DETERMINANTS OF STUDENT SATISFACTION AND LOYALTY IN CHENGDU HIGHER EDUCATION

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Abstract

This paper focuses to examining the determinants of satisfaction and loyalty of students in a higher education institution in Chengdu, Sichuan province, China. The researchers applied quantitative research method to collect samples through online and offline questionnaires, using 500 undergraduate students at Xihua University as the target population. Sampling techniques were judgmental sampling, stratified random sampling and convenience sampling. Statistical software was used to analyze the data in the approaches of Confirmatory Factor Analysis (CFA) and Structural Equation Model (SEM), including model fit, reliability, and validity. The results showed seven hypotheses were finally proven to fulfil research objectives. Therefore, the findings recommended that the university should improve student satisfaction and loyalty by enhancing quality of administration, facility, teaching, academic support with positive brand image with effective communications to the existing and prospect students, and public.

Keywords: Teaching Quality, Academic Support, Image, Satisfaction, Loyalty

Introduction

Since the twentieth century, especially in recent decades, the world higher education has undergone great changes in the context of accelerated development of science, technology and globalization. Since 1978, China's higher education has undergone different stages of development and has made historical achievements in terms of scale, quality, equity and international influence (Yan & Zuliang, 2011). Sahney et al. (2004) pointed out that education is not only a public utility but also a service industry. Therefore, each university has been seeking a better path to achieve brand development and take advantage in the fierce market competition. In recent years, more and more scholars look at market economy and customer satisfaction as indicators to provide new ideas and solutions for research

development. Especially, Chengdu is one of the cities in China that has renowned universities where they aim to attract more prospect students and achieve internationalization for global competitions. Therefore, they are keen to improve student satisfaction and loyalty for sustainable growth (Gong & You, 2021).

Objectives of the Study

1. To investigate the significant impact of administration, facility, teaching quality, academic support on satisfaction.
2. To examine the significant impact of image on satisfaction and loyalty.
3. To assess the significant impact of satisfaction on loyalty.

Research Framework

The conceptual framework is developed from four previous research frameworks which are Marzo Navarro et al. (2005), Fernandes et al. (2013), Mallika Appuhamilage (2019), and Teeroovengadum et al. (2019). The conceptual framework of this study is proposed in Figure 1.

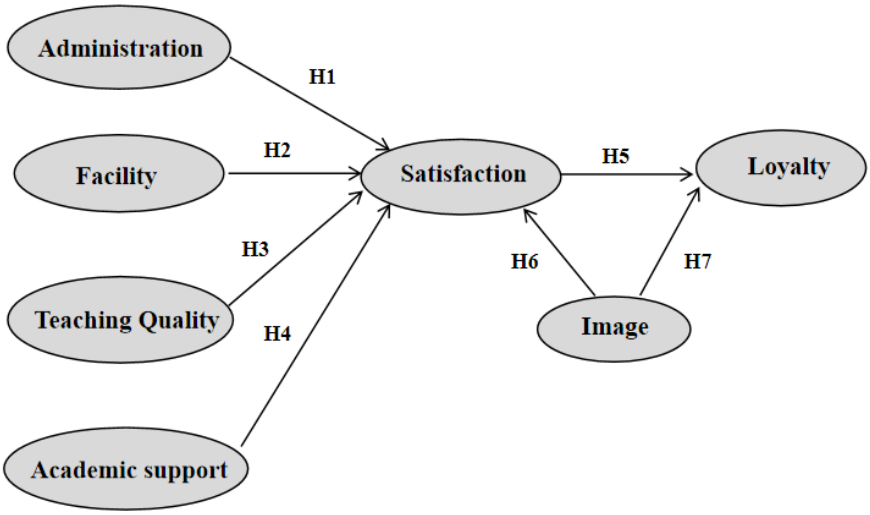

Figure 1 Conceptual Framework

Literature Review

1. Administration

Gruber et al. (2010) defined administration as the implementation of organized, planned, and purposeful influence by the governing body on the various institutional relationships that exist. Subsequently, Daniel et al. (2017) stated whether students are satisfied with the quality of university administrative services. Based on these previous claims, the following hypothesis is proposed.

H1: Administration has a significant impact on satisfaction

2. Facility

Facility refers to objects or assets that is physically exist such as equipment, facilities and buildings. In universities, the common facilities are cafeterias, academic buildings, dormitory buildings, libraries, laboratories, etc. (Yusoff et al., 2015). Hanssen and Solvoll (2015) concluded that the effect of campus facilities on satisfaction is evidenced. Based on these assumptions, a hypothesis is obtained.

H2: Facility has a significant impact on satisfaction.

3. Teaching Quality

Teaching is a purposeful, planned, and organized activity that is implemented by the university for students around certain goals (Bechard & Gregoire, 2005). Wiers-Jensenn et al. (2002) found a relationship between teaching quality and student satisfaction in higher education. Hence, we propose a hypothesis:

H3: Teaching quality has a significant impact on satisfaction.

4. Academic Support

Academics refers to factors related to students' learning such as faculty, academic resources, physical conditions, and academic atmosphere (Sharif & Kassim, 2012). Alhudaithy (2014) conducted a study on several universities and noted that the academic atmosphere of the school, the physical conditions, and the professional staff can impact student satisfaction. Accordingly, it can be hypothesized that:

H4: Academic support has a significant impact on satisfaction.

5. Satisfaction

Kunanusorn and Puttawong (2015) believed that satisfaction is the client emotional judgment of whether the expectation is met. Brown and Mazzarol (2009) defined it was people’s subjective attitude toward products and services provided. It has been confirmed through researches that increasing of customer satisfaction is an effective way to increase customer loyalty (Didyasarin et al., 2017). Consequently, a hypothesis is set:

H5: Satisfaction has a significant impact on loyalty.

6. Image

Alves and Raposo (2007) also considered image to be general perceptions and attitudes towards specific objects. In educational contexts, image and school reputation are generally considered to convey the same meaning. Cassel and Eklo (2001) also suggested in their study that university image is one of the factors that affect student satisfaction. Thereby, we hypothesize:

H6: Image has a significant impact on satisfaction.

7. Loyalty

Customer loyalty refers to customers' insistence on patronizing the same company or designating multiple purchases of a particular brand when faced with multiple choices

(Kieng et al., 2021). In higher education, student loyalty to some extent has the same meaning as customer loyalty. Lovelock and Wirtz (2007) suggested that image has an impact on loyalty. Henceforth, a hypothesis is presented:

H7: Image has a significant impact on loyalty.

Research Methodology

The research method was quantitative approach, using offline and online questionnaire to the target group. The questionnaire was composed with three sections including screening question, measuring items of five-point Likert scale and demographic profile. Measuring items were adapted from the previous studies. Before the data collection, the Item Objective Congruence (IOC) Index was used by three experts, resulting all items were reserved at a score 0.67 or above (Turner & Carlson, 2003). In addition, Cronbach's Alpha was applied in a pilot test of 30 participants, revealing all constructs were acceptable at a score 0.70 or above (Nunnally & Bernstein, 1994).

1. Population and Sample Size

The target population of this study are undergraduate students in three school of Xihua University of Chengdu, including which are School of Management, School of Electrical Engineering and Electronic Information and School of Science. The minimum sample size recommended by Soper (2022) was 425. The researcher distributed 600 questionnaires to the target population and 579 questionnaires were returned. Finally, 500 questionnaires were selected for data analysis.

2. Sampling Techniques

The sample techniques include judgmental, stratified random, and convenience sampling. Judgmental sampling was employed to select three schools of Xihua University located in Chengdu, Sichuan, province, China. Then, the stratified random sampling was applied to distribute the sample size of each group per student number in total of 769 in Table 1. Finally, the researchers used convenience sampling to distribute the questionnaire online and offline.

Table 1 Population and Sample Size by School

Name of school	Number of students	Number of sample size
School of Management	222	145
School of Electrical Engineering and Electronic Information	348	226
School of Science	199	129
Total	**769**	**500**

Source: Created by the author

Results and Discussion

1. Demographic Information

The demographic results show 53.2 percent were male and 46.8 percent were female. In terms of age, the majority of students was between 18-25 years old, accounting for 97.2 percent, and a small percentage of students are older than 25 years old, accounting for 0.4 percent. In terms of hometown, outside Sichuan was 65.8 percent and 34.2 percent of inside Sichuan. The largest number of students were in the senior year with 43.2 percent, followed by junior year with 26.8 percent, freshmen 15.8 percent, and sophomore year with 14.2 percent. In terms of academic performance, the majority of students was medium of 42.6 percent, and only a small percentage is very poor of 8.8 percent.

2. Confirmatory Factor Analysis (CFA)

This research used Confirmatory Factor Analysis (CFA). All items in each variable are significant and represent factor loading to test discriminant validity. The significance of factor loading of each item and acceptable values indicate the goodness of fit (Hair et al., 2006). Factor loadings are larger than 0.5, p-value less than 0.5, the construct reliability is better than 0.8, and AVE is above 0.5 (Fornell & Larcker, 1981) In addition, Cronbach's Alpha was applied and all constructs were acceptable at a score 0.70 or above (Nunnally & Bernstein, 1994) as shown in Table 2.

Table 2 Confirmatory Factor Analysis Result, Composite Reliability (CR) and Average Variance Extracted (AVE)

Variables	Source of Questionnaire	No. of Item	Cronbach's Alpha	Factors Loading	CR	AVE
Administration (AD)	Subrahmanyam et al. (2017)	4	0.903	0.756-0.897	0.904	0.703
Facility (FA)	Weerasinghe et al. (2017)	5	0.903	0.749-0.866	0.904	0.654
Teaching Quality (TQ)	Subrahmanyam et al. (2017)	5	0.921	0.773-0.908	0.922	0.704
Academic Support (AS)	Martirosyan et al. (2014)	5	0.893	0.754-0.846	0.894	0.627
Image (IM)	Teeroovengadum et al. (2019)	3	0.831	0.735-0.824	0.833	0.624
Satisfaction (SA)	Ali et al. (2016)	3	0.812	0.743-0.788	0.811	0.589
Loyalty (LO)	Teeroovengadum et al. (2019)	3	0.898	0.824-0.895	0.899	0.748

Source: Created by the author.

When the CR value is above AVE of greater than 0.50, the convergent validity was proven (Fornell & Larcker, 1981). The results of discriminant validity that AVE of each construct is not beyond the correlation among variables and are not higher than 0.80 per shown in Table 3. The strength of association among seven pairs of constructs are confirmed to have no multicollinearity problem. Additionally, because convergent and discriminant validity were proven, the evidence is sufficient for establishing construct validity.

Table 3 Discriminant Validity

	AD	FA	TQ	AS	IM	SA	LO
AD	**0.838**						
FA	0.503	**0.808**					
TQ	0.601	0.535	**0.839**				
AS	0.578	0.52	0.692	**0.791**			
IM	0.358	0.365	0.424	0.411	**0.789**		
SA	0.476	0.454	0.52	0.502	0.453	**0.767**	
LO	0.419	0.394	0.48	0.431	0.372	0.332	**0.864**

Note: The diagonally listed value is the AVE square roots of the variables

Source: Created by the author.

3. Structural Equation Model (SEM)

Table 4 presented the model fit of measurement model and structural model in this study .

Table 4 Goodness of Fit for Measurement Model and Structural Model

Index	**Acceptable Values**	**Statistical Values of Measurement Model**	**Statistical Values of Structural Model**
CMIN/DF	< 5.00 (Awang, 2012)	668.214/329 or 2.031	857.834/337 or 2.546
GFI	≥ 0.85 (Sica & Ghisi, 2007)	0.915	0.896
AGFI	≥ 0.80 (Sica & Ghisi, 2007)	0.895	0.875
NFI	≥ 0.80 (Wu & Wang, 2006)	0.933	0.914
CFI	≥ 0.80 (Bentler, 1990)	0.965	0.946
TLI	≥ 0.80 (Sharma et al., 2005)	0.959	0.939
RMSEA	< 0.08 (Pedroso et al., 2016)	0.045	0.056
Model summary		**Acceptable Model Fit**	**Acceptable Model Fit**

Source: Constructed by the author

4. Hypothesis Testing Result

The research model is calculated as significance of each variable from its regression weights and R^2 variances. The result from Table 5 postulated that all hypotheses were supported with a significance at p = 0.05.

Table 5 Hypothesis Result of the Structural Equation Model

Hypothesis	Standardized path coefficient (β)	t-value	Testing result
H1: AD → SA	0.181	2.818*	Supported
H2: FA → SA	0.169	2.876*	Supported
H3: TQ → SA	0.198	2.530*	Supported
H4: AS → SA	0.178	2.266*	Supported
H5: SA → LO	0.268	5.632*	Supported
H6: IM → SA	0.327	6.175*	Supported
H7: IM → LO	0.229	4.477*	Supported

Note: * $p<0.05$

Source: Created by the author.

The results from Table 7 can be refined that administration had a significant impact on the satisfaction (**β**=0.181), thus H1 is supported. Facility had an effect on the satisfaction (**β**=0.169) to confirm H2. Teaching quality had a significant impact on the satisfaction (**β**=0.198) to confirm H3. Academic support significantly impacted satisfaction (**β** =0.178), confirming H4. Satisfaction had a significant impact on loyalty (**β**=0.268), thus H5 is confirmed. Image significantly impacted satisfaction (**β**=0.327), thus H6 is proven. Image has a significant impact on loyalty (**β**=0.229), which supported H7.

Conclusions, Recommendations, Limitations and Future Research

1. Conclusions

The findings of this research achieved to examine the determinants of student satisfaction and loyalty. The results showed that administration, facility, teaching quality, academic support, and image had significant impact on satisfaction and loyalty. Image presented that strongest impact on satisfaction. In conclusion, seven hypotheses were finally proven to fulfil research objectives.

2. Recommendations

The researcher discovered factors affecting student satisfaction and loyalty with higher education institution in Chengdu, Sichuan province, China which are administration, facility, teaching quality, academic support, image. Therefore, the following aspects are suggested to improve student satisfaction and loyalty. The universities should pay attention

to deliver the high service quality and brand reputation to existing and prospect students with the use of various media to publicize the schools, show the good campus environment, teaching quality and academic atmosphere.

3. Limitations and Future Research

Although this paper has achieved it objectives, there are several limitations which can be suggestions for the future study. Firstly, the sample population of this research is from a university in Chengdu, Sichuan. Therefore, the study may produce different conclusions with the schools of different provinces, countries, and size. Secondly, the selected factors are not comprehensive enough, and some other factors are not included in the model. Thirdly, future researchers can investigate further with qualitative methods such as interview or focus group to ensure better interpretation.

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