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The Antecedents of Student Satisfaction and Loyalty in Public Universities in Zhejiang, China

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Abstract

Purpose: This purpose of this paper is to ascertain the antecedents of student satisfaction and student loyalty and tests the interrelationships between academic aspects, college administration, infrastructure facilities, placement services, teachers and teaching, student satisfaction and student loyalty. **Research design, data and methodology:** The study used survey research design and collected valid sample 500 from the two public universities in the state of Zhejiang, China. Nonprobability and probability samplings were employed to use purposive sampling, stratified random sampling and convenience sampling via online and offline channels. To analyze the data, a confirmatory factor analysis was used where it examined the associations between items and constructs, Afterward, structural equation model (SEM) was applied to investigate the relationships between constructs. **Results:** The results established academic aspects, college administration, infrastructure facilities, placement services have a significant impact on student satisfaction. Student satisfaction has a significant impact on student loyalty. On the other hand, the relationship between teachers and teaching and student satisfaction was disapproved. **Conclusions:** This research helps the higher education management in acquiring a better understanding of the relationship between the antecedents of student satisfaction and student loyalty to implement better strategies and ultimately improve educational service.

Keywords: Higher Education, Student Satisfaction, Student Loyalty, Teaching, China

JEL Classification Code: E44, F31, F37, G15

1. Introduction

Higher education refers to the educational activities which students are expected after passing secondary level. Its purpose is to make student become talents with professional skills and knowledge for their career development. In higher education, many researchers believe that students are the main recipients, and are served as the future workforce in a labor market (Ijaz et al., 2011; Kaur &

Bhalla, 2010). Mishra (2007) emphasized that higher education plays a strong pillar role in society. It not only helps to promote the social economy and culture development, but also helps to improve civic awareness, and enable citizens to form a correct outlook on life and values (Annamdevula & Bellamkonda, 2016). In the environment of higher education, universities aim to gain a market advantages and competitiveness. To achieve this, they formulate training objectives, provide students with a

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professional academic environment, set up rich courses, and provide excellent teaching environment and sufficient learning environment to meet the needs of students (Ibekwe, 2006; Kaur & Bhalla, 2010). According to O'Driscoll (2012), student satisfaction has become the primary task of education providers. However, under the conditions of different research methods and measurement techniques, the concept of student satisfaction is diverse. The mixture of student satisfaction concept leads to a debate between service quality, curriculum and learning environment. A number of research shows that student satisfaction directly impacts their loyalty, which also greatly affects the school's image and reputation in public (Arambewela & Hall, 2009; Ijaz et al., 2011).

Hennig-Thurau et al. (2001) pointed out that student loyalty exists in their evaluation of life and learning experience. In higher education, understanding students' loyalty can be helpful for managers to formulate effective teaching plans and service quality. In terms of service, loyalty can grasp long-term relationship between the university and students. Student loyalty not only helps to provide good economic security for the university, but also provide high value of brand image for its sustainability (Annamdevula & Bellamkonda, 2016).

In recent years, scholars, universities and educational administrative departments pay more and more attention to student satisfaction, and take it as an important aspect to measure their service quality and market performance. Arokiasamy (2012) stressed that in order to enhance their competitive advantages, organizations and institutions should consistently improve their service quality and high standard curriculum. Universities and educational institutions should emphasize the evaluation of student satisfaction and loyalty for better enhancement of their academic reputation.

2. Literature Review

2.1 Academic Aspects

Lent et al. (2007) defined that academic is the combination of theory and practice. It is a way to analyze and solve problems by using systematic learning methods when facing problems in life. A large number of studies show that academic satisfaction impact academic dropout, adaptation to environment and problems, discipline and psychological problems (Ojeda et al., 2011). Eccles and Wigfield (2002) pointed out that students' academic performance or achievements are greatly impacted by teaching quality, classroom atmosphere, students' own internal motivation, feeling and cognition. Few scholars have studied how to encourage and guide students and what

factors will impact students' motivation. Many scholars focus on habits, methods, anxiety or some motivation factors that impact students' academic performance. Moreover, they have not reached a consensus on how to stimulate students' in-depth learning (Annamdevula & Bellamkonda, 2016).

Kanan and Baker (2006) pointed out that in Palestinian university system, academic projects majorly impact the level of student satisfaction. In the United Arab Emirates, student satisfaction has something to do with the utilization of resources, the quality of teachers and the effectiveness of technology use (Wilkins & Balakrishnan, 2013). In a study of Yusoff et al. (2015), in higher education, the quality and behavior of academic staff has an influential impact on the level of students' satisfaction. Thereby, a following hypothesis is made:

H1: Academic aspects have a significant impact on student satisfaction.

2.2 College Administration

Weerasinghe and Fernando (2018) indicated that the quality of college administration includes service reliability, capability, empathy, integrity, consistency and fairness which can impact students' satisfaction. Marzo Navarro et al. (2005) refers administration to the way in which people are organized, guided and coordinated by formulating certain rules or plans in an organization or institution. Administrators are obligated to take responsibility and manage various arrangements (Kaur & Bhalla, 2018).

Wolfgang and Dowling (1981) noted that it is necessary for universities to assess students' needs and intentions in order to adjust teaching processes, administrative procedures, planning and support services. The poor service of academic personnel makes students annoyed and unsatisfied. According to Bagalkoti et al. (2006), they studied the views of students at the University of Karnataka in India on the quality of higher education. In their research, they stressed that higher education quality management has five dimensions which are the way of introducing curriculum, the nature of curriculum, teaching quality, higher education evaluation process and infrastructure.

Malik et al. (2010) examined the effective cooperation, good attitude and adaptability of administrative staff that impact university students' satisfaction. The satisfaction level of students was impacted by the teaching methods, high-quality teaching ability and the intuitive and fair treatment of staff (Elliott & Shin, 2002). Nadiri et al. (2009) studied the impact of administrative institutions on students' satisfaction, and emphasized that administrative institutions have a positive impact on students' satisfaction. Similar conclusions show that university management also impacts

the economic and financial performance (Gruber et al., 2010). Therefore, the study proposes the following hypothesis:

H2: College administration has a significant impact on student satisfaction.

2.3 Infrastructure Facilities

Weerasinghe and Fernando (2018) described facilities as the equipment to be designed, built and used by an organization or institution that has been commonly operated. Facilities are set by an institution according to specific purposes. Infrastructure facilities can be divided into internal and external facilities according to geographical location. Internal facilities are amenities used inside the school, and outside is categorized as external facilities. University facilities are such as lecture hall, teaching building, assembly hall, theatre, library, laboratory, sports ground, parking area, dormitory and self-study room (Farahmandian et al., 2013). Price et al. (2003) classified that university facilities impact student satisfaction. The quality of facilities largely affects students' choices for their university admission. The facilities and equipment provided for students, especially in computer technology and library equipment resources, can determine students' satisfaction (Martirosyan, 2015).

Peng and Samah (2006) identified that, in terms of infrastructure, students believe that an excellent university should have high standard libraries, sports facilities, entertainment facilities, multimedia classroom, computing equipment, and academic resources. Yusoff et al. (2015) concluded that university facilities have a positive impact on student satisfaction. According to Arambewela et al. (2005), the relationship between university facilities and student satisfaction has been widely examined. Butt and Rehman (2010) investigated in a survey that there are five most important factors impacting students' satisfaction, including teachers' professional knowledge, curriculum, learning environment and teaching facilities. In accordance with this argument, below hypothesis is proposed:

H3: Infrastructure facilities have a significant impact on student satisfaction.

2.4 Placement Services

Pencarelli et al. (2013) specified placement services as a connection that can maintain and enhance the relationship, mutual trust and collaborative stability among stakeholders. University, school students, enterprises and local institutions set up and accept value through network on placement, which are different but interdependent. Placement services of university aim to serve two target groups which are student and enterprise or local institution. Students are the

primary group to receive placement services and support students are subjected to them to accomplish their study and life goals (Goldstein et al., 2002).

Gamage et al. (2008) concurred that university students in senior year pay more attention to employment. These students hope that the university will provide them career information, consultation, relevant job training, and guide them to establish contacts with industries and employers. They surveyed two different groups and both groups had the same views in many aspects. The results showed that students attach great importance to employment placement services. Therefore, placement services are not an optional, but mandatory in higher education.

Kakwani and Pothong (1999) stated that the impact of placement services on students' satisfaction was positive and significant. In academic factors, economic assistance, tuition fees, consulting, services quality, placement services of job, and complaint procedures impact students' attitude on service quality. Pencarelli et al. (2013) urged that the management of universities need to combine the principles and equipment of service management to create higher value and pursue high-quality service quality, especially in employment services, because these will greatly impact students' satisfaction. In this sense, the below hypothesis is tested:

H4: Placement services have a significant impact on student satisfaction.

2.5 Teachers and Teaching

Arif et al. (2013) explained teachers are the inheritors and disseminators of human cultural and scientific knowledge. Teachers refer to those who impart knowledge to students, and also are worth learning in some aspects and can bring correct knowledge and guidance to everyone to some extent (Bakker & Bal., 2010). Teaching is the way teachers guide students to actively and consciously learn and accelerate the mastery of basic knowledge and skills of culture and science in order to improve students' quality in all aspects, and make them become quality people in the society (Marzo Navarro et al., 2005).

Petruzzellis et al. (2006) explicated that higher education is a body with rich experience. As a knowledge supplier, universities provide a variety of tangible services in infrastructure and technology, as well as intangible or implicit services. For example, teaching as its core service is intangible. With the emergence of the concept of student satisfaction, investigators cannot clearly describe the essence of "supplier or customer relationship", because they cannot understand and explain the importance of students' partners in the teaching process (Arif et al., 2013). The factors impacting the satisfaction level of higher education are personal factors including gender, occupation, and

learning preference, as well as institutional factors including teaching quality, timeliness, feedback, expected clarity and teaching style (Appleton-Knapp & Krentler, 2006).

Wiers Jensen et al. (2002) guided that it is necessary to discuss the relationship between teaching quality and student satisfaction. They investigated Norwegian university students' satisfaction. According to the data of the national survey, there is an important relationship between teaching quality and students' satisfaction. Douglas et al. (2008) elaborated that, in Malaysia, teaching and learning are considered to be the most important factors impacting students' satisfaction. Gruber et al. (2010) highlighted that teaching, placement, university facilities, teacher support and university reputation are the most important factors impacting student satisfaction in German. Hence, a hypothesis is developed in accordance with these evidences: **H5:** Teachers and teaching have a significant impact on student satisfaction.

2.6 Student Satisfaction

Hunt (1977) acknowledged that satisfaction is consumers' evaluation of the whole service experiences (process and results) after purchase. It is a state of emotional response, consumers' requirements, wishes and anticipations that have been reached or exceeded in the process of service experience. Student satisfaction is their anticipations of efficient learning and the realization of professional goals (Mallika Appuhamilage & Torii, 2019). Also, student satisfaction is a short-term attitude in the different educational background and experience (Elliott & Healy, 2001).

Weerasinghe and Fernando (2018) posted that although education system has many differences in Europe, the level of student satisfaction has not changed significantly. Student satisfaction is usually impacted by relationship between peers, courses, learning facilities, library storage, teaching or learning materials and teaching quality (Garci a-Aracil, 2009). Two groups of factors can be elaborated in impacting students' satisfaction level in higher education (1) personal factors; employment, gender, favorite learning mode and grade point average or GPA (2) institutional factors; teaching quality, teaching style, timely feedback from teachers and clear expectations (Appleton-Knapp & Krentler, 2006).

Navarro et al. (2005) pointed out that students' satisfaction with education leads to their loyalty to their universities. Zeithaml (1988) explained that it is the result of a successful educational mechanism. In addition, Chaudhuri and Holbrook (2001) have found an important relationship between satisfaction and loyalty. Bloemer and Ruyter (1998) provided a model to show the causal relationship between customer satisfaction, psychological

presupposition and service quality on customer loyalty. In his research, it is clear that satisfaction is a mediator of service quality, and directly or indirectly impact loyalty.

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

2.7 Student Loyalty

Hennig-Thurau et al. (2001) defined loyalty as a one-dimensional structure that consists of perceived quality, impactive commitment and trust. Customer loyalty is a kind of commitment, which has been deeply rooted in the mind. Even if the influence of environment and marketing methods may make them change their behavior, they will still choose such products or services when they recombine or choose products or services again (Oliver, 1997). Student loyalty includes several aspects, such as giving a positive evaluation of their own university, recommending their courses to others, and taking it as the first choice for their future education (Dado et al., 2012).

According to the literature from Ganesh et al. (2000), they believed that loyalty is composed of behavior dimensions which are attitude loyalty, civic behavior, complaints, loyalty tendency and boycott to competitive bidding. Therefore, we can see that the types of loyalty may be different, and customers or students normally express their loyalty in many ways. Similarly, students' loyalty includes their attitudes and behaviors (Hennig-Thurau et al., 2001).

Student loyalty is not a short-time emotion. In some extent, loyalty of graduated students can be more critical than those studying in school, and it can be varied in universities, certain courses or other service aspects (Helgesen & Nettet, 2007). According to Rodie and Kleine (2000), loyal students are very active in participation and action, which has an impact on the teaching quality. Moreover, loyal students are likely to become good propagandists and actively recommend their schools to others.

3. Conceptual Framework

The conceptual framework of this paper is mainly composed of three previous theoretical frameworks. The first theoretical framework is conducted by Ali et al. (2016), mainly discussed about the relationship between Academic Aspects (AA) and Student Satisfaction (SS), and the relationship between Student Satisfaction (SS) and Student Loyalty (SL). The second theoretical framework is conducted by Kaur and Bhalla (2018), mainly discussed about the relationship between independent variables College Administration (CA), Placement Services (PS),

Infrastructure Facilities (IF)) and Student Satisfaction(SS). The third theoretical framework is conducted by Arif et al. (2013), mainly discussed about the relationship between Teachers and Teaching (TT) and Student Satisfaction(SS). Figure 1 shows the conceptual framework of this study, followed by all proposed hypotheses.

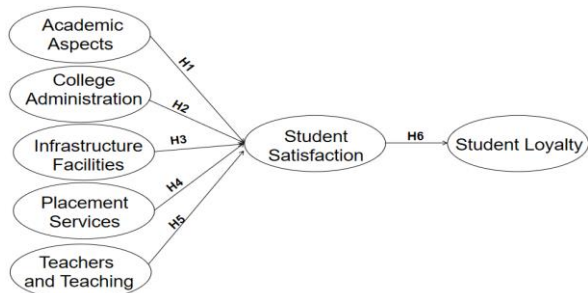


Figure 1: Conceptual Framework
Source: Created by the author.

- H1:** Academic aspects have a significant impact on student satisfaction.
- H2:** College administration has a significant impact on student satisfaction.
- H3:** Infrastructure facilities have a significant impact on student satisfaction.
- H4:** Placement services have a significant impact on student satisfaction.
- H5:** Teachers and teaching have a significant impact on student satisfaction.
- H6:** Student satisfaction has a significant impact on student loyalty.

4. Research Methods and Materials

4.1 Research Methodology

Nonprobability sampling was conducted which online and offline questionnaires were distributed to the students of three majors; Computer Science, English and Accounting, from two public universities in Zhejiang, China. The components of questionnaire are screening questions, measuring variable with the five-point Likert scale from strongly disagree (1) to strongly agree (5), and demographic information. Before the data collection, the item-objective congruence (IOC) index was initially examined. Four experts scored of each scale item, resulting all items were approved at a score 0.50 or above. Afterward, pilot test of 30 respondents were carried out. Cronbach's Alpha coefficient values were approved and ensured all constructs' reliability. The data were analyzed by SPSS and SPSS AMOS. Confirmatory factor analysis (CFA) was used to test

the validity and reliability of the results, and structural equation model (SEM) was used to verify the causal relationship between variables.

4.2 Population and Sample Size

The main target population of this paper is students of three majors; Computer Science, English and Accounting, from two public universities in Zhejiang, China. According to Tabachnick and Fidell (2007), the sample size was recommended to be at least 300. By setting the relevant factor parameters and the number of variables (Soper, 2020), through calculation, the minimum sample size was 425. In order to enhance effective measures, the researcher select 500 for sample size to achieve the research objectives.

4.3 Sampling Techniques

Nonprobability and probability samplings were used as sampling techniques. Firstly, purposive sampling was to select students of three majors; Computer Science, English and Accounting, from two public universities in Zhejiang, China. Secondly, stratified random sampling determines the quota of each major as shown in Table 1. Lastly, convenient sampling was executed by distributing questionnaire online method via universities' website and chat application, and offline via administration offices. Data have been collected between April to July 2022.

Table 1: Sample Units and Sample Size

Three Main Subjects	Population Size of Public university students	Proportional Sample Size
English	940	129
Accounting	1661	227
Computer science	1045	144
Total	3646	500

Source: Created by the author.

5. Results and Discussion

5.1 Demographic Information

The demographic results are shown in Table 2. There were 203 males and 297 females, accounting for 40.6% and 59.4% respectively. The majority of students were 20-21 years old of 50.4%, whereas the least group was 24-25 years old of 2.2%. For year of study, most participants were freshmen of 42%, and seniors were the smallest group of 6.4%. Among them, most participants quite understand the educational system, accounting for 35.8%, and only 12% is unclear. In the field of concern, 25.8% of participants concerned placement services, while 2.4% had no concern.

Table 2: Demographic Profile

Demographic and General Data (N=500)		Frequency	%
Gender	Male	203	40.6%
	Female	297	59.4%
Age	18-19 years old	41	8.2%
	20-21 years old	252	50.4%
	22-23 years old	196	39.2%
	24-25 years old	11	2.2%
Year of Study	Freshman	210	42%
	Sophomore	155	31%
	Junior	103	20.6%
	Senior	32	6.4%
Understanding of education system	Unclear	63	12.6%
	Little	175	35.0%
	Quite	179	35.8%
	Clear	83	16.6%
Areas of concern	Academic aspects	93	18.6%
	Placement services	129	25.8%
	Administration system	22	4.4%
	Teachers and teaching	93	18.6%
	Infrastructure facilities	124	24.8%

Others	22	4.4%
Not concerned	17	3.4%

Source: Created by the author.

5.2 Confirmatory Factor Analysis (CFA)

Bollen (1989) pointed out that CFA is mainly used to detect whether the items in the conceptual model are effective or acceptable. As of Table 3, factor loadings are greater than 0.5, and the p-value is less than 0.05. Furthermore, Cronbach's Alpha coefficient values are over 0.7 or above, composite reliability is greater than 0.7, and the average variance extracted is greater than 0.5 (Fornell & Larcker, 1981). In this study, goodness of fit indices was examined in the criteria of CMIN/df, GFI, AGFI, NFI, CFI, TLI and RMSEA. All results measurement model were approved as shown in Table 4.

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
Academic Aspects (AA)	Kaur and Bhalla (2018)	6	0.920	0.723-0.883	0.920	0.659
College Administration (CA)	Kaur and Bhalla (2018)	4	0.935	0.858-0.922	0.935	0.784
Infrastructure Facilities (IF)	Kaur and Bhalla (2018)	7	0.958	0.805-0.922	0.958	0.764
Placement Services (PS)	Kaur and Bhalla (2018)	4	0.922	0.818-0.923	0.923	0.751
Teachers and Teaching (TT)	Arif et al. (2013)	6	0.916	0.772-0.843	0.916	0.646
Student Satisfaction (SS)	Ali et al. (2016)	5	0.966	0.882-0.950	0.966	0.849
Student Loyalty (SL)	Ali et al. (2016)	3	0.958	0.927-0.956	0.958	0.884

Source: Created by the author.

Table 4: Goodness of Fit for Measurement Model

Fit Index	Acceptable Criteria	Statistical Values
CMIN/df	< 5.00 (Al-Mamary & Shamsuddin, 2015; Awang, 2012)	1178.897/539 or 2.187
GFI	≥ 0.85 (Sica & Ghisi, 2007)	0.876
AGFI	≥ 0.80 (Sica & Ghisi, 2007)	0.855
NFI	≥ 0.80 (Wu & Wang, 2006)	0.932
CFI	≥ 0.80 (Bentler, 1990)	0.962
TLI	≥ 0.80 (Sharma et al., 2005)	0.958
RMSEA	< 0.08 (Pedroso et al., 2016)	0.049
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 = normalized fit index, IFI = Incremental Fit Indices, CFI = comparative fit index, TLI = Tucker Lewis index, and RMSEA = root mean square error of approximation

Source: Created by the author

Fornell and Larcker (1981) pointed out that if the square root of the average variance extracted is larger than the coefficient of other related structures, the discriminant validity is acceptable. As shown in Table 5, all results of this

study confirm to discriminant validity and convergence validity.

Table 5: Discriminant Validity

Variable	AA	CA	IF	PS	TT	SS	SL
AA	0.812						
CA	0.264	0.885					
IF	0.255	0.328	0.874				
PS	0.227	0.279	0.268	0.867			
TT	0.034	0.031	0.009	0.018	0.804		
SS	0.552	0.476	0.524	0.401	0.020	0.921	
SL	0.170	0.242	0.120	0.262	0.038	0.329	0.940

Source: Created by the author.

5.4 Structural Equation Model (SEM)

According to Watjatrakul (2013), SEM was mainly used to analyze the influence relationship between test variables in a structural model, so as to ensure the reliability and validity of data. As shown in Table 6, CMIN/df, GFI, AGFI, NFI, CFI, TLI and RMSEA are in harmony with empirical data, representing acceptable fit.

Table 6: Goodness of Fit for Structural Model

Fit Index	Acceptable Criteria	Statistical Values
CMIN/df	< 5.00 (Al-Mamary & Shamsuddin, 2015; Awang, 2012)	1379.768/554 or 2.491
GFI	≥ 0.85 (Sica & Ghisi, 2007)	0.856
AGFI	≥ 0.80 (Sica & Ghisi, 2007)	0.836
NFI	≥ 0.80 (Wu & Wang, 2006)	0.920
CFI	≥ 0.80 (Bentler, 1990)	0.951
TLI	≥ 0.80 (Sharma et al., 2005)	0.947
RMSEA	< 0.08 (Pedroso et al., 2016)	0.055
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 = normalized fit index, IFI = Incremental Fit Indices, CFI = comparative fit index, TLI = Tucker Lewis index, and RMSEA = root mean square error of approximation

Source: Created by the author

5.5 Research Hypothesis Testing Result

The research model in this paper mainly calculates the significance relationship of their variables through standardized regression weight and R^2 variance. When the significance $p < 0.05$, it is considered to be significant. According to the results in Table 7, five of the six hypotheses are significant.

Table 7: Hypothesis Results of the Structural Equation Modeling

Hypothesis	(β)	t-value	Result
H1: AA→SS	0.450	10.492*	Supported
H2: CA→SS	0.275	7.335*	Supported
H3: IF→SS	0.365	9.527*	Supported
H4: PS→SS	0.208	5.583*	Supported
H5: TT→SS	0.028	0.765	Not Supported
H6: SS→SL	0.308	6.748*	Supported

Note: * $p < 0.05$

Source: Created by the author.

The results in Table 6 can be further refined:

H1 shows that academic aspect significantly impacted student satisfaction with standardized coefficient value of 0.450. Lizzio et al. (2002) confirmed that good academic aspects such as teaching quality, facilities and academic services can strengthen students' learning ability and academic achievement, which in turns, students are satisfied.

H2 confirms that college administration has a significant impact on student satisfaction with standardized coefficient value of 0.275. According to Nadiri et al. (2009), administrative institutions have a significant impact on student satisfaction. College administration can be perceived as service quality and academic management that can promote students' impression and satisfaction of their

belonging with the university.

H3 reveals that infrastructure facilities are antecedents of student satisfaction with standardized coefficient value of 0.365. Yusoff et al. (2015) concluded that university facilities have a positive impact on student satisfaction. In this context, the improvement of infrastructure can enhance students' favorable feeling and satisfaction towards their study life.

H4 affirms that the relationship between placement services and student satisfaction is supported with standardized coefficient value of 0.208. Gruber et al. (2010) stated that the impact of placement services on students' satisfaction is positive and significant. Apart from students' leaning achievement, they pursue to be a competent talent and to be employed in the future. Thus, placement services can greatly impact their satisfaction.

H5 presents that the relationship between teachers and teaching and students' satisfaction is not supported with standardized coefficient value of 0.028. The results were contradicted with previous literatures (Appleton-Knapp & Krentler, 2006; Douglas et al., 2008; Wiers Jensen et al., 2002). It can be assumed that student satisfaction could perceived teachers and teaching differently.

H6 demonstrates that student satisfaction directly impacts student loyalty with standardized coefficient value of 0.308. According to Chaudhuri and Holbrook (2001), satisfied students are more likely to be loyal and potentially resume and recommend other people to enroll for the future education.

6. Conclusions and Recommendation

6.1 Conclusion

This paper achieves to ascertain the antecedents of student satisfaction and student loyalty in public universities in Zhejiang, China. The results established academic aspects, college administration, infrastructure facilities, placement services have a significant impact on student satisfaction. Student satisfaction has a significant impact on student loyalty. On the other hand, the relationship between teachers and teaching, and student satisfaction was disapproved. The findings can be implied theoretically and practically. Academic aspects have the strongest impact on student satisfaction (Eccles & Wigfield, 2002; Lent et al., 2007; Ojeda et al., 2011) It can be extended that academic aspects such as curriculum, teaching quality, facilities, and school social life can enhance students' satisfaction. Infrastructure facilities, college administration and placement services were found to have an impact on student satisfaction. These results pointed out that good academic environment and comfortable infrastructure, high quality of administration and efficient placement services are what students evaluate

their satisfaction as these bodies can enhance their quality of study life and open career opportunity for them after the graduation. Thus, universities could ensure student satisfaction by emphasizing these major effects (Gruber et al., 2010). More importantly, this study revealed that students' overall satisfaction greatly affects student loyalty. Satisfied students are more likely to introduce and recommend their universities to others, and are more likely contribute to other social activities or resume for their future degree. On the contrary, the relationship between teachers and teaching and students' satisfaction is not supported. The reason could be that, in higher education, a student meet and experience a vast number of teachers, and each of them has different teaching style. One faculty teaches a specific subject per a semester, and move to next student batch in the following semester. Therefore, a student can only meet a teacher in only one semester period, so they think their satisfaction is not relevant to teachers and teaching.

6.2 Recommendation

In this study, academic aspects, infrastructure facilities, college administration, and placement services have a significant impact on student satisfaction and loyalty. Therefore, strengthening academic management can create a good academic atmosphere for students, so as to improve students' academic ability and career opportunities. The improvement of infrastructure of universities can provide students with a good life and study's environment. Which enhance students' sense of pleasure and wonderful experience (Yusoff et al., 2015). The administrators of the university should improve the student management policy, establishing a high standard education management system, and pay more attention to the develop services according to the needs of students (Nadiri et al., 2009). Additionally, educators should pay attention to the requirements of students in all aspects and solve students' problems. To promote student satisfaction, it is suggested to improve the placement service system, and offer placement guidance according to their career interest. Universities are recommended to focus on enabling students to provide feedback through satisfaction service with the embossment of academic aspects, college administration, infrastructure facilities, placement services, and teachers and teaching to measure the level of student satisfaction and student loyalty.

6.3 Limitation and Further Study

This study has some limitations. First of all, this study investigates students from only two public universities in Zhejiang Province. Therefore, the future study should extend the coverage in more universities or other type such as private university. Furthermore, researchers can further explore students in different regions. Next, this study only

considers the several influencing factors of student satisfaction and loyalty in the conceptual framework, which could be extended to have more variables, such as curriculums, university activities, location, brand image and so on. Finally, quantitative study can partially serve the significance in the statistical point of view. Hence, qualitative study should be added in order to compare results and produce better implications and recommendations.

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