The impact of loyalty on the student satisfaction in higher education

A structural equation modeling analysis

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Abstract

Purpose – The purpose of this paper is to examine whether the image of the university, environment, facilities, student expectations, internationalization, services, financial support and perceived value have direct effect on the satisfaction and loyalty of the students of social sciences at Meijo (Private) University, Japan.

Design/methodology/approach – To analyze the data, a confirmatory factor analysis was applied where it explored the associations between items and constructs and, then, utilized structural equation model (SEM) to investigate the relationships existing between constructs with the application of the R program. A structured questionnaire comprising of 52 questions were used with 10 constructs. A total of 257 students from Meijo (private) university filled in the newly developed questionnaires using seven items Likert scales.

Findings – The study reveals a valuable insight on student satisfaction and loyalty toward the university. According to the findings, satisfaction has a positive direct impact from services and financial support provided by the university. And also loyalty has a positive strong impact on student satisfaction. On the contrary, satisfaction reveals a positive strong direct impact on loyalty too. Furthermore, there is an indirect impact of image, services and perceived value on loyalty. All the goodness of fit indices are at acceptable levels. Thus, the satisfaction of students seems to reflect quite well from the above construct, image, services, financial support and perceived values.

Research limitations/implications – This study collected data from two faculties, Faculty of Business Management and Faculty of Economics. The results of this finding cannot be generalized to the entire Meijo university student as a whole.

Originality/value – This study successfully applied an SEM to identify the relationship among constructs. Thus, this research has hopefully opened up avenues for other researchers to carry out such behavioral studies with larger sample sizes by applying R program with SEM analysis.

Keywords Japan, Satisfaction, Loyalty, SEM analysis, Social science students

Paper type Research paper

Introduction

The higher education sector has evolved recently due to new trends such as the increasing competition among the universities, internalization of education, growth of quality standards and also students becoming more demanding. In line with this context, the universities need to re-evaluate their strategies and gain a marketing orientation in order to survive in the market. Thus, higher education sector is moving into more competitive market structures that threaten the survival of some of the existing institutions. At the same

time, globalization and digital revolution has generated a demand for new and wide-ranging disciplines in education. The huge increase in the number of institutions in higher education has led to an intense competition. In this competitive environment, only those institutions can perform well which provides quality education, constructive environment and facilities to their students, as these factors can act as stimulus for students to select the university. Meanwhile, such factors can have an impact on students' satisfaction in their institutions and can affect their decisions to attend the university.

Recent higher education policy in Japan

Japan faces a diminishing and an aging population with fewer college entrants and limited natural resources. It is a widely accepted view that Japan must improve its workforce quality, productivity, and increase innovation to remain competitive (Ministry of Education, Culture, Sports, Science and Technology, 2014b). Therefore, the Japanese government policy makers realized science and technology-driven innovation as a key factor to achieve higher productivity. The government policy on education has placed priority on significantly increasing the number of incoming and outgoing international students and developing the competitiveness of universities at the international level. According to Ministry of Education, Culture, Sports, Science and Technology (2014a), target was to double the number of Japanese students studying abroad and the number foreign students studying in Japan by 2020.

Japan Student Services Organization (2016) reported that new internationalization policy has facilitated Japan to gain a new total of 152,062 international student enrollments in higher education in 2015, up from 121,012 in 2005.

Thus, Yamada (2017) pointed out that policy makers have to formulate new policies to increase internationalization of faculties, students, and program requirements to facilitate the development of students with global competencies, such as foreign languages and intercultural communication skills. Still, it is a major challenge due to the act that young Japanese have become increasingly wary of international ambitions and is more often content to limit themselves to a domestic environment, both in academics and the workplace. Sanno Institute of Management in a new survey of graduates showed that 58.7 percent of respondents did not like to work abroad in 2013, compared to 28.7 percent in 2004 (as cited by Yonezawa, 2014). Addressing these issues, education policy in Japan is placing high priorities on foreign language ability for Japanese students. Recent literature suggested that satisfied students are more likely to continue their education until graduation and also recommend the university to their relatives and friends. Thus, student satisfaction, which affects new students' enrollment and also the current student retention level, is an important matter for higher education organizations in considering seriously attracting students (Schertzer and Schertzer, 2004).

Within this context, the knowing the institutional and other related factors which can influence a potential student to choose one university over another are important to the university administrators. Furthermore, to increase enrollments and attract more students to the institution, it is important to identify these factors. Meantime, it is important for administrators to adopt a right market orientation strategy to differentiate their services from the others and to determine the long-term effective enrollment practices in their institutions. Therefore, the perception of student satisfaction and loyalty are attracting more attention, especially due to the increasing threat of global competition among the educational institutions. In this situation, a key motivation for the growing emphasis in research on student satisfaction is that higher student satisfaction and/or loyalty can have an impact on a stronger competitive position. The lack of studies on students' satisfaction and loyalty in Japan is the primary motivating factor behind this study.

The main objective of this paper is to examine how student loyalty is affected by student satisfaction. Meanwhile, secondary objectives are to investigate how student satisfaction is

affected by the perceived value, image of the university and services provided by the university. The alternatives of the proposed model are tested through Structural Equation Modeling (SEM) approach using R Studio.

What is R

R is a free, open-source software and programming language developed in 1995 at the University of Auckland as an environment for statistical computing and graphics (Ihaka and Gentleman, 1996). Before we start using R, we have to create a working directory. A working directory is the location where all our data files are saved. This directory works as the default location for the input and output data files working with R. Once we create our directory, we can import data from "csv" file. First command for importing data into R is $< -$ read.csv (). This command is followed by the file name and some additional comments to read the file. Thereafter, we have to write the commands as our requirements to continue the analysis. For example, if we want to calculate correlation matrix, simple command is $r < -$ cor(q) and to get correlation plot, we can use the following command, corrplot(r). This software is user friendly and more flexible. Thus, this study is employed this free software package to achieve the research objectives.

The study was conducted among the undergraduate students studying at Meijo University which is one of the main private universities in Nagoya, Japan. The population of this study comprised of undergraduate students enrolled in the field of social science in Meijo University which is located in a major urban area of Japan, Nagoya.

The paper is organized as follows. The next part presents the literature review and research model. This is followed by a discussion on the research methodology. Finally, the results are presented and implications are discussed.

Literature review and the proposed model

The success of the organizations such as manufacturing or service providers, profit or non-profit and governmental or non-governmental is determined by a number of factors. Customer satisfaction can be considered as one of the most important factors among them. At present, achieving higher level of customer satisfaction is one of the main concerns of quality management systems in an organization. In recent years, due to increased competition of Higher Education sector, higher education institutions are giving more attention on factors such as student satisfaction. Even though, several studies have observed customer satisfaction and loyally as important in achieving the success of the organization, one might hesitate to call students as "customers" in the education sector because of the student–teacher relationship. The important fact is that without students, there would be no need for educational institutions, hence, understanding of relationship between student satisfaction, and loyalty will help universities to formulate strategies for operational excellence. The universities in the higher education sector are one of the most important service fields in any country which play a unique role in the society. Therefore, it is vital for service organizations to have a proper understanding of the determinants of consumer's satisfaction as to have a really high monetary value. Several studies have been carried out to measure the student satisfaction at university level around the world. Those studies have pointed out that different factors can potentially affect the student's satisfaction.

Image, loyalty and perceived value

Brown and Mazzarol (2009) have examined the importance of institutional image to student satisfaction and loyalty in Australian universities. Results revealed that student loyalty was predicted by student satisfaction, which was, in turn, predicted by the perceived image

of the university. In addition, they found that the perceived quality has an impact on the perceived value. Among these variables, the most important impact was derived from image, which strongly projected the perceived value but at the same time a weak relationship with student satisfaction. Eskildsen *et al.* (1999) found that the variable image has strong influenced on student' loyalty in higher education.

Temizer and Turkyilmaz (2012) developed a Student Satisfaction Index model for the Higher Educational Institutes (HEIs) to test the satisfaction of students from different aspects, such as image of the university, expectations, perceived quality, perceived value and loyalty.

The results revealed that there is a significant strong impact on satisfaction from perceived quality and image. The student expectations have the lowest and insignificant effect on satisfaction. Image and student satisfaction were the independent latent variables of loyalty. They showed that both variables have a significant relationship with loyalty in the model.

Thomas (2011) studied how student loyalty is affected by student satisfaction and reputation, in leading universities in South India. The data were collected from 243 students undergoing post graduate programs in arts, commerce, science, and engineering by using a questionnaire. The results confirmed that there is a strong positive correlation between satisfaction and loyalty. This implies that the student satisfaction is a major driver of student's loyalty.

Alves and Raposo (2006) identified the factors that influence student satisfaction in higher education in Portuguese state universities. They found that the variable image is the one which has the most influence on students' satisfaction. Again, the results confirmed that image has a direct significant influence on students' loyalty as well. Furthermore, the findings revealed that student satisfaction in higher education is influenced by its perceived value. The influence of the variable perceived value is indicated as one of the greatest important factors after the influence of image.

Shahsavar and Sudzina (2017) examined the role of different drivers of student satisfaction and loyalty using the European Performance Satisfaction Index (EPSI) methodology in the higher education market place. They especially have investigated the influence of university's image on student's expectations. The results of this study confirmed that there are significant indirect effects of university's image on students' satisfaction and the perceived value via students' expectations in Danish universities. Furthermore, based on the EPSI model, university's image, students' expectation, perceived value, perceived quality of software and perceived quality of hardware are assumed to have direct and indirect impacts on satisfaction and loyalty.

Facility and financial support

Najib *et al.* (2011) examined the resident satisfaction level with student housing facilities in Malaysia. The findings of the study revealed that the level of student satisfaction with living accommodations as one of the most important factors of leading universities in Malaysia.

Abu Hasan *et al.* (2008) investigated the relationship between service quality and students' satisfaction at Kuala Lumpur Infrastructure University College and Kolej Universitiy Teknologidan Pengurusan Malaysia. They found that service quality has a significant positive relationship with student satisfaction. Thus, they suggested by improving service quality it may potentially improve the students' satisfaction.

For many institutions, facilities provided to the students are perceived as an important influence on students' choice. Price *et al.* (2003) examined the impact of facilities on student choice of universities in the UK. They found that facilities make a significant influence on undergraduate students' choice of a university.

Evelyn (2016) examined the critical factors considered by students when deciding to enroll in private higher education institutions and their choice. The researcher has used a

case study approach and draws data from all the six private higher education institutions in Zimbabwe. The findings indicated that six factors influenced student choice of higher education institutions in Zimbabwe. Access and opportunity; promotional information and marketing; influence by others; quality of teaching and learning; fees and cost structure; and finally academic reputation and recognition are considered as the most influential factors.

Jiewanto *et al.* (2012) examined the influence of Service Quality (SERVQUAL) to word of mouth (WOM) intention mediated by student satisfaction and university image. They used a case study approach and administered a questionnaire among 140 students to identify the relationship between the variables simultaneously. The results revealed that SERVQUAL had a positive significant impact on the student satisfaction and university image, and then, it impacted the positive WOM intention.

Chandra *et al.* (2018) examined the relationship between service quality and student satisfaction, service quality with student loyalty, and student satisfaction with student loyalty in universities in Riau Province in Indonesia. The findings indicated that there is a positive influence of service quality on student satisfaction and a positive influence of student satisfaction on student loyalty. Furthermore, they found that there was no significant impact from student quality on student loyalty.

Duarte *et al.* (2012) investigated the factors that influence students' satisfaction with higher education services in Portugal. They found a positive relationship between service quality and student satisfaction. Similarly, they observed that there is a strong relationship between student satisfaction and student loyalty.

Fares *et al.* (2013) examined the effect of student satisfaction, service quality, and university reputation on customer loyalty in the International Islamic University Malaysia. The result showed that all independent variables have significant and strong positive impact on student loyalty.

Other antecedents of student satisfaction

Nguyen *et al.* (2005) studied students' perception on employment attributes and its implications for university education in Japan. Parallel to this study, they examined the satisfaction level of their course, job opportunities and sources of personal qualities. The results showed that students' dissatisfaction was revealed with their personal traits in terms of taking initiative, having flexibility and in demonstrating an entrepreneurial mind.

Bray *et al.* (2008) examined predictors of learning satisfaction in Japanese online distance learners. Distance learners satisfaction was evaluated by using five aspects, such as teacher interaction, content interaction, student interaction, computer interaction and student autonomy. The results revealed that students were mostly satisfied with their distance learning and satisfaction was higher for students who could persevere in the face of distance learning challenges.

Tamaoka *et al.* (2003) studied the satisfaction of international students in Japanese Universities. They used ten variables to forecast the satisfaction of international students and found five significant variables in predicating the satisfaction. Ten variables included suitability of curriculum, progress of research, having a good friend, cultural adaptation and part-time work. Among these, the suitability of the curriculum was the most significant predictor of satisfaction.

Based on this literature on the student satisfaction and loyalty, we can see that satisfaction and loyalty are very important whether it is in services, in general, or especially in higher education. The findings of various studies about customer satisfaction and loyalty in education sector found different relationships in different directions. Thus, this study intends to test a conceptual model with more constructs of the student satisfaction and loyalty in higher education by using different directions. The model assumes, the dependent variable as student loyalty and it has one independent variable, student satisfaction.

The model also checks for the indirect impact of the perceived value on loyalty through the mediating variable called student satisfaction. The proposed conceptual framework is presented as follows.

The other intention of this study is to find out whether or not the difference in two students attributes such as gender and accommodation affects their satisfaction level or loyalty level. The following hypotheses were made to check the relationship between single student attribute with their satisfaction level and loyalty level.

Hypothesis of the study

H1. There will be no statistically significant difference between genders of the students' and satisfaction level and loyalty level.

H2. There will be no statistically significant difference between accommodation and the students' satisfaction level and loyalty level.

Student satisfaction is caused by different factors, such as image of the university, perceived value, environment of the university (e.g. location, new and clean) available facilities (e.g. parking, class room, athletic, cafeteria, elevators, etc.), perceived value, opportunities of internationalization (exchange program, language learning support), services provided by the academic and administrative staff (administrative matters, academic matters and searching job opportunities) and financial support. Each factor in the model is a latent construct which is operationalized by multiple indicators. It is expected that students' expectations and student satisfaction should have an impact on student loyalty.

In this study reputation of the university (e.g. Nobel prize winners), reliability and trustworthiness, contribution to the society, leading position among the society, being a place of active and new thinking have been considered to measure university's image.

To measure expectation construct, the following were taken into consideration: what students expect from the structure of the programs and the range of updated courses offered, the internship facilities, career education and content of the lectures have been considered in this study.

Fernández and Bonillo (2006) described that students' perceived value as the overall assessment of utilizing the service according to their perception of what is received instead of what is given. In addition, the likelihood of accomplish objectives that students pursue during student life at the university also reflects the value of education. The price pay for the university to gain benefits such as the quality of service, education and facilities are the elements used in this study to measure their perceived value.

To measure students' loyalty construct, the study used proud of being a student at the university, student's choice for further and supplementary programs after graduation and recommending their university to others. Student satisfaction indicates how much students are satisfied as a student of the faculty and the university and how well their expectations and career goals are met. This construct evaluates overall satisfaction level of students.

Sample and methodology

A structured questionnaire, developed to measure the manifest variables, was prepared in Japanese language, and the first draft was distributed among 30 students to ensure that the wording, format, and sequencing of questions were appropriate. The final questionnaire contained 52 questions, 42 of that pertaining to the proposed conceptual framework, five were for demographics and other five were for the purpose of cross checking the reliability of the responses. The questions about satisfaction and loyalty were placed at the end of the questionnaire. A seven-point Likert scale was used where 1 expresses highly satisfied and 7

expresses highly dissatisfied. Five point scales, seven point scales or ten point scales are all comparable for analytical tools such as confirmatory factor analysis (CFA) and SEM.

This model contains a number of latent variables and mediating variables; thus, SEM is considered as an appropriate technique for the analysis. We used R version 3.5.1 and Latent Variable Model (lavaan' version 0.6-3). Surveys were conducted to randomly choose recent undergraduate students from the field of Social Sciences at the Meijo (private) university in Nagoya, Japan, in October, 2018.

Meijo University was selected as the context of this study for a number of reasons. It has an over 90 years of history that can be traced back to the establishment of the Nagoya Science and Technology Course in 1926. It is a comprehensive learning institution that supports a wide range of academic fields from humanities to physical sciences. It was established as a university in 1949 and it is one of the largest universities in the Chubu region of Central Japan. It has nine faculties and 23 academic departments including the Faculty of Science and Technology. Meijo University is home to large numbers of outstanding researchers who continually announce leading-edge breakthroughs in fields of research and education. It currently enrolls about 15,000 internal undergraduate students. Approximately, 20 percent students belong to the Faculty of Business Management and Faculty of Economics. Based on this background information, we decided to select respondents from the above two faculties at Meijo University.

A total of 257 students responded to the questionnaire of which 216 responded to all the questions relevant for this study. In total, 41 cases were removed from the original data base because of the data outlier.

Table I shows the profile of respondents by gender, year of study, current residence, faculty and the time spend to come to the university. The Student Satisfaction and loyalty of Meijo University were based on survey data gathered from students attending two faculties, faculty of Business Management and Faculty of Economics. Gender distribution of the sample was 65 percent (140) males and 35 percent (76) females. The sample was composed of 70 percent Business Management undergraduates and 30 percent Economics undergraduates.

In Table II, we present an overview of the validity and reliability of the variables: image, environment, facility, expectations, internationalization, service, financial support, perceived value, satisfaction and loyalty based on the Cronbach's α value. All constructs were pre-tested and found to be valid and reliable. The Cronbach's α for these variables was greater than 0.7 the threshold suggested by Nunnally (1978).

Analysis and results

In general, researchers do not know in advance how many latent variables to specify when performing a factor analysis. There are several ways to identify a good number of latent variables. One of the simplest ways is to look at the Sum of Squared (SS) loading values and use the rule of thumb where if a value is greater than 1.0, then the factor is significant. In our

Gender	Male	Female			
	140	76			
Year of study	1	2	3	4	
	65	102	42	7	
Residence	Own house	Private place			
	154	62			
Faculty	Business management	Economics	Law	Others	
	148	64	1	3	
Time spend to arrive	< 30 min	30–60 min	60–90 min	90–120 min	> 120 min
	68	41	59	34	14

Table I.
Respondents' profile

Construct	Cronbach's α	No. of items
Image	0.930	6
Environment	0.707	4
Facility	0.849	5
Expectations	0.905	7
Internationalization	0.844	4
Service	0.915	4
Financial support	0.820	3
Perceived value	0.944	3
Satisfaction	0.898	3
Loyalty	0.861	3

Table II.
Reliability statistics

study, all are greater than 1. Cumulative Variance tells us the cumulative proportion of variance explained, so these numbers range from 0 to 1. In our model of 0.64 seems moderate level. The results are presented in Table III.

The proposed model used 42 items comprising the ten constructs which were subjected to the CFA with the 216 input. It allows testing the hypothesis to find a relationship between observed variables and their underlying latent constructs exists. In this study, several indicators designated to the image, loyalty, service and financial support constructs were dropped out to improve the quality of the research model after validity and reliability tests on different models. The indicators remained in the research model were included for further analysis. After testing various models, we reached to finalize the model 1 and 2, which are provided higher goodness-of-fit measures in this study.

Descriptive statistics

The arithmetic means of the respondents' answers for each criterion are presented in Table IV below. There were 42 criterions under the ten constructs. The mean value for each service item ranges from the minimum value 3.69 to maximum value 4.82.

The CFA was analyzed by R version 3.5.1. The results of the overall fit statistics are reported in Table V for two models which were used based on the literature.

An analysis of the goodness-of-fit measures presented in Table V shows that nearly all the measures present a satisfactory level of acceptability and that the model explains about 90 percent data variance (value of goodness of fit indices).

Loyalty and satisfaction models

Shahsavar and Sudzina (2017) examined the student satisfaction and loyalty at Danish universities in Denmark by applying the EPSI. They measured the strength of determinants of students' satisfaction and the importance of antecedents in students' satisfaction and loyalty. The findings show the significance of antecedents in students' satisfaction and loyalty at Danish universities; the university image and student satisfaction are the antecedents of student loyalty with a significant direct effect, meantime perceived value, quality of hardware, quality of software, expectations and university image. Based on these findings, we applied model 1 (Loyalty model) into this study.

Factor	1	2	3	4	5	6	7	8	9
SS loadings	6.898	4.344	4.068	3.532	2.636	1.933	1.778	1.76	1.211
Cumulative variance	0.157	0.255	0.348	0.428	0.488	0.532	0.572	0.61	0.64

Table III.
Factor loadings

Construct	Indicator	Mean	SD
Image	q1	4.61	0.106
	q2	4.80	0.118
	q3	4.54	0.104
	q4	4.48	0.095
	q5	4.17	0.087
	q6	4.54	0.096
	q7	4.81	0.126
	q8	3.69	0.104
Environment	q9	4.03	0.108
	q10	4.82	0.127
Facility	q11	3.78	0.097
	q12	4.64	0.114
	q13	4.40	0.114
	q14	4.47	0.112
	q15	4.69	0.125

Construct	Indicator	Mean	SD
Expectations	q16	4.38	0.098
	q17	4.26	0.094
	q18	4.31	0.095
	q19	4.43	0.093
	q20	4.41	0.092
	q21	4.84	0.120
	q22	4.11	0.101
Internationalization	q23	3.95	0.093
	q24	4.44	0.092
	q25	4.34	0.088
	q26	4.38	0.090
Service	q27	4.26	0.097
	q28	4.12	0.098
	q29	4.46	0.097
	q30	4.62	0.103

Construct	Indicator	Mean	SD
Financial support	q31	4.42	0.091
	q32	4.60	0.120
	q33	4.40	0.103
Perceived value	q34	4.26	0.097
	q35	4.27	0.095
	q36	4.47	0.100
Satisfaction	q37	4.44	0.110
	q38	4.43	0.111
	q39	4.17	0.096
Loyalty	q40	4.30	0.104
	q41	4.25	0.105
	q42	3.63	0.104

Gruber *et al.* (2010) investigated how students perceived the services offered by German university and how satisfied they were with these services. The results showed that students' satisfaction with their university was based on a relatively stable person–environment relationship. In this study students' satisfaction was considered as a dependent variable.

Alves and Raposo (2006) illustrated that the main antecedents of satisfaction as expectations, the university's image perceived by the student, quality perceived in both technical and functional aspects of the education service, as well as the perceived value. These influences can be direct or indirect through students' loyalty and WOM. The model illustrates loyalty and WOM actions as the main consequences of satisfaction.

The findings of these studies about student satisfaction and loyalty in education sector found different relationships in different directions. Therefore, this study applied both direction as indicated by Model 1 and Model 2.

Table VI and Figure 1 present results of the final model after removing the least significant indicators. From the table, it is possible to verify that all the indicators are statistically significant to a level of significance of 0.05. Thus, one can say that all the indicators are significantly related to their specific constructs. There is a significant positive and a direct effect on students' satisfaction from image, services and value with the regression coefficient values of 0.376, 0.294 and 0.376, respectively. Image and financial support have a significant positive direct effect on the perceived value. According to regression relationships for loyalty, student satisfaction (0.908) has a significant strong impact on loyalty. The results further confirm several findings of previous studies of student satisfaction (Fernandes *et al.*, 2013; Mark, 2013).

A particular attention was paid to student satisfaction construct as it is the ultimate factor in the model. Service, perceived value and loyalty are the independent latent variables of this constructs with the regression coefficient values of 0.175, 0.252 and 0.680, respectively (Table VII). From the results, it is evident that students are satisfied with higher education in Meijo University. As all the variables are significantly and positively related to students' satisfaction, it is concluded that loyalty and service have a direct impact on satisfaction. However, financial support and image have direct impact on the perceived value and indirect impact on the perceived value to satisfaction. Results of the model 2 are shown in Figure 2 (Figure 3).

Model	GFI	AGFI	CFI	TLI	RMSEA	SRMR	AIC	
Loyalty (1)	0.884	0.828	0.957	0.947	0.078	0.037	8,606.651	**Table V.** Fit measures for the
Satisfaction (2)	0.888	0.83	0.959	0.946	0.077	0.036	8,603.496	final models

Construct	Estimate	SE	z-value	P(> |z|)	Std.lv	Std.all	
Satisfaction							
Image	0.376	0.101	3.709	0.000	0.346	0.346	
Service	0.294	0.134	2.184	0.029	0.232	0.232	
Value	0.376	0.114	3.307	0.001	0.35	0.352	
Loyalty							
Satisfaction	0.908	0.053	17.220	0.000	0.914	0.914	
Perceived value							**Table VI.**
Image	0.197	0.069	2.848	0.004	0.194	0.194	Regression results
Financial support	0.914	0.093	9.805	0.000	0.720	0.720	(loyalty model (1))
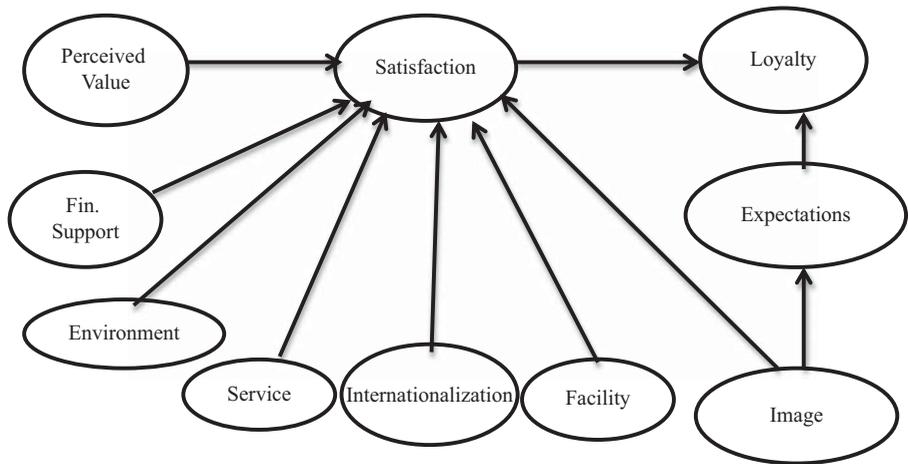
Figure 1.
Proposed conceptual
framework

Construct	Estimate	SE	z-value	P(> |z|)	Std.lv	Std.all
Satisfaction						
Service	0.175	0.064	2.721	0.007	0.140	0.140
Value	0.252	0.070	3.592	0.000	0.238	0.238
Loyalty	0.680	0.061	11.052	0.000	0.682	0.682
Perceived value						
Image	0.205	0.07	2.745	0.006	0.200	0.200
Fin	0.917	0.097	9.414	0.000	0.721	0.721

Table VII.
Regression results
(satisfaction model (2))
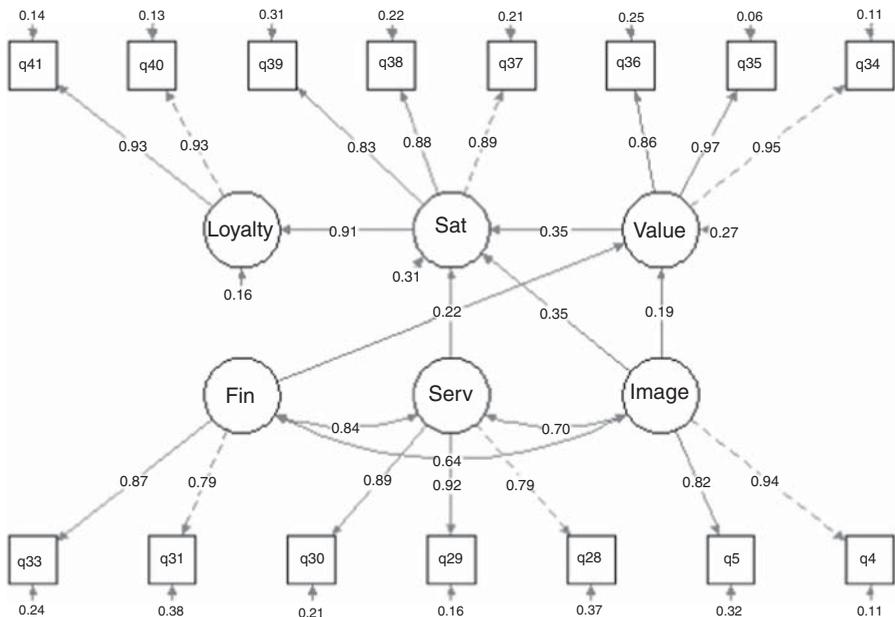
Figure 2.
Loyalty model (1):
latent variables
relationships
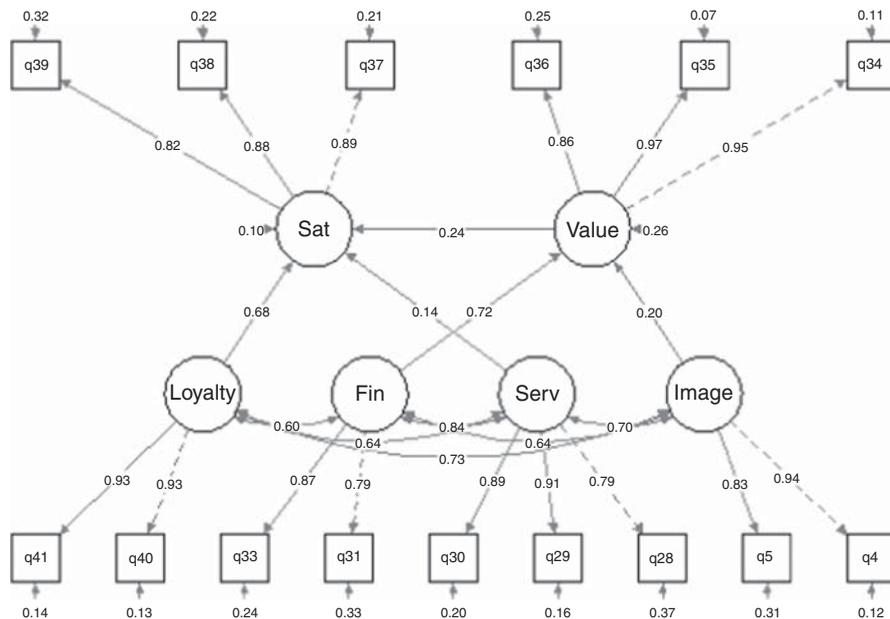
Figure 3.
Satisfaction model (2):
latent variables
relationships

Second, SEM was conducted on the overall satisfaction level with the treatment of student attributes, such as gender and accommodation. After analysis, it is seen that student attributes, gender and accommodation showed insignificant relationship. Lavaan summary of the goodness-of-fit measures (Table VIII) show that nearly all the measures present are not at the satisfactory level of acceptability.

Conclusion

The HEIs/the universities especially, face more competitive market structures and also have to provide services that fulfill students' requirements and expectations. These challenges have threatened the survival of some of the existing institutions. To confront these different challenges, HEIs use various strategies, such as providing financial support, improving facilities, affiliating with other institutions and industry. These will be important as these factors influence students' satisfaction. Thus, HEIs are motivated to spend more time and effort on the concept of student satisfaction and loyalty to succeed and survive in this context.

This study aimed to test the student satisfaction and loyalty by using SEM analysis in Meijo University, Japan. Student satisfaction was evaluated from different aspects, such as image of the university, environment, facility, expectations, internationalization, services, financial support, perceived value and loyalty of students. Student satisfaction is subjected to many factors, which combine together to influence the overall level of satisfaction.

Model	GFI	AGFI	RMSEA	SRMR	CFI	TLI	AIC
Loyalty	0.669	0.578	0.189	8.792	0.747	0.754	9,244.726
Satisfaction	0.676	0.587	0.189	8.788	0.749	0.752	9,241.749

Table VIII.
Fit measures for
the final models
of group analysis

The results of this study indicated that image, service and perceived value have a direct positive relationship to students' satisfaction (Model 1). Although service, image and perceived value have no direct effect on loyalty, those factors still show a positive indirect effect via student satisfaction to loyalty. Furthermore, image and financial support have a significant positive direct effect on the perceived value. According to regression relationships for loyalty model, student satisfaction has shown significant strong impact on loyalty. This result was consistent with the results of Temizer and Turkyilmaz (2012), Thomas (2011), Webb and Jagun (1997) and Eskildsen *et al.* (1999). Furthermore, Alves and Raposo (2006) pointed out that student's loyalty was the main consequence for student satisfaction.

The second model analyzed interrelationship between satisfaction and other constructs. The results revealed that the biggest direct impact on satisfaction was from loyalty followed by perceived value and afterwards services. Therefore, this result revealed that loyalty, services and perceived value have a positive direct relationship to student satisfaction. This corresponded to the studies done by Chandra *et al.* (2018). On the contrary, financial support and image have shown direct impact on perceived value and indirect impact through perceived value to satisfaction.

The results of the study provide valuable strategic information for the university academics and administrators about the affecting factors on student satisfaction and loyalty.

According to the results, for student satisfaction and loyalty, the administrators of the university should focus on the services and financial support they provide, image of the institution from the eyes of their students and the benefits they provide for the price paid for the university.

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