences
http://www.assumptionjournal.au.edu/index.php/Scholar

Exploring the Significant Drivers of Chinese Art Students' Satisfaction, Loyalty and Learning Performance in Chongqing, China

Lusha Li*

Received: March 8, 2023. Revised: August 7, 2023. Accepted: August 15, 2023.

Abstract

Purpose: This study investigates the influence of students' satisfaction, loyalty and learning performance using Tencent Conferences online learning in Chongqing, China. The key variables are developed to construct a conceptual framework, including service quality, perceived usefulness, perceived ease of use, image, satisfaction, loyalty, and learning performance. **Research design, data, and methodology:** This study applied a quantitative method to distribute online questionnaires to 500 students at a university in Chongqing. The Item-Objective Congruence (IOC) and pilot test (n=30) of Cronbach's Alpha confirmed the validity and reliability. The researcher employs judgmental, stratified random, and convenience sampling techniques to collect the data. The data were analyzed by Confirmatory Factor Analysis (CFA) and Structural Equation Modeling (SEM) to apply the model's goodness of fit and test the hypotheses. **Results:** All hypotheses were proven to be supported in this study. Service quality, perceived usefulness, perceived ease of use, and image can determine student satisfaction. Student satisfaction and image significantly influence student loyalty. Furthermore, student satisfaction has the strongest influence on student loyalty. **Conclusions:** This study contributes to educators and academic institutions in order to initiate effective online learning and promote the significant elements that can enhance student's learning performance.

Keywords: Online Learning, Image, Satisfaction, Loyalty, Learning Performance

JEL Classification Code: E44, F31, F37, G15

1. Introduction

The coronavirus disease (COVID-19) was a health crisis that completely changed the lives and perspectives of all people. Since January 2020, the COVID-19 epidemic has swept the world, posed a major human disaster, and brought many human activities to a standstill, including education and teaching activities at all levels. Under the influence of COVID-19, more than 1.2 billion children worldwide were using online platforms for online education (Chandra, 2020). Governments worldwide have closed most offline educational institutions to control the spread of disease, considering the safety of students, educators, and all associated people. Under the requirements and guidance of the Ministry of Education, college teaching activities were all carried out online. The Ministry of Education required

1*Lusha Li, Teacher of Sichuan University of Media and Communications, China. Email: 599106858@qq.com

active implementation of online teaching activities, such as online teaching and online learning, to ensure the progress and quality of teaching during the epidemic prevention and control period (Ali, 2020). Faced with the postponement of school opening caused by the epidemic, the Ministry of Education in China had put forward the guidelines of "stopping classes without stopping teaching and stopping classes without stopping learning" to ensure the orderly development of education and teaching while fighting the epidemic.

The development of online education was still in the exploratory stage. There were already many excellent online teaching platforms and smart teaching tools in China, such as Rain Classroom, Tencent Conference, Ding Talk, etc. Each of these platforms had its characteristics and advantages. Teachers could choose suitable platforms and tools according to the course's requirements. Rain Classroom was an intelligent teaching tool jointly developed and promoted by the online education office of Tsinghua University. It was simple and easy to operate using PowerPoint and WeChat (a common social platform in China). Chaoxiang had a strong function. It contained massive teaching resources, such as teaching literature and academic journals, and could provide online lectures, training courses, and live lectures (Gao & Zhang, 2020).

Regardless of whether online education or offline classroom, students' learning experiences come first. In the spring semester of 2020, during the outbreak of the epidemic, all offline courses of art colleges and universities were converted to online courses. This study focuses on the online learning experience of Chinese art college students in Chongqing during COVID-19. Through data investigation and analysis, it was necessary to explore students' satisfaction, loyalty, and learning performance with online learning using Tencent Conference. Its purpose was to provide real feedback on the current situation of online education and teaching and provide a reference for future online teaching through this feedback to enhance and improve students' sense of learning experience. There were some surveys on the service quality, perceived ease of use, image, perceived usefulness, student satisfaction, learning performance, and loyalty of Tencent Conference when students use it for online learning. In order to fully mobilize the enthusiasm, initiative, and creativity of students on online learning and improve the effectiveness of online teaching, promoting the substantial equivalence of "online learning" and offline classroom teaching was one of the important challenges facing.

2. Literature Review

2.1 Service Quality

Zeithaml (1988) described service quality as the advantage or superiority of providing a service. In other studies, service quality was specified as an attitude connected with satisfaction but not synonymous with satisfaction, and the contrast between prospect with performance sensing (Parasuraman et al., 1988). Gorla et al. (2010) said that service quality was defined as the service quality of dependability, reactivity, guarantee, and empathy provided by the supplier to users (taking students as an example). Wang and Lin (2012) proposed that system quality extremely affected applicants' perception of the usefulness of mobile services. Parasuraman et al. (1985) demonstrated dissatisfaction when prospects were higher than behavior and perceived quality. Saglik et al. (2014) clarified the perceived service quality of college students and the influence on their satisfaction and behavioral purpose. Hence, the service quality can determine the satisfaction of users through use perception, as indicated in a hypothesis:

H1: Service quality has a significant influence on student satisfaction.

2.2 Perceived Usefulness

Perceived usefulness is the extent to which a man assumes that applying a specific system would improve his/her execution at work (Davis, 1989). Perceived usefulness was considered an impacted determinant of the number of systems and technology applications (Gamal Aboelmaged, 2010). In the e-commerce field, Cenfetelli et al. (2005) believed that service quality characteristics were the sole determinants of the applicant's perceived usefulness of the e-commerce system. Mathwick et al. (2002) showed perceived usefulness as the degree to which people believed a specific system could improve their career performance. Perceived usefulness was thought of as a significant predictive index for curriculum satisfaction in the field of education (Teo, 2009). Chen et al. (2009) conducted a comprehensive model to forecast user satisfaction. The result showed that user satisfaction with self-service technologies (SSTs) was extremely affected by perceived usefulness. Meanwhile, Cenfetelli et al. (2005) emphasized that the perceived usefulness of the e-commerce environment positively impacted user satisfaction. Therefore, a hypothesis is set:

H2: Perceived usefulness has a significant influence on student satisfaction.

2.3 Perceived Ease of Use

Perceived ease of use was defined as "the extent of ease of use connected with the application of the system" (Venkatesh et al., 2003). Perceived easiness was an indicator that impacted students' opinions to accept distance learning as a new platform for their studies (Lazim et al., 2021). In the e-learning field, perceived ease of use was the degree to which a man asserts that no effort was required to use the e-learning system (Lin et al., 2007). Perceived ease of use and perceived usefulness were considered the main driving forces of IT receiving to forecast or examine end-user satisfaction (Davis et al., 1989; Venkatesh & Davis, 1996). An expanding expectation theory, including perceived ease of use, had been diffusely utilized to account for IS/IT utilization performance in previous research, which promoted to conduct of a more integrated account of user performance in the condition of continuous use IS/IT purpose (Lee, 2010) since perceived ease of use was one of the main recognition beliefs to decide satisfaction and persistence purpose of IS/IT (Hong et al., 2006; Thong et al., 2006). Thus, a strong link between perceived ease of use and satisfaction is determined below:

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

2.4 Image

Image is described as consumers' minds based on their functional quality and mental property (Martineau, 1958). Alves and Raposo (2010), who analyzed the image of universities, emphasized that the image of a college was the recipient of the services provided, partly communicating and partly cognition. Researchers increasingly agree that the image belongs to organizational stakeholders and is based on a complicated structure of multiple elements (Arpan et al., 2003). Andreassen and Lindestad (1998) argued that image was considered to have a halo impression on customer satisfaction because customers anticipated ahead of products and services in their minds. Clemes et al. (2007) empirically determined the positive influence of enterprise image on satisfaction. Palacio et al. (2002) proved that image influenced student satisfaction. Kandampully and Suhartanto (2000) stated that there was a positive correlation between image and loyalty. Helgesen and Nesset (2011) also investigated this connection in higher education. Then, two hypotheses are proposed:

H4: Image has a significant influence on student satisfaction.

H6: Image has a significant influence on loyalty.

2.5 Students Satisfaction

Satisfaction assesses a particular service experience (Bolton & Drew, 1991; Cronin & Taylor, 1992). Elliott and Healy (2001) believed student satisfaction was a short-term attitude. It was the outcoming of their encounter in receiving education services. Barnett (2010) pointed out that student satisfaction was extremely significant because it was the only index of the service quality of higher education service offers. According to Helgesen and Nesset (2011), customer loyalty was generally considered the direct result of their satisfaction. Athiyaman (1997) also revealed that customer satisfaction positively and virtually impacted loyalty. Job satisfaction was regarded as a predictor of performance (Vroom, 1964). Judge et al. (2001) also promoted that there was a relationship between satisfaction and performance. Iaffaldano and Muchinsky (1985) asserted that there was a positive impact between satisfaction and job performance. In the context of management accounting (Andreassi et al., 2014; Riketta, 2008), people generally looked forward and explored that there was a positive correlation between satisfaction and performance. Based on the above assumptions, this study develops the following hypotheses:

H5: Student satisfaction has significant influence on loyalty.

H7: Student satisfaction has a significant influence on learning performance.

2.6 Loyalty

Oliver (1997) regarded loyalty as a deep-rooted promise to continuously repurchase or patronize one's complimentary products or services in the future, even though contextual impact and marketing efforts might lead to conversion behavior. Lovelock and Wirtz (2007) demonstrated loyalty as a customer's promise to consist in patronizing a particular company temporarily. Some researchers studied the connection between service quality, facilities, student satisfaction, image, and student loyalty (Helgesen & Nesset, 2011). Customer loyalty was extremely significant for service organizations because the construction of customer loyalty was closely connected to their sustainable survival and future growth of them (Kim et al., 2004). Zhai (2022) added that student loyalty is not a short-time emotion but it can be long-term reputation for a school to be referred to prospective students.

2.7 Learning Performance

Learning performance is defined as students' self-evaluation of their complete knowledge obtained, developed skills and abilities, and their efforts in a specific class compared with other classes (Young et al., 2003). Student performance was derived from final exam scores. Swanson

and Holton (2001) believed that performance was one of the final aims in the field of HRD (human resource development). The three common elements that evaluate school performance are attending, score, and student classroom performance (Duff et al., 2004; Gottfried, 2010). Learning performance was related to students' positive attitudes toward the teaching environment, the lessons, and the teachers (Dunn et al., 1990). In the field of the academic environment, students who used social networking sites while learning performed worse than their peers (Kirschner & Karpinski, 2010).

3. Research Methods and Materials

3.1 Research Framework

This study uses Tencent Conferences online learning in Chongqing, China, to investigate the influence of student satisfaction, loyalty, and learning performance. The conceptual framework is adopted key factors from previous literature (Salimon et al., 2021; Teeroovengadum et al., 2016; Yuce et al., 2019), including service quality, perceived usefulness, perceived ease of use, image, satisfaction, loyalty, and learning performance. Consequently, a conceptual framework is demonstrated in Figure 1.

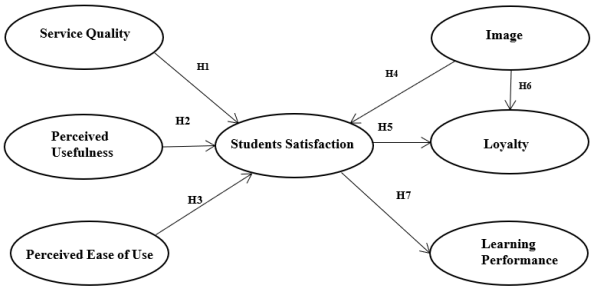

Figure 1: Conceptual Framework

H1: Service quality has a significant influence on student satisfaction.
H2: Perceived usefulness has a significant influence on student satisfaction.
H3: Perceived ease of use has a significant influence on student satisfaction.
H4: Image has a significant influence on student satisfaction.
H5: Student satisfaction has significant influence on loyalty.
H6: Image has a significant influence on loyalty.
H7: Student satisfaction has a significant influence on learning performance.

3.2 Research Methodology

This study applied a quantitative method to distribute online questionnaires to 500 students at a university in Chongqing. The survey consists of three parts which are screening questions, measuring items with a 5-point Likert scale, and a demographic profile. Before the data collection, Objective Congruence (IOC) and pilot test (n=30) of Cronbach's Alpha were conducted. The data were analyzed by Confirmatory Factor Analysis (CFA) and Structural Equation Modeling (SEM) to apply the model's goodness of fit and test the hypotheses.

The Item-Objective Congruence (IOC) and pilot test (n=30) of Cronbach's Alpha confirmed the validity and reliability. Consequently, all scale items passed at a score rating from three experts equal to or above 0.6. Cronbach's alpha coefficient reliability test was used to examine a pilot test (n=30). As a result, all constructs show internal consistency with above 0.7 (George & Mallery, 2003), which are very good (>0.8) and excellent (> 0.9) values. The results are service quality (0.962), perceived usefulness (0.923), perceived ease of use (0.944), image (0.890), satisfaction (0.953), loyalty (0.964), and learning performance (0.956).

3.3 Population and Sample Size

The target population is Chinese art second to fourth-year students using Tencent Conferences for online learning at Sichuan Fine Arts Institute (SCFAI), Chongqing**,** China. Most rules-of-thumb for minimum sample size is suggested to be around 100 or 200 (Boomsma, 1985). To perform multiple regression, covariance analysis, or log-linear analysis, the researcher selected 500 participations for the final sample size.

3.4 Sampling Technique

The sampling procedures in this study are judgmental, stratified random, and convenience sampling. The judgmental sampling was to select Chinese art second to fourth-year students using Tencent Conferences for online learning at Sichuan Fine Arts Institute (SCFAI), Chongqing**,** China. The stratified random sampling was used to proportionate 500 respondents, as shown in Table 1. Convenience sampling was to distribute an online questionnaire to the target group via WeChat and other online media.

Table 1: Sample Units and Sample Size

Year of Study	Number of Students	Sample Unit
Sophomore	1612	165
Junior	1572	161
Senior	1698	174
Total	**4882**	**500**

Source: Constructed by author.

4. Results and Discussion

4.1 Demographic Information

The demographic results from 500 questionnaires are demonstrated in Table 2. 33 percent are male, whereas 67 percent are female. The year of the study shows that sophomores are 33 percent, juniors are 32.2 percent, and seniors are 34.8 percent. 59.8 percent of respondents have been using Tencent Conference for online learning for 1-2 years, and 40.2 percent of those have used the system for more than two years.

Table 2: Demographic Profile

Demographic Characteristics (N=500)		Frequency	Percentage
Gender	Male	165	33%
	Female	335	67%
Year of Study	Sophomore	165	33%
	Junior	161	32.2%
	Senior	174	34.8%
Time of Using Tencent Conference for online learning	1-2 years	299	59.8%
	More than 2 years	201	40.2%

4.2 Confirmatory Factor Analysis (CFA)

Kline (2010) indicated that confirmatory factor analysis (CFA) was viewed as a particular modality for analyzing factors. The results in Table 3 were acceptable as the factor loading was required to be greater than 0.5, the p-value should be less than 0.05, and the t-value should be greater than 1.98 (Ojong et al., 2014). All constructs show Cronbach's Alpha values above 0.7 (George & Mallery, 2003). CR's values of 0.7 or above were also acceptable. The AVE value of every construct was essential to over 0.50, and the hypothetical constructs could lead to most of the variance noticed in the items (Fornell & Larcker, 1981).

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
Service Quality	Lwoga (2013)	5	0.896	0.681 -0.854	0.887	0.614
Perceived Usefulness	Davis (1989)	5	0.878	0.680 -0.824	0.880	0.596
Perceived Ease of Use	Davis (1989)	4	0.893	0.736 -0.887	0.886	0.662
Image	Etemad-Sajadi and Rizzuto (2013)	4	0.925	0.817-0.890	0.918	0.738
Student Satisfaction	Ali et al. (2016)	7	0.955	0.803 -0.907	0.943	0.769
Loyalty	Etemad-Sajadi and Rizzuto (2013)	4	0.928	0.763 -0.923	0.866	0.618
Learning Performance	Ali et al. (2016)	4	0.883	0.631-0.889	0.803	0.509

The utilization of CFA to validate the connections between projects and their respective factors was favorable since it permitted these connections to be fixed in the measurement model and offered a means to evaluate the fit of the proposed theoretical model to data collection (Stevens, 2009). Before the modification, the data results indicated that the values of GFI and AGFI did not meet the acceptable requirements. Therefore, modifying the measurement model to obtain a good fit was necessary. After modification, these values met the requirements of acceptable values and had the goodness of fit. The results of these data were CMIN/df=1398.855/464 or 3.015, GFI=0.856, CFI=0.939, RMSEA=0.064, TLI=0.931, AGFI=0.826 and NFI=0.912.

Table 4: Goodness of Fit for Measurement Model

Fit Index	Acceptable Criteria	Statistical Values Before Adjustment	Statistical Values After Adjustment
CMIN/df	< 5.00 (Awang, 2012)	1968.408 / 474 or 4.153	1398.855 / 464 or 3.015
GFI	≥ 0.85 (Joreskog & Sorbom, 1984)	0.793	0.856
CFI	≥ 0.90 (Hair et al., 2006)	0.903	0.939
RMSEA	≤ 0.08 (Browne & Cudeck, 1993)	0.079	0.064
TLI	≥ 0.90 (Hair et al., 2006)	0.892	0.931
AGFI	≥ 0.80 (Tabachnick & Fidell, 2007)	0.755	0.826
NFI	≥ 0.90 (Arbuckle, 1995)	0.876	0.912
Model Summary		**Not in harmony with empirical data**	**In harmony with empirical data**

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

The discriminant validity confirmed that construct testing was special in experience and stood for the phenomenon of interest that another testing in SEM could not obtain (Hair et al., 2010). Table 5 reflects the test results of discriminant validity. The value of the AVE square root of all variables on the diagonal was greater than the correlation values among the corresponding variable and

other variables. Therefore, these data supported the discriminant validity of the measurement model.

Table 5: Discriminant Validity

	SQ	PU	PE	IM	SA	LO	LP
SQ	**0.784**						
PU	0.701	**0.772**					
PE	0.642	0.717	**0.814**				
IM	0.605	0.668	0.714	**0.859**			
SA	0.694	0.765	0.756	0.787	**0.877**		
LO	0.529	0.546	0.542	0.666	0.705	**0.786**	
LP	0.424	0.386	0.392	0.419	0.487	0.468	**0.713**

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

4.3 Structural Equation Model (SEM)

SEM was a cluster of equations for the system being analyzed, the parameters of which were confirmed according to statistical observations. The fitness of the structural equation model was tested by applying the goodness-of-fit index. According to Table 6, the values of GFI, RMSEA, and AGFI are needed to meet the requirements. After the adjustment, the acceptable values show that CMIN/df= 1437.181/471 or 3.051, GFI=0.853, CFI=0.937, RMSEA=0.064, TLI=0.929, AGFI=0.825, and NFI=0.910.

Table 6: Goodness of Fit for Structural Model

Fit Index	Acceptable Criteria	Statistical Values Before Adjustment	Statistical Values After Adjustment
CMIN/df	< 5.00 (Awang, 2012)	3124.674 /488 or 6.403	1437.181/471 or 3.051
GFI	≥ 0.85 (Joreskog & Sorbom, 1984)	0.707	0.853
CFI	≥ 0.90 (Hair et al., 2006)	0.828	0.937
RMSEA	≤ 0.08 (Browne & Cudeck, 1993).	0.104	0.064
TLI	≥ 0.90 (Hair et al., 2006)	0.814	0.929
AGFI	≥ 0.80 (Tabachnick & Fidell, 2007)	0.664	0.825
NFI	≥ 0.90 (Arbuckle, 1995)	0.803	0.910
Model Summary		**Not in harmony with empirical data**	**In harmony with empirical data**

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

4.4 Research Hypothesis Testing Result

Based on Table 7, all of the proposed research hypothesis were supported measued by standardized path coefficient (β) values and t-value. The significant degree is also verified by p<0.001.

Table 7: Hypothesis Results of the Structural Equation Modeling

Hypothesis	(β)	t-value	Result
H1: SQ → SA	0.168	3.664***	Supported
H2: PU → SA	0.227	4.070***	Supported
H3: PE → SA	0.248	4.237***	Supported
H4: IM → SA	0.357	6.821***	Supported
H5: SA→ LO	0.444	6.088***	Supported
H6: IM → LO	0.330	4.583***	Supported
H7: SA → LP	0.539	11.248***	Supported

Note: *** p<0.001
Source: Created by the author

Among the hypotheses presented in the study, the influence of students' satisfaction on academic performance was the most obvious and strong. In H7, the value of standardized coefficients between them was 0.539, and the T-value was 11.248. The results supported the previous conclusions of many researchers, including Freeze et al. (2010), Vroom (1964), and Judge et al. (2001).

Students' satisfaction also significantly influenced loyalty, with the value of standardized coefficients at about 0.444 and the value of the T-value at 6.088 in H5. The research results of Helgesen and Nesset (2011), Athiyaman (1997), and Fornell (1992) also showed that satisfaction was the main influence result of loyalty.

The image significantly influenced student satisfaction, with the value of standardized coefficients at about 0.357 and the value of the T-value at 6.821 in H4. Studies by Clemes et al. (2007) and Palacio et al. (2002) also showed that image affected satisfaction.

Loyalty was another variable significantly influenced by an image with the value of standardized coefficients of about 0.330 and the value of T-value at 4.583 in H6. Many previous studies by Kandampully and Suhartanto (2000) and Helgesen and Nesset (2011) supported the results of this study.

Perceived easiness significantly influenced student satisfaction, with the value of standardized coefficients at about 0.248 and the T-value at 4.237 in H3. This result was consistent with Davis et al. (1989), Venkatesh and Davis (1996), and DeLone and McLean (2003), that perceived ease of use had an impact on satisfaction.

Perceived usefulness significantly influenced students' satisfaction with the value of standardized coefficients at about 0.227 and the value of T-value at 4.070 in H2. Wen et al. (2011), Joo (2010), and Bhattacherjee (2001) showed that perceived usefulness was an important factor in determining the level of satisfaction.

Service Quality significantly influenced Students' Satisfaction, with the value of standardized coefficients at about 0.168 and the value of T-value at 3.664 in H1. Parasuraman et al. (1985) and Saglik et al. (2014) proved that there was a positive correlation between service quality and student satisfaction.

5. Conclusion and Recommendation

5.1 Conclusion and Discussion

This study uses Tencent Conferences for online learning in Chongqing to explore factors influencing Chinese art students' satisfaction, loyalty, and learning performance. The researcher used Confirmatory Factor Analysis (CFA) and Structural Equation Modeling (SEM) to analyze the collected data to obtain the model's goodness of fit and test the hypotheses. There was a strong relationship between student satisfaction and learning performance, which showed that student satisfaction significantly influenced learning performance. Then, the following was the impact of students' satisfaction on loyalty, the impact of image on students' satisfaction and loyalty, and the impact of perceived easiness, perceived usefulness, and service quality on students' satisfaction.

Based on the findings, H1 was effectively supported by the data. This result proved the view of much previous theoretical literature (Parasuraman et al., 1985; Saglik et al., 2014). Service quality had a certain impact on students' satisfaction. H2 indicated a positive correlation between perceived usefulness and students' satisfaction. Wen et al. (2011), Joo (2010), and Bhattacherjee (2001) also confirmed that perceived usefulness had an important impact on students' satisfaction. H3 illustrated that students' satisfaction was affected by perceived easiness. Davis et al. (1989), Venkatesh and Davis (1996), and DeLone and McLean (2003) indicated that perceived easiness directly affected students' satisfaction.

H4 proved that image was the most significant factor affecting students' satisfaction, compared with service quality, perceived usefulness, and perceived easiness. Clemes et al. (2007) and Palacio et al. (2002) also indicated the importance of image in evaluating students' satisfaction. H5 was supported by research data, which was consistent with previous studies by Helgesen and Nesset (2011), Athiyaman (1997), and Fornell (1992). Students' satisfaction directly affected whether students would continue to use the platform or recommend others to use it for online learning.

H6 showed that image and loyalty had positive effects. This result was also verified by Kandampully and Suhartanto (2000), and Helgesen and Nesset (2011). Among these hypotheses, the degree of correlation between H7 was the most significant, which meant that students' satisfaction was an important determinant of learning performance. Freeze et al. (2010), Vroom (1964), and Judge et al. (2001) also confirmed that student satisfaction could directly affect students' learning performance.

5.2 Recommendation

This study showed significant factors affecting student satisfaction, loyalty, and learning performance when using Tencent conferences for online learning. The image was the most significant factor affecting students' satisfaction, compared with other factors, namely, perceived easiness, perceived usefulness, and service quality. In addition, students' satisfaction could greatly determine students' loyalty and learning performance. Therefore, when promoting and designing online learning platforms, educators, workers of higher education institutions, senior managers, platform developers, and marketers need to seriously consider the factors that affect student satisfaction, loyalty, and learning performance, especially the core elements, to ensure a better experience of students' online learning. In the later practice teaching, practice workers should make full use of the influence factors of this study to strengthen students' favorable impression of online learning through Tencent conferences. This measure would mobilize students' enthusiasm and initiative for online learning through Tencent conference, improve students' learning performance, help teachers and students to interact better and communicate, and reduce some drawbacks of online learning left behind. This study was conducive to the improvement of the new teaching model of "online + offline" in the future and provided strong support for the development of online learning.

5.3 Limitation and Further Study

Several limitations can be discussed. First, the research object selected in this study was university students from Chongqing, China. Therefore, future studies can be extended to the different demographic characteristics and broaden the sample size. Second, more or other variables should be determined to investigate students' online learning experience. Furthermore, this study only scoped the use behavior of Tencent Conference. More online learning platforms, such as WeChat, Rain Classroom, Ding Talk, etc., should be considered. Last, the qualitative method should be extended for the future studies.

References

Ali, F., Zhou, Y., Hussain, K., Nair, P., & Ari Ragavan, N. (2016). Does higher education service quality effect student satisfaction, image and loyalty?. *Quality Assurance in Education, 24*(1), 70-94. https://doi.org/10.1108/QAE-02-2014-0008

Ali, N. U. (2020, April 2). *Students disappointed with online teaching system amid COVID-19.* Daily Times. https://dailytimes.com.pk/587446/students-disappointed-with-online-teaching-system-amid-covid-19/

Alves, H., & Raposo, M. (2010). The influence of university image on students' behavior. *International Journal of Educational Management*, *24*(1), 73-85.

Andreassen, T. W., & Lindestad, B. (1998). Customer Loyalty and Complex Services. *International Journal of Service Industry Management, 9*(1), 7-23.

Andreassi, J. K., Lawter, L., Brockerhoff, M., & Rutigliano, P. J. (2014). Cultural impact of human resource practices on job satisfaction: a global study across 48 countries. *Cross Cultural Management, 21*(1), 55-77.

Arbuckle, J. L. (1995). *AMOS for Windows Analysis of Moment Structures. Version 3.5* (1st ed.). Small Waters Corp.

Arpan, L., Raney, A., & Zivnuska, S. (2003). A cognitive approach to understanding university image. *Corporate Communications, 8*(2), 97-113.

Athiyaman, A. (1997). Linking student satisfaction and service quality perceptions: the case of university education. *European Journal of Marketing, 31*(7), 528-540.

Awang, Z. (2012). *A Handbook on SEM Structural Equation Modelling: SEM Using AMOS Graphic* (5th ed.). Universiti Teknologi Mara Kelantan.

Barnett, R. (2010). The marketised university: defending the indefensible. In M. Molesworth, E. Nixon & R. Scullion (Eds.), *The Marketisation of Higher Education and the Student as Consumer* (pp.39-51). Routledge.

Bhattacherjee, A. (2001). Understanding Information Systems Continuance: An Expectation-Confirmation Model. *MIS Quarterly, 25*(3), 351-370.http://dx.doi.org/10.2307/3250921

Bolton, R. N., & Drew, J. H. (1991). A multistage model of customers= assessment of service quality and value. *Journal of Consumer Researc*h, *54*(1), 69-82.

Boomsma, A. (1985). Nonconvergence, improper solutions, and starting values in LISREL maximum likelihood estimation. *Psychometrika, 50*(2), 229-242.

Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. In K. A. Bollen and J. S. Long (Eds.), *Testing structural equation models* (pp. 136-162). Sage.

Cenfetelli, R. T., Benbasat, I., & Al-Natour, S. (2005). *Information technology mediated customer service: a functional perspective* [Paper Presentation]. 26th International Conference on Information and Software Technologies (ICIST 2020), Lithuania.

Chandra, Y. (2020). Online education during COVID-19: perception of academic stress and emotional intelligence coping strategies among college students. *Asian Education and Development Studies*, *10*(2), 229-238.

Chen, S.-C., Chen, H.-H., & Chen, M.-F. (2009). Determinants of satisfaction and continuance intention towards self-service technologies. *Industrial Management and Data Systems*, *109*(9), 1248-1263.

Clemes, M. D., Gan, C. E. C., & Kao, T. H. (2007). University student satisfaction: an empirical analysis. *Journal of Marketing for Higher Education*, *17*(2), 292-325.

Cronin, J. J., & Taylor, S. A. (1992). Measuring service quality: re-examination and extension. *Journal of Marketing, 56*(3), 55-68.

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly, 13*(3), 319-340.

Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1989). User acceptance of computer technology: a comparison of two theoretical models. *Management Science*, *35*(8), 982-1003.

DeLone, W. H., & McLean, E. R. (2003). The DeLone and McLean model of information systems success: a ten-year update. *Journal of Management Information Systems, 19*(1), 9-30.

Duff, A., Boyle, E., Dunleavy, K., & Ferguson, J. (2004). The relationship between personality, approach to learning and academic performance. *Personality and Individual Differences, 36*(8), 1907-1920.

Dunn, R., Giannitti, M. C., Murray, J. B., & Rossi, I. (1990). Grouping students for instruction: Effects of learning style on achievements and attitudes. *Journal of Social Psychology*, *130*(5), 485-494.

Elliott, K. M., & Healy, M. A. (2001). Key factors influencing student satisfaction related to recruitment retention. *Journal of Marketing for Higher Education, 10*(4), 1-11.

Etemad-Sajadi, R., & Rizzuto, D. (2013). The antecedents of consumer satisfaction and loyalty in fast food industry: A cross-national comparison between Chinese and Swiss consumers. *International Journal of Quality & Reliability Management, 30*(7), 780-798. https://doi.org/10.1108/IJQRM-May-2012-0069

Fornell, C. (1992). A national customer satisfaction barometer, the Swedish experience. *Journal of Marketing, 5*(1), 6-21.

Fornell, C., & Larcker, D. F. (1981). Structural Equation Models with Unobservable Variables and Measurement Error: Algebra and Statistics. *Journal of Marketing Research, 18,* 382-388. http://dx.doi.org/10.2307/3150980

Freeze, R. D., Alshare, K. A., Lane, P. L., & Wen, H. J. (2010). IS success model in e-learning context based on students' perceptions. *Journal of Information Systems Education*, *21*(2), 173-184.

Gamal Aboelmaged, M. (2010). Predicting e-procurement adoption in a developing country: An empirical integration of technology acceptance model and theory of planned behaviour. *Industrial Management & Data Systems, 110*(3), 392-414. https://doi.org/10.1108/02635571011030042

Gao, L., & Zhang, L. J. (2020). Teacher learning in difficult times: Examining foreign language teachers' cognitions about online teaching to tide over COVID-19. *Frontiers in Psychology, 11,* 1-14. https://doi.org/10.3389/fpsyg.2020.549653

George, D., & Mallery, P. (2003). *SPSS for Windows step by step: A simple guide and reference 11.0 update* (4th ed.). Allyn & Bacon.

Gorla, N., Somers, T. M., & Wong, B. (2010). Organizational impact of system quality, information quality, and service quality. *The Journal of Strategic Information Systems*, *19*(3), 207-228.

Gottfried, M. A. (2010). Evaluating the relationship between student attendance and achievement in urban elementary and middle schools an instrumental variables approach. *American Educational Research Journal, 47*(2), 434-465.

Hair, J., Black, W., Babin, B., Anderson, R., & Tatham, R. (2006). *Multivariate Data Analysis* (6th ed.). Pearson Prentice Hall.

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate Data Analysis* (7th ed.). Pearson.

Helgesen, O., & Nesset, E. (2011). Does LibQUAL- account for student loyalty to a university college library?. *Quality Assurance in Education*, *19*(4), 413-440.

Hong, S.-J., Thong, J. Y. L., & Tam, K. Y. (2006). Understanding continued information technology usage behavior: a comparison of three models in the context of mobile internet. *Decision Support Systems*, *42*(3), 1819-1834.

Iaffaldano, M. T., & Muchinsky, P. M. (1985). Job satisfaction and job performance: a meta- analysis. *Psychological Bulletin*, *97*(2), 251-273.

Joo, S. (2010). How are usability elements – efficiency, effectiveness, and satisfaction – correlated with each other in the context of digital libraries?. *Proceedings of the American Society for Information Science and Technology, 47*(1), 1-2.

Joreskog, K. G., & Sorbom, D. (1984). *Advances in factor analysis and structural equation models* (1st ed.). Lanham: Rowman & Littlefield Publishers.

Judge, T. A., Thoresen, C. J., Bono, J. E., & Patton, G. K. (2001). The job satisfaction-job performance relationship: a qualitative and quantitative review. *Psychological Bulletin*, *127*(3), 376-407.

Kandampully, J., & Suhartanto, D. (2000). Customer loyalty in the hotel industry: the role of customer satisfaction and image. *International Journal of Contemporary Hospitality Management, 12*(6), 346-351.

Kim, M. K., Park, M. C., & Jeong, D. H. (2004). The effects of customer satisfaction and switching barrier on customer loyalty in Korean mobile telecommunication services. *Telecommunication Policy*, *28*(2), 145-159.

Kirschner, P. A., & Karpinski, A. C. (2010). Facebooks and academic performance. *Computers in Human Behavior*, *26*(6), 1237-1245.

Kline, R. B. (2010). *Principles and practice of structural equation modeling* (3rd ed.). Guilford Press.

Lazim, C. S. L. M., Ismail, N. D. B., & Tazilah, M. D. A. K. (2021). Application of technology acceptance model (tam) towards online learning during covid-19 pandemic: accounting students perspective. *International Journal of Business, Economics and Law, 24*(1), 13-20.

Lee, M. C. (2010). Explaining and predicting users' continuance intention toward e-learning: An extension of the expectation–confirmation model. *Computers & Education, 54*(2), 506-516.

Lin, C., Morais, D. B., & Kerstetter, D. L. (2007). Examining the role of cognitive and affective image in predicting choice across natural, developed and thematic park destinations. *Journal of Travel Research*, *46*(2), 183-194.

Lovelock, C., & Wirtz, J. (2007). *Service Marketing- People. Technology, Strategy* (7th ed.). Pearson Prentice Hall.

Lwoga, E. (2013). Measuring the success of library 2.0 technologies in the African context: The suitability of the DeLone and McLean's model. *Campus-Wide Information Systems, 30*(4), 288 - 307. https://doi.org/10.1108/CWIS-02-2013-0011

Martineau, P. (1958). The personality of the retail store. *Harvard Business Review, 36*(1), 47-55.

Mathwick, C., Malhotra, N., & Rigdon, E. (2002). The effect of dynamic retail experiences on experiential perceptions of value: An Internet and catalog comparison. *Journal of Retailing, 78*(1), 51-60. https://doi.org/10.1016/S0022-4359(01)00066-5

Ojong, I., Akpan, M., Alasia, M. O., & Nlumanze, F. (2014). A comparative study on reproductive health awareness among urban and rural secondary school students in cross river state, Nigeria. *Journal of Research in Nursing and Midwifery*, *3*(1), 21-25.

Oliver, R. L. (1997). *Satisfaction: A Behavioural Perspective on the Consumer* (1st ed.). McGraw-Hill.

Palacio, A. B., Meneses, G. D., & Perez, P. J. (2002). The configuration of the university image and its relationship with the satisfaction of students. *Journal of Educational Administration*, *40*(5), 486-505.

Parasuraman, A., Zeithaml, V. A., & Berry, L. (1985). A conceptual model of service quality and its implications for future research. *Journal of Marketing*, *49*(4), 41-50.

Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1988). SERVQUAL: a multiple-item scale for measuring customer perceptions of service quality. *Journal of Retailing*, *64*(1), 12-40.

Riketta, M. (2008). The causal relation between job attitudes and performance: a meta-analysis of panel studies. *Journal of Applied Psychology*, *93*(2), 472-481.

Saglik, E., Gulluce, A., Kaya, U., & Ozhan, C. (2014). Service quality and customer satisfaction relationship: a research in Erzurum Ataturk university refectory. *American International Journal of Contemporary Research*, *4*(1), 100-117.

Salimon, M. G., Sanuri, S. M. M., Aliyu, O. A., Perumal, S., & Yusr, M. M. (2021). E-learning satisfaction and retention: a concurrent perspective of cognitive absorption, perceived social presence and technology acceptance model. *Journal of Systems and Information Technology, 23*(1), 109-129. https://doi.org/10.1108/JSIT-02-2020-0029

Stevens, J. P. (2009). *Applied multivariate statistics for the social sciences* (5th ed.). Taylor & Francis Group.

Swanson, R. A., & Holton, E. F. (2001). *Foundations of Human Resource Development* (1st ed.). Berrett-Koehler Publishers.

Tabachnick, B. G., & Fidell, L. S. (2007). *Using Multivariate Statistics* (5th ed.). Allyn and Bacon.

Teeroovengadum, V., Kamalanabhan, T. J., & Seebaluck, A. K. (2016). Measuring service quality in higher education: development of a hierarchical model (HESQUAL). *Quality Assurance in Education*, *24*(2), 244-258.

Teo, T. (2009). Modelling technology acceptance in education: A study of pre-service teachers. *Computers & Education*, *52*(1), 302-312.

Thong, J. Y. L., Hong, S.-J., & Tam, K. Y. (2006). The effects of post-adoption beliefs on the expectation- confirmation model for information technology continuance. *International Journal of Human-Computer Studies*, *64*(9), 799-810.

Venkatesh, V., & Davis, F. D. (1996). A model of the antecedents of perceived ease of use: development and test. *Decision Sciences*, *27*(3), 451-481.

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, *27*(3), 425–478.

Vroom, V. H. (1964). *Work and Motivation* (1st ed.). John Wiley & Sons.

Wang, K., & Lin, C.-L. (2012). The adoption of mobile value-added services. *Managing Service Quality, 22*(2), 184-208.

Wen, C., Prybutok, V. R., & Xu, C. (2011). An integrated model for customer online repurchases intention. *Journal of Computer Information Systems*, *52*(1), 14-23.

Young, M. R., Klemz, B. R., & Murphy, J. W. (2003). Enhancing learning outcomes: The effects of instructional technology, learning styles, instructional methods, and student behavior. *Journal of Marketing Education*, *25*(2), 130-142.

Yuce, A., Abubakar, A., & Ilkan, M. (2019). Intelligent tutoring systems and learning performance. *Online Information Review, 43*(4), 600-616. https://doi.org/10.1108/oir-11-2017-0340

Zeithaml, V. A. (1988). Consumer perceptions of price, quality and value: a means-end model and synthesis of evidence. *Journal of Marketing, 52*(3), 2-22.

Zhai, W. (2022). The Antecedents of Student Satisfaction an d Loyalty in Public Universities in Zhejiang, China. *AU-GSB E-JORNAL*, *15*(2), 196-205. https://doi.org/10.14456/augsbejr.2022.85