

pISSN: 1906 - 3296 © 2020 AU-GSB e-Journal.
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Service Quality Aspects Influence on Student Satisfaction and Loyalty in Chongqing, China

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Received: January 24, 2023. Revised: June 5, 2023. Accepted: June 7, 2023.

Abstract

Purpose: Higher education improves quality by emphasizing the diversity of students as customers (stakeholders) and students as subjects, flexibility in student demand for universities, and extensive global competition. Thus, this paper determines the factor affecting student satisfaction and student loyalty, which are faculty services, on-campus infrastructure, academic aspects, impact on university reputation, and access to university services. **Research design, data, and methodology:** Quantitative method (n=500) was used to conduct a questionnaire survey on college students from three well-known universities in Chongqing. A non-probability sampling includes judgment sampling, quota sampling, and convenience sampling to collect data. Structural equation model (SEM) and confirmatory factor analysis (CFA) were used to analyze the data, including model fitting, reliability, and validity. **Results:** Faculty service, campus infrastructure, academic aspects, reputation, access, and student satisfaction have a significant impact on student loyalty. Student satisfaction strongly influences student loyalty, followed by campus infrastructure, access, reputation, faculty service, and academic aspects. **Conclusions:** All six hypotheses can fulfill the research objectives. Therefore, it is suggested that universities pay attention to campus infrastructure construction, improve the academic level, establish a better visiting mechanism and improve their reputation, to make students satisfied and loyal.

Keywords: Service Quality, Campus Infrastructure, Academic Aspects, Student Satisfaction, Student Loyalty

JEL Classification Code: E44, F31, F37, G15

1. Introduction

Over time, higher education has transformed to online education (Chong & Ahmed, 2015). In the past, there were few universities, and only the top students could enter. However, with the increase in the number of universities, it is necessary to improve the indicators and quality of universities and enhance their competitiveness to attract

students and expand the scale of universities. While some prestigious universities can still recruit the students they want, most still need to compete in the market to attract better students (Sultan & Wong, 2010).

Students have the most say in the quality of college services. Concern about student satisfaction has prevailed for over four decades, and many colleges have adopted rigorous measurement schemes. Britain is the first country to pay

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attention to students' feelings and use the curriculum experience questionnaire. In the 1980s, the UK Centre for Quality conducted a student satisfaction survey using the Course Experience Questionnaire. Since then, Midlands University has conducted an annual student satisfaction survey. In 1992, the Australian Graduate Employment Council incorporated the Course Experience questionnaire into a national opinion survey conducted annually. In 1995, the United States was the first country to apply the Customer Satisfaction Index model to a large-scale study of student satisfaction, which surveyed more than 670,000 students at 860 colleges and universities. In 2002, Oxford University tested 1,500 students using the University of Sydney curriculum Experience Questionnaire. More than 170,000 students from the UK took part in the survey in 2007. The Times also uses student satisfaction surveys for its rankings, which are weighted at 15 percent.

Universities have yet to pay much attention to the service quality concept of higher education. With the development of society and the emergence of diversified competition in higher education, student satisfaction, student loyalty, and school reputation have gradually attracted people's attention and even decide whether a university can continue (Dennis et al., 2016; Manatos et al., 2017; Psomas & Antony, 2017). In the research literature of scholars, student satisfaction, school reputation, and student loyalty are increasingly encapsulated in the quality of service in higher education (Alves & Raposo, 2007; Bassi, 2019).

However, the application of this concept is only enlightenment, not mature, and still needs to be explored (Mizikaci, 2006). In today's competitive market, an organization's success depends on the quality of its service. Institutions focus on improving their quality to meet the market's needs (Mehralizadeh & Safaeemoghaddam, 2010). Based on this philosophy, higher education institutions face similar challenges posed by rapidly changing technologies as competition for students, staff, and research results become increasingly international (Smith et al., 2007). The quality of higher education is related to the goals of universities. It is a necessary factor for the development of students, academic growth, and the coordinated development of the country (Chen et al., 2019).

Higher education improves quality by emphasizing the diversity of students as customers (stakeholders) and students as subjects, flexibility in student demand for universities, and extensive global competition. In other words, a college education relies on knowledge and skills to promote overall development (Becket & Brookes, 2008). The main reasons for improving the quality of higher education services are to improve stakeholders' satisfaction, win their loyalty, increase the number of stakeholders and form a strong attachment relationship (Johnston & Kong, 2011).

The popularization stage of higher education; will change with the development of social politics, economy, and culture, reflecting the characteristics of The Times (Teichler, 2007). The expansion of higher education along with economic development seems to be accompanied by issues of "finance, governance, management, personnel recruitment, curriculum standards, and maintenance." On this issue, higher education in developed countries is in line with that in developing countries. Therefore, this paper determines the factor affecting student satisfaction and student loyalty, which are faculty services, on-campus infrastructure, academic aspects, impact on university reputation, and access to university services.

2. Literature Review

2.1 Faculty Service (FS)

In the evaluation of student satisfaction, faculty service receives more attention. Faculty service is the teaching effect and teaching quality embodied in a teacher's professional knowledge and preparation (Pop et al., 2008). The embodiment of faculty service will make students feel its value more. (Rafik & Priyono, 2018)

In evaluating student satisfaction, more attention is paid to faculty service, which is the ability and willingness to solve students' problems (Kashif & Ting, 2014). Moreover, fair, impartial, and open teachers will be more popular among students without favoritism or prejudice when dealing with students' problems (Martirosyan, 2015).

Faculty service refers to whether teachers can flexibly process knowledge and transform it into teaching methods suitable for students and whether they can properly respond to students' questions and provide relevant reference materials (Hsu et al., 2006).

Faculty service is manifested in whether teachers can flexibly process knowledge and transform it into teaching methods suitable for students and whether they can properly respond to students' questions and provide relevant reference materials (Hsu et al., 2006). Student satisfaction increases when students recognize that the teacher is knowledgeable and cares about their needs and when the teacher's behavior instills confidence in the student (Chaudhary & Dey, 2021). Thus, a hypothesis is indicated:

H1: Faculty Services quality has a significant impact on Student satisfaction.

2.2 Campus Infrastructure (CI)

Campus infrastructure is defined as material engineering facilities that provide teaching and living services on campus (Annamdevula & Bellamkonda, 2016). Studies have found

that campus infrastructure has a significant impact on student satisfaction (Subrahmanyam & Raja Shekhar, 2017)

Price et al. (2003) confirmed that the better the campus infrastructure, the higher student satisfaction. If the campus infrastructure meets students' expectations, it will positively impact the school's reputation and students' awareness (Chung Sea Law, 2010). Generally speaking, campus infrastructure can be divided into three categories. I am learning facilities such as laboratories and lecture halls. Living facilities, such as canteens and dormitories. In terms of amenities, such as campus buses and banking services (Harvey, 2003).

As one of the factors affecting the quality of campus service, campus infrastructure can be helped by the survey results to realize their shortcomings, facilitate better improvement, and improve students' satisfaction and loyalty (Annamdevula & Bellamkonda, 2016).

However, in previous literature, the impact of campus infrastructure on student satisfaction has been broken down. For example, Masserini et al. (2019) found in the survey that students have access to education, and there are differences in library facilities. For example, Larasati et al. (2014) found that teaching and basic conditions would affect students' satisfaction. Yusoff et al. (2015) found in statistics that this difference was caused by the insignificant impact of university infrastructure on students' satisfaction. Hence, a hypothesis is derived:

H2: Campus infrastructure has a significant impact on student satisfaction.

2.3 Academic Aspect (AA)

Academic aspects refer to the value of a university's faculty courses and the number, sources, and composition of research projects (Ali et al., 2016). Ali et al. (2016) found that most students believe academic aspects will affect student satisfaction. This indicates that the scope and composition of the courses offered and the stability and innovation of the courses are important factors in shaping the quality of service.

The academic aspect refers to the methods and processes for exploring and discovering new knowledge. In the context of UK universities, the main source of this support and advice is the faculty (Davis, 2001). Therefore, college students' satisfaction is influenced by teaching quality and teachers' behavior (Weerasinghe & Fernando, 2018).

The influence of academic performance is often reflected in teaching and academic lectures. Teaching mainly refers to college teachers' knowledge and ability, teaching methods, teaching charm, and effective support from students' feedback. Academic lectures mainly refer to content effects, project value results, quality evaluation, and organizational achievements (Weerasinghe & Fernando, 2018).

Academic aspects mainly refer to whether teachers' ability and teaching feedback can solve students' problems and needs (Osman & Saputra, 2019). Teaching can attract students' attention and positively impact students' loyalty. Correlation shows that academic support is one of the factors with the highest correlation with students' overall satisfaction (Fernandes et al., 2013). Based on the above discussions, this study hypothesizes that:

H3: Academic aspects have a significant impact on student satisfaction.

2.4 Reputation (R)

Reputation is often created when universities interact with students (Schuler, 2004). Student satisfaction directly impacts the school's reputation (Sirgy & Samli, 1985). Factors that increase student satisfaction also contribute to a school's reputation (Johnson et al., 2001).

Reputation is a sense of evaluation, usually the long-term evaluation and judgment of students on a university, such as the comprehensive evaluation of school construction, student quality, teacher quality, and admission rate (Bennett & Rentschler, 2003). Whether a university has a good reputation is a key factor in whether students want to study there (Bush et al., 1998).

A university's reputation can be built on student satisfaction. In some cases, a university's reputation is simply a means of getting students to enroll. However, satisfaction depends on the quality of service, the knowledge gained, the overall impact of contact, and shaping the student's future and his or her employability (Badri & Mohaidat, 2014).

A university's reputation is often the students' cognition of a university and the evaluation of a university in all aspects. A university's status, prestige, and influence mainly come from the strength and contribution of professors and alums, as well as the achievements, contributions, and effects of talent training and scientific research (Panda et al., 2019). Accordingly, a proposed hypothesis is demonstrated:

H4: Reputation has a significant impact on student satisfaction.

2.5 Access (A)

Access mainly refers to questioning and approaching university staff without difficulty (Ali et al., 2016). It mainly evaluates the university staff's professional quality, working ability, and working effect. In addition, university staff can provide objective and appropriate answers after being asked and are effective (Errey & Wood, 2011).

Firdaus (2005) proposed three factors for access. The first one is accessible. Easy to find and ask. The second point is easy to relate to. This method is convenient for the enquirer.

Third, employees are useful. Can solve the questioner's question.

Jancey and Burns (2013) believe that a visit is an internal and external connection between students and teachers and an opportunity to get personalized suggestions and feedback. The visit is undoubtedly a communication bridge connecting students and teachers for universities.

El Said (2021) discusses the importance of student accessibility, the accessibility of student portals, and the need for regular online contact with academic and non-academic staff. In addition, this provides sufficient technical support for online communication, as even lectures, peer discussions, and evaluations are done online. Similarly, this generation of students values the importance of the accessibility of online databases. Therefore, universities must provide appropriate infrastructure to enhance students' access points in an age of smartphones. Therefore, a hypothesis is proposed:

H5: Access has a significant impact on student satisfaction.

2.6 Student Satisfaction (SS)

Satisfaction is the feeling of approaching or meeting expectations through experience based on personal expectations (Arif & Ilyas, 2013). Student satisfaction refers to students' feelings after comparing their expectations of the teaching quality provided by the school with the results presented (Teeroovengadam et al., 2019).

In marketing, customer satisfaction refers to customers' evaluation of services based on their long-term service experience (Anderson et al., 1994). The concept of student satisfaction is not only reflected in the teaching quality; but also, in the perceived evaluation after experiencing various aspects of university education services (Elliott & Healy, 2001).

Student satisfaction is defined as students' subjective feelings towards school education services, with majority and universality (Elliott & Shin, 2002; Li & Pibulcharoensit, 2022). According to Zeithaml et al. (1990), five basic aspects of the service provided need to be evaluated to obtain customer satisfaction, which are reliability, responsiveness, assurance, physicality, and empathy. According to the previous studies, the sixth hypothesis is developed:

H6: Student satisfaction has a significant impact on student loyalty.

2.7 Student Loyalty (SL)

Student loyalty is the continuing recognition of higher education (Le Roux & Van Rensburg, 2014). As universities offer marketable products to students, one must think of students as customers. As a customer, it is an ordinary consumer's commitment to a product or service. (Mandhachitara & Poolthong, 2011).

Student loyalty comes from more than student satisfaction. It also involves trust with service providers and establishing a university's social responsibility, as elaborated by Esfijani et al., (2013), to enable the university to integrate its functions and ethically meet society's expectations.

As Chandra et al. (2019) point out, student satisfaction is a variable related to student loyalty. Kim (2011) believes that there is no direct relationship between service quality and loyalty, but when service quality causes changes in satisfaction, loyalty will change. Satisfaction does affect loyalty, but it is not the only factor (Fornell, 1992).

Student satisfaction positively affects student loyalty (Subrahmanyam & Raja Shekhar, 2017). It has been mentioned in many kinds of literature that one of the important factors determining student loyalty is student satisfaction (Ryu et al., 2012).

3. Research Methods and Materials

3.1 Research Framework

The conceptual framework was developed from previous research frameworks and adapted from three theoretical models. Firstly, Martirosyan (2015) investigated the impact of faculty services (FS) on student satisfaction (SS). Secondly, Subrahmanyam and Raja Shekhar (2017) confirmed the significant impact of campus infrastructure (CI) on student satisfaction (SS) and student satisfaction (SS) on student loyalty (SL). The third study comes from Ali et al. (2016). They use three variables which are academic aspects (AA), reputation (R), and access (A) proved to have a great impact on student satisfaction (SS). The conceptual framework of this study is shown in Figure 1.

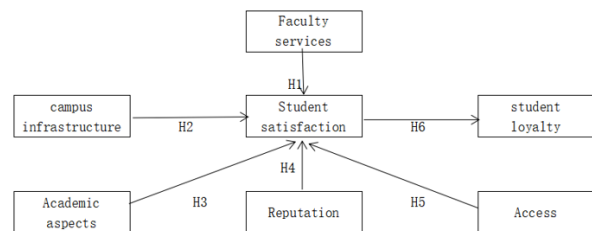


Figure1: Conceptual Framework

H1: Faculty Services quality has a significant impact on student satisfaction.

H2: Campus infrastructure has a significant impact on student satisfaction.

H3: Academic aspects have a significant impact on student satisfaction.

H4: Reputation has a significant impact on student satisfaction.

H5: Access has a significant impact on student satisfaction.

H6: Student satisfaction has a significant impact on student loyalty.

3.2 Research Methodology

Using a quantitative method of non-probabilistic sampling, the researchers sent online questionnaires to undergraduate students in Chongqing, China. The key factors that significantly influence student satisfaction are collected and analyzed. The survey is divided into three steps. First, the characteristics of the respondents are identified by screening the questions. Second, demographic issues include gender and level of education. Finally, we used a 5-point Likert scale to measure five proposed variables, ranging from strongly disagree (1) to agree (5), for all six hypotheses strongly. In the pilot test, 30 respondents were given expert scores and pilot tests for project-to-objective Consistency indicators (IOC).

Cronbach's Alpha method was tested for validity and reliability. After the reliability test, the questionnaire was sent to the target respondents, and 500 accepted questionnaires were received. The researchers used JAMOVI to analyze the data they collected. Then, confirmatory factor analysis (CFA) was used to verify the convergence accuracy. In the case of given data, the model fitting quantity is calculated through the whole test to ensure the effectiveness and reliability of the model. Finally, the structural equation model (SEM) was used to test the influence of the variables.

3.3 Population and Sample Size

The target population of this paper is undergraduate students at Chongqing university. The sample size of the structural equation model indicates that at least 200 respondents (Kline, 2005) should be involved in the study. The survey involved 557 people. After data screening, 500 questionnaires were used in this study.

3.4 Sampling Technique

The researchers used non-probability and judgment sampling methods to select three well-known universities in Chongqing. Then, using quota sampling, the total number of undergraduates in the three universities was 69,922. As shown in Table 1. The researchers then distributed questionnaires online using convenience sampling.

Table 1: Sample Units and Sample Size

Primary and Secondary Schools	Population Size	Proportional Sample Size
Sichuan International Studies University	12922	92
Southwest University	40000	286
Southwest University of Political Science and Law	17000	122
Total	69922	500

The data was collected over about five months between March and July 2022. Through data screening to ensure the accuracy of the target objects, all are undergraduates of Chongqing University in China. The online questionnaire is made by "Questionnaire Star" distributed through WeChat, QQ, and other social software, and completed by students sharing survey links among primary grades.

4. Results and Discussion

4.1 Demographic Information

The demographic information was obtained from 500 participants, with 229 male respondents accounting for 45.8% and 271 female respondents accounting for 54.2%, as shown in Table 2. Regarding year of study of undergraduate students, the respondents were mainly third year of 31.2%, followed by first year of 25%, fourth year of 23.6% and second year of 20.2%.

Table 2: Demographic Profile

Demographic and General Data (N=500)		Frequency	Percentage
Gender	Male	271	45.8%
	Female	229	54.2%
Year of Study	First Year	125	25.0%
	Second Year	101	20.2%
	Third Year	156	31.2%
	Fourth Year	118	23.6%

4.2 Confirmatory Factor Analysis (CFA)

Confirmatory factor analysis (CFA) was used in this study. All items in each variable were significant and represented factor loads to test for differential validity. The significance and acceptability of factor loads for each item represent the goodness of fit (Hair et al., 2010). The factor load was greater than 0.30; the p-value was less than 0.05. The Cronbach's Alpha reliability test is greater than the cut-off points of 0.7, and the average variance extracted is greater than the cut-off point of 0.5 (Fornell & Larcker, 1981), as shown in Table 3. Hence, all estimates in CFA are significant.

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
Faculty Service (FS)	(Martirosyan, 2015)	5	0.835	0.588-0.797	0.838	0.511
Campus Infrastructure (CI)	(Annamdevula & Bellamkonda, 2016)	4	0.875	0.720-0.850	0.878	0.644
Academic Aspects (AA)	(Ali et al., 2016)	4	0.856	0.593-0.860	0.857	0.605
Reputation (R)	(Ali et al., 2016)	3	0.796	0.724-0.823	0.807	0.582
Access(A)	(Ali et al., 2016)	3	0.860	0.650-0.844	0.797	0.570
Student Satisfaction (SS)	(Ali et al., 2016)	3	0.907	0.860-0.889	0.909	0.762
Student Loyalty (SL)	(Ali et al., 2016)	3	0.844	0.763-0.885	0.850	0.654

According to Hair et al. (2010), structural equation modeling (SEM) verifies the chance relationship between variables in the proposed model and includes measurement errors for the structural coefficients. The goodness-of-fit index of the structural equation model (SEM) is measured as shown in Table 4. The value of measurement model fit in this study is greater than the acceptable value, which verifies the convergence and discriminant validity. Therefore, convergence validity and discriminant validity are guaranteed. In addition, these model measurements reassure the discriminant validity and validate the validity of subsequent structural model estimates. SPSS AMOS 26 was used to calculate the model, and the fitting indexes were well-fitted. CMIN/DF = 4.094, GFI = 0.858, AGFI = 0.803, NFI = 0.881, CFI = 0.906, TLI = 0.881, RMSEA = 0.079.

Table 4: Goodness of Fit for Measurement Model

Fit Index	Acceptable Criteria	Statistical Values
CMIN/df	≤ 5.0 (Wheaton et al., 1977)	962.056/235 4.094
GFI	≥ 0.80 (Doll et al., 1994)	0.858
AGFI	≥ 0.80 (Sica & Ghisi, 2007)	0.803
NFI	≥ 0.80 (Wu & Wang, 2006)	0.881
CFI	≥ 0.80 (Bentler, 1990)	0.906
TLI	≥ 0.80 (Sharma et al., 2005)	0.881
RMSEA	≤ 0.10 (Hopwood & Donnellan, 2010)	0.079

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

The square root of the average variance extracted is determined to be that all correlations are greater than the corresponding correlation values of the variable in Table 5. As a result, the values confirm convergent and discriminant validity of this study.

Table 5: Discriminant Validity

	FS	CI	AA	R	A	SS	SL
FS	0.715						
CI	0.596	0.802					
AA	0.312	0.411	0.778				
R	0.426	0.595	0.39	0.763			
A	0.445	0.622	0.373	0.536	0.755		
SS	0.544	0.691	0.418	0.508	0.641	0.873	
SL	0.535	0.662	0.395	0.519	0.59	0.752	0.809

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

4.3 Structural Equation Model (SEM)

According to Wheaton et al. (1977), Chi-square/degrees-of-freedom (CMIN/DF) model fitting measurements should not exceed 5; Doll et al. (1994) suggest that GFI should be higher than 0.8; According to Sica and Ghisi (2007), AGFI should be higher than 0.8; Wu and Wang (2006) believed that NFI should be higher than 0.8; According to Bentler (1990), the CFI should be higher than 0.8; TLI should be higher than 0.8 (Sharma et al., 2005); RMSEA should be less than 0.1 (Hopwood & Donnellan, 2010). The results of structural model were well-fitted. CMIN/DF = 3.398, GFI = 0.881, AGFI = 0.848, NFI = 0.893, CFI = 0.922, TLI = 0.907, RMSEA = 0.069, as shown in Table 6.

Table 6: Goodness of Fit for Structural Model

Index	Acceptable	Statistical Values
CMIN/DF	≤ 5.0 (Wheaton et al., 1977)	863.150/254 3.398
GFI	≥ 0.80(Doll et al., 1994)	0.881
AGFI	≥ 0.80 (Sica & Ghisi, 2007)	0.848
NFI	≥ 0.80 (Wu & Wang, 2006)	0.893
CFI	≥ 0.80 (Bentler, 1990)	0.922
TLI	≥ 0.80 (Sharma et al., 2005)	0.907
RMSEA	≤ 0.10 (Hopwood & Donnellan, 2010)	0.069
Model summary		In harmony with empirical data

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

4.4 Research Hypothesis Testing Result

The standardized coefficient path and t-value for each variable to calculate significance. The result hypotheses in Table 7 were all supported, and p = 0.05 was significant. Student satisfaction has the greatest influence on student loyalty, which is 0.830. In addition, faculty services (β=0.190), campus infrastructure (β= 0.542), academic aspects (β= 0.192), reputation (β= 0.338), and access (β=0.489) had a significant influence on student satisfaction. The model shows the variance between student satisfaction and student loyalty.

Table 7: Hypothesis Results of the Structural Equation Modeling

Hypothesis	(β)	t-Value	Result
H1: FS \rightarrow SS	0.190	5.119*	Supported
H2: CI \rightarrow SS	0.542	10.835*	Supported
H3: AA \rightarrow SS	0.192	4.618*	Supported
H4: R \rightarrow SS	0.338	7.089*	Supported
H5: A \rightarrow SS	0.489	9.416*	Supported
H6: SS \rightarrow SL	0.830	15.463*	Supported

Note: * $p < 0.05$

The results in Table 7 are explained as follows:

H1 proved that faculty service is one of the key factors affecting student satisfaction and explained that the common coefficient value in the structural path is 0.190. Student satisfaction will be enhanced when students realize that the faculty service is better (Chaudhary & Dey, 2021). In **H2**, the analysis results support the hypothesis that Campus infrastructure significantly impacts student satisfaction, with a common coefficient value of 0.542. In the study of Subrahmanyam and Raja Shekhar (2017), it was also found that campus infrastructure significantly impacted student satisfaction. In **H3**, the hypothesis that academic aspects significantly impact student satisfaction is also supported, and its standard coefficient value is 0.192. The academic aspect is an important part of service quality, and students have high expectations of it (Firdaus, 2005). At the same time, **H4** proves that reputation is also one of the key factors affecting students' satisfaction. The standard coefficient value of the structural path is 0.338. **H5** also proves that the hypothesis that access affects students' satisfaction is valid and explains that the standard coefficient of the structural path is 0.489. Therefore, from the perspective of students, access is one of the very important factors in all university services (Abdullah, 2006). Finally, **H6** supports the influence of appeal factors on student satisfaction and the significant influence of student satisfaction on student loyalty. The standard coefficient of the structural path is 0.830. Student satisfaction positively affects student loyalty (Subrahmanyam & Raja Shekhar, 2017). It has been mentioned in many kinds of literature that one of the important factors determining student loyalty is student satisfaction (Ryu et al., 2012).

5. Conclusion, Recommendation & Limitation

5.1 Conclusion and Discussion

This paper focuses on the significant impact of college service quality on student satisfaction and loyalty in Chongqing, China, and the influencing factors of college service quality. These hypotheses are presented as conceptual frameworks, faculty services (FS), campus

infrastructure (CI), academic aspects(AA), reputation(R), access(A), student satisfaction(SS), and student loyalty(SL) were significantly affected. The questionnaire was compiled among undergraduates at three prestigious universities in Chongqing, China. The influence of service quality on students' satisfaction and loyalty is discussed through data analysis. Confirmatory factor analysis (CFA) was used to evaluate the validity and reliability of the model. Therefore, this paper uses the structural equation model (SEM) to analyze student satisfaction and loyalty influencing factors.

The results of this study are as follows: First, student satisfaction has the strongest significant impact on student loyalty. As Chandra et al. (2019) point out, student satisfaction is a variable related to student loyalty. Kim (2011) believed that there was no direct relationship between service quality and loyalty, but loyalty would change when service quality caused a change in satisfaction (Fornell, 1992). Secondly, campus infrastructure has the second highest impact on student satisfaction. It is also found in the past literature that teaching conditions and basic conditions will affect student satisfaction (Larasati et al., 2014). Thirdly, according to the influence scores from high to low, access, reputation, and academic aspects, faculty services significantly impact student satisfaction. The results show that campus infrastructure, access, reputation, academic aspects, and faculty services are positively correlated with student satisfaction, and student satisfaction and student loyalty are also positively correlated. In conclusion, the purpose of this study has been realized. Campus infrastructure, access, reputation, academic aspects, and faculty services are key factors affecting student satisfaction and loyalty.

5.2 Recommendation

The researchers found that among universities in Chongqing, the key factors affecting student satisfaction and student loyalty is campus infrastructure, access, reputation, academic aspects, and faculty services. Therefore, it is suggested to strengthen the construction of these aspects in the development of the service quality of colleges and universities, to achieve the satisfaction and loyalty of students to colleges and universities. In the theoretical sense, although domestic scholars have more and more research on the quality of higher education services, the research on student satisfaction and loyalty is still in the initial stage. There needs to be a unified understanding of the constituent elements of the service quality of colleges and universities and the evaluation index of higher education service quality. From the perspective of "market demand," this study focuses on the relationship between higher education service quality and students' satisfaction and loyalty, which is conducive to improving the theory of higher education

service quality. Secondly, based on the literature review, the variable design of previous studies is improved. Through the systematic investigation and research on the needs of undergraduates and the quality of higher education service, the research results of higher education service quality management are further enriched to provide a reference for the research on similar issues. At the same time, the results of this study can promote the continuous improvement of college service quality and improve the loyalty of college students. On the one hand, we can monitor the quality of higher education from the macroscopic industrial scope, overcome the deficiency of administrative evaluation, correct the deviation of value orientation of Chinese higher education in recent decades, and promote the rationalization of the evaluation method of service quality of Chinese higher education. At the same time, the connotation of colleges and universities can be improved from the micro level, which has practical significance for improving the service quality of different colleges and universities. In conclusion, this study has important theoretical value for studying higher education service quality. It can provide references and suggestions for higher education decision-makers to formulate new policies.

5.3 Limitation and Further Study

The limitation of this study is that it takes undergraduates from three universities in Chongqing as samples, and the research results may only partially reflect the overall situation of higher education in Chongqing. In addition, different schools and grades may lead to different analysis results. Further research could be into other factors influencing student satisfaction and loyalty. Therefore, in the follow-up in-depth investigation and research, researchers will broaden the investigation field and hypothesis direction and further explore the factors affecting the service quality of colleges and universities that affect students' satisfaction and loyalty from multiple perspectives.

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