Applying SEM to ANalyze the RElationship between Loyalty, Trust, Satisfaction, and Quality

by Aswi Aswi

Submission date: 17-Jun-2021 10:39AM (UTC+0700)
Submission ID: 1607820593
File name: ionship_between_Loyalty,_Trust,_Satisfaction,_and_Quality....pdf (176.88K)
Word count: 3707
Character count: 19849

Proc. ICCS-13, Bogor, Indonesia
December 18-21, 2014, Vol. 27, pp. 393-402

APPLYING SEM TO ANALYZE THE RELATIONSHIP BETWEEN LOYALTY, TRUST, SATISFACTION, AND QUALITY OF SERVICE FOR STUDENTS IN MATHEMATICS STUDY PROGRAM, STATE UNIVERSITY OF MAKASSAR

Sukarna, Aswi and **Sahlan Sidjara**
Faculty of Mathematics and Science, State University of Makasssar, Indonesia
Email: karne74@gmail.com; aswikarne@yahoo.com

ABSTRACT

Generally, students of Mathematics Study Program at State University of Makassar (UNM) still have not received optimal services, such as, the services for Practical Work (PKL=Praktek Kerja Lapangan). However, the study program has been providing them with specialized services for PKL. Variables that included in this study were service quality, trust, satisfaction, and loyalty. Various empirical studies show that service quality has a positive influence on satisfaction, and the satisfaction has a potential in building loyalty. This study aimed at testing (confirmatory) the model of the relationship between service quality, trust, satisfaction, and loyalty experienced by the students of Mathematics Study Program at UNM by employing Structural Equation Modeling (SEM).

KEYWORDS

SEM, Service Quality, and Loyalty.

1. INTRODUCTION

The development of non educational study programs at the State University of Makassar as a former Teachers' Tra ining College still has not shown significant progress. For example, until now, there is no institution at the university specificly facilitates Practical Work (PKL=Praktek Kerja Lapangan).It is different from the educational study programs for which the university has established the Unit for Field Experience Implementation (UPPL = Unit Pelaksana Pengalaman Lapangan) to organise Field Teaching Practice. For non educational study programs, PKL is managed individually by the study program, respectively. Accordingly, Mathematics Study Program has made its own initiative in managing PKL. It has been providing students with services on PKL debriefing and location setting. With special provisions, they do not need to bother finding the location. It is one of the services provided by Mathematics Study Programfor the students.

As a service organization, the main mission of a higher education institution is providing an excellent service. Starting from the admission, orientation, and ongoing academic activities in the university until graduation, students exprience dynamic nature of service where there is no standardized services resulting in some discrepancy in the service quality for the students. Satisfactory service will positively influence behavioral consequences (Indahwati, 2008).Various empirical studies show that service quality has positive influence on satisfaction, and satisfaction has the potential to build loyalty.

Therefore, the quality of service and satisfaction were investigated in terms oftheircontribution to the building loyalty to the institution(Indahwati, 2008). Students' trust to higher education institutions also affect their loyalty. Once they trust the institution, students will depend themselves on the institution and be have strong commitment to the built relationship. Commitment will grow an intention to maintain the relationship, which is represented through the loyalty to the institution.Chaudhuri and Holbrook find that trust is the antecedent of loyalty (Indahwati, 2008). Therefore, the contribution of trust also be investigated.

In analyzing the effect of service quality on loyalty of students, Structural Equation Modeling (SEM) was utilized. SEM is a combination of factor analysis, path analysis, and regression analysis (Bollen, 1989; Santoso 2007; Tiro, 2010). SEM is not only used to measure the relationship between several independent variablesand the dependent variable, but it is also used to create a graphical modeling to allow users to read the output analysis and to estimate the SEM models.This studyconducted in Mathematics Study Program aimed to test and analyze (1) the effect of service quality on satisfaction; (2) the effect of service quality on trust; (3) the effect of satisfaction on trust; (4) the effect of satisfaction on loyalty; and (5) the effect of trust on loyalty.

2. LITERATURE REVIEW

2.1. Service Quality

One indicator of professional university management is the ability of an institution to provide quality public services. Parasuraman (Manurung, 2007) argues that the service is satisfyingif the quality of received service equals or exceeds that of the expected service. This means that there are two main factors affecting the quality of service, that is, expected service and perceived service. So the customer assessment of the quality of service depends on the capability of service providers.

According to Parasuraman (Indahwati, 2008), the quality of service has five dimensions:

a. Reliability. It is the ability of companies to provide services as promised fast, precisely, accurately, and reliably. Performance shall be in accordance with the expectations of customers.
b. Responsiveness. It can be described as a willingness to help and provide appropriate services for consumers.
c. Assurance. It is a dimension of quality of service that focuses on the ability to gain trust and belief of customers.
d. Empathy. It is the dimension of service quality that emphasizes on treating consumers with personal manner, including the ease in establishing relationships, good communication, personal attention and understanding of the needs of the individuals.
e. Physical evidence. It is the dimension of quality services that represents the physical facilities related to the ability of a company to demonstrate its existence to external parties.

Main benefits of using these five dimensions were proved empirically in a variety of research settings. However, the instrument requires adaptation, according to the context of the services under investigation (Bloemer, Ruyter & Wetzels, 1998).

2.2. Satisfaction

In general, customer satisfaction is determined by whether or not the customer's expectations are met. Customer satisfaction, according to Tjiptono (Manurung, 2007: 33), is an emotional response to the evaluation of the observation of a product or service consumption. Meanwhile, customer satisfaction as defined by Day (Manurung, 2007: 33) is the customer response to the evaluation of the discrepancy or disconfirmation perceived between prior expectations and actual performance of a product after being consumed.

This study used a conceptualization of satisfaction expressed by Oliver (1999: 34): "satisfaction is described as the fulfillment of pleasure which is the desire of consumers to meet the needs, desires, or as the fulfillment of pleasure."

2.3. Trust

Worchel (in Indahwati, 2008: 11) defines trust as an individual's willingness to rely on another party with certain risks. Trust is also defined as an individual's willingness to rely on another parties involved in the exchange because people have faith in others. These ideas emphasize the element of willingness and confidence in the trust. Morgan and Hunt (Indahwati, 2008: 12) argues that when one party has confidence that the other party involved can be trusted and has ability, it can be claimed that the trust exists.

2.4. Loyalty

Assael (1998: 130) defines loyalty as a good attitude towards a brand that generates loyalty from time to time. Meanwhile, Mowen and Minor (Indahwati 2008: 5) proposes a definition of loyalty as a condition in which consumers have a positive attitude towards a brand, a commitment to the brand, and an intention to continue purchasing in the future. Meanwhile, Boulding (Indahwati 2008: 6) suggests that the consumer brand loyalty is caused by the influence of satisfaction/dissatisfaction with the brand accumulated continuously in addition to their perception of the quality of the product. According to Zeithaml (Japarianto, 2007: 3), the ultimate objective of an organization is to establish a strong loyalty characterized by: saying positive things, recommending to friends, and continuing purchasing.

2.5. Conceptual Framework

In this research, service quality is the first construct. This construct is measured by using the dimensions developed by Parasuraman covering reliability, responsiveness, assurance, empathy, and physical evidence. The service quality influences satisfaction. If service quality received exceeds the expectation of the students, then the service quality will be perceived as an ideal quality service which eventually results in the students' satisfaction. However, if the quality of the received service is lower than the expected, then the service quality will be perceived as bad which lead to dissatisfaction.

The service quality affects trust. With good service quality, then the trust will develop to an institution. When a party has faith that other parties involved could be trusted and have capability, then the trust exists. Thus, the service quality directly influences the

satisfaction and trust, but does not directly influence the loyalty. With good service quality, the satisfaction or trust will grow and further will influence the loyalty.

The second construct is the satisfaction. It is defined as an emotional response to the evaluation of the observation of a product or service consumption. The satisfaction is measured according to two indicators developed by Oliver (1997: 34), namely, expectation and perception. Both constucts relate to the students' expectation to fulfil their needs and desires. Someone's satisfaction will affect their loyalty and improve their trust to an institution. It means that if someone feels the satisfaction to an institution, then they will be loyal to bound in honour to the institution. The satisfaction will be likely to improve the trust so that they will have good loyalty.

The third construct in this study is the trust. The level of the trust indicates the willingness of individuals to depend themselves on other parties involved in the instituion as they have faith to the parties. If faith exists, then the readiness will also exist. Conversly, if faith does not exist, then the readiness cannot be expected.

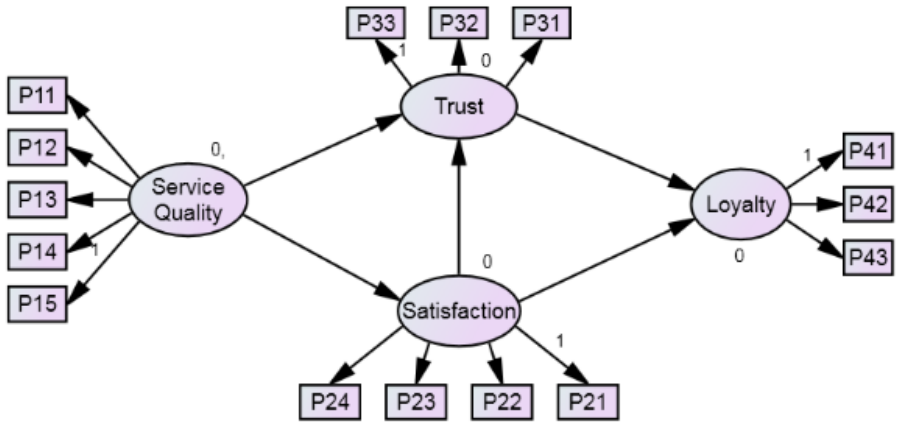
The fourth construct is the loyalty showing the final results of the achievement level attained by a hgiher education institution becuase of the service quality, satisfaction, and the students' trust. Loyalty is measured by using three indicators, namely, saying positive things, recommending to friends, and continuing purchasing.

2.6. Hypotheses

Several hypotheses are: (1) the quality of service significantly influences the students' satisfaction; (2) the quality of service has a significant effect on the students 'trust; (3) the students' satisfaction significantly affects the trust of the students; (4) the students' satisfaction has a significant effect on the loyalty of the students; and (5) the students' trust has a significant effect on the loyalty of the students.

3. METHODOLOGY

This research was conducted at Mathematics Study Program, Faculty of Mathematics and Natural Sciences, State university of Makassar. This study is a confirmatory study that explains the relevance of some of the variables that have been defined. The shape of the path tested is as follows:



The data in this study are primary data from respondents gathered by distributing questionnaires and trough Focus Group Discussion (FGD) for four variables involved, namely, the quality of service, trust, satisfaction, and loyalty. The population is all students of Mathematics Study Program. By using random cluster sample, students of Cohort 2012 and 2013 were selected.

3.1. Operational Definition of Variables

1. Quality of Service (X1) is the ability of Mathematics Study Program to provide quality service able to satisfy the students. Indicators related to the quality of service are as follows:
   a. Reliability (P11) is Mathematics Study Program's ability to provide services as promised fast, precisely, accurately, and reliably.
   b. Responsiveness (P12) is Mathematics Study Program's willingness to help and provide appropriate services for students.
   c. Assurance (P13) is Mathematics Study Program's ability to gain the trust and belief of the students.
   d. Empathy (P14) is Mathematics Study Program's ability to provide quality service emphasizing on the treating students with personal manner.
   e. Physical evidence (P15) is Mathematics Study Program's ability to demonstrate its existence to external parties.
2. Satisfaction (X2) is the result of student assessment to the overall services provided by the study program. Indicators related to the satisfaction are as follows:
   a. Satisfaction with lecturers (P21) is the feeling of being satisfied with the ability of lecturers to master of the lesson material.
   b. Satisfaction with assessment (P22) is the feeling of being satisfied with the scoring done objectively.
   c. Satisfaction with the quality of service (P23) is the feeling of being satisfied with the services provided by the study program.
   d. Satisfaction with the facilities available (P24) is the feeling of being satisfied with appropriate facilities in the study program.
3. Trust (X3) is the belief that Mathematics Study Program is reliable and has high integrity. Indicators related to the trust are as follows:
   a. Belief in intellectual abilities (P31) is the students' belief that they will be able to compete with students from other universities.
   b. Belief in the opportunity of being employed (P32) is the belief of the students that they will have a job after graduation.
   c. The belief in the reliability of Mathematics Study Program (P33) is the belief of the students that Mathematics Study Program is reliable in providing good services.
4. Loyalty (Y) is the trust of the students to continue their studies in Mathematics Study Program. Indicators related to the trust are as follows:
   a. *Saying positive things* (P41) is saying something positive about Mathematics Study Program and always think positively.

b. *Recommending to friends* (P42) is the attitude of the students recommending Mathematics Study Program to others and always inviting other students to comply with all regulations in the program.

Continuing purchasing (P43) is the behavior of students satisfied with Mathematics Study Program, which is manifested in a positive behavior.

4. RESULTS

Based on data, service quality perceived by the students of Mathematics Study Program is shown in Table 1.

Table 1
Descriptive Statistics of Service Quality

Source	P11	P12	P13	P14	P15
Mean	14.42	15.78	8.02	14.48	14.02
Median	15.00	16.00	8.00	15.00	14.00
Mode	16	17	8	16	14
Std. Deviation	2.610	2.043	1.271	2.346	2.796
Variance	6.812	4.173	1.616	5.505	7.818
Skewness	-.354	-.341	-.399	-.420	.239
Kurtosis	-.613	-.186	-.438	-.070	-.196

Based on Table 1, in general, X1 (quality of service) has a negative skewness, which means that students' perception of service quality tends to be better. Although, the value of kurtosis is negative but still close to zero. It means that the distribution is approaching the normal curve. Therefore, the quality of services provided by Mathematics Study Program to students is classified as positive category (excellent).

Table 2
Descriptive Statistics of Satisfaction

Source	P21	P22	P23	P24
Mean	15.37	13.72	10.98	14.84
Median	15.50	14.00	11.00	15.00
Mode	16	15	10	13[a]
Std. Deviation	1.916	2.789	1.880	2.260
Variance	3.670	7.779	3.535	5.105
Skewness	-.131	-.192	-.129	.031
Kurtosis	.373	-.723	-.150	-.762

a. Multiple modes exist. The smallest value is shown

In general, X2 (satisfaction) has a negative skewness, which means that students are likely to feel satisfied by the services provided by Mathematics Study Program. Although, the value of kurtosis is negative but still close to zero. It means that the distribution is approaching the normal curve. Therefore, the satisfaction of students receiving services from Mathematics Study Program is in positive category (excellent). Descriptive results of trust can be seen in Table 3.

Table 3
Descriptive Statistics of Trust

Source	P31	P32	P33
Mean	11.47	8.04	12.58
Median	12.00	8.00	12.50
Mode	12[a]	9	12
Std. Deviation	2.032	1.230	1.707
Variance	4.130	1.514	2.913
Skewness	-.295	-.410	-.127
Kurtosis	-.497	-.655	-.964

a. Multiple modes exist. The smallest value is shown

In general, X3 (trust) has negative skewness, which means that the student believes that the service will shape them into better quality. Although, kurtosis value is negative but still close to zero. It means that the distribution is approaching the normal curve. Therefore, the services provided by Mathematics Study Program can make students believe that they will succeed in their study.

Table 4
Descriptive Statistics of Loyalty

Source	P41	P42	P43
Mean	16.06	14.72	17.18
Median	16.00	15.00	17.50
Mode	16	15[a]	18
Std. Deviation	1.885	2.861	1.806
Variance	3.552	8.183	3.260
Skewness	.106	.336	-.558
Kurtosis	.136	1.498	-.402
Std. Error of Kurtosis	.478	.478	.478
Range	8	17	7

In general, Y (loyalty) has a positive and negative skewness with values close to zero (still resemble the normal curve), meaning that the students still tend to have less loyalty to the mathematics study program. Moreover, the kurtosis value is positive but it is still close to zero. It means that the distribution is approaching the normal curve. Therefore, students still do not show positive or negative loyalty to mathematics study program. So, it can be concluded that the loyalty of students still do not meet the service expectation of the organization.

5. DISCUSSION

The model tested in this study is the relationship between the four variables, namely, service quality, satisfaction, trust, and loyalty. These four variables are translated into exogenous variables (service quality), intervening variables (satisfaction and trust), and endogenous (loyalty). The shape of the model and the results of the analysis of the model are given in Figure 1.

Figure 1: Relationships Simultaneously All Variables (p-value = * < 0.05)

Figure 1 describes the results of standardized effect of X1 (Service Quality) to X2 (satisfaction), that is, 0.454 and X1 to X3 (Trust), that is, 0.771. It means that, the effect of X1 to X3 is greater than the effect of the X1 to X2. Therefore, service quality has more contribution in growing the students' confidence to be successful than that of the satisfaction in receiving services. Similarly, the effect of standardized for Y (loyalty) by X2 is 0.365 and by X3 is 0.703, which is greater than the influence of X2 to loyalty.

Table 5
Regression Weights: (Group Number 1 - Default Model)

	Standardized Estimate	Unstandardized Estimate	S.E.	C.R.	P
X2 <--- X1	.454	.493	.137	3.607	***
X3 <--- X1	.771	.425	.092	4.591	***
X3 <--- X2	.376	.191	.069	2.754	.006
Y <--- X3	.703	.776	.222	3.494	***
Y <--- X2	.365	.204	.103	1.980	.048

This table shows the significance of the model in which all correlations are significant. Therefore, it can be said that the service quality has an influence on determining the students' loyalty. The service quality will directly affect the trust and Satisfaction, although it does not directly influence the loyalty.

Table 6
Squared Multiple Correlations: (Group number 1 - Default model)

	Estimate
X2	.206
X3	.999
Y	.999

Contingency coefficient 20.6% occurs in the model of ZX2 = 0.454ZX1, while contingency coefficient 99.9% occurs in two models as follows:

ZX3 = 0.771ZX1 + 0.376ZX2
ZY = 0.365ZX2 + 0.703ZX3

It is concluded that the loyalty is built by two direct influences, namely, the trust and the satisfaction. However, both these variables are variables affected directly by the service quality. The service quality is an exogenous variable, so it can be considered as the beginning of organization services. Without the service quality, the trust and the satisfaction will not exist. Consequently, there is no loyalty.

Table 7
Total Effects (Group Number 1 - Default Model)

	X1	X2	X3	Y
X2	.493	.000	.000	.000
X3	.519	.191	.000	.000
Y	.503	.352	.776	.000

Table 8
Standardized Total Effects (Group Number 1 - Default Model)

	X1	X2	X3	Y
X2	.454	.000	.000	.000
X3	.942	.376	.000	.000
Y	.827	.629	.703	.000

This table shows that the total effect of the service quality on the loyalty is 0.827, the satisfaction on the loyalty 0.703; and the trust on the loyalty 0.629, although all are greater than 50%.

6. CONCLUSION

The results of this study show that (1) the quality of service has a significant positive effect on the students' satisfaction; (2) the quality of service has a significant positive effect on the trust of students; (3) the students' satisfaction has a significant positive effect on the trust; (4) the satisfaction has a significant positive effect on the loyalty; and (5) the trust has a significant positive effect on the loyalty of the students.

The results of standardized effect of X1 (service quality) on X2 (satisfaction) is 0.454 and X1 on X3 (Trust) is 0.771. It means that the effect of X1 on X3 is greater than that of X1 on X2. Therefore, the service quality has more contribution in growing the students' confidence to be successful than that of the satisfaction in receiving services. Similarly, the effect of standardized on the loyalty by the satisfaction is 0.365 and by the trust is 0.703, which is greater than the influence of the satisfaction on the loyalty.

REFERENCES

1. Assael, H. (1998). *Consumer Behavior and Marketing Action*. 6th ed. Cincinnati, OH: South-Western College Publishing. http://www.emeraldinsight.com/Insight/viewContentItem.do?contentType=Article&hdAction=lnkpdf&contentId=851602. Accessed on October 18, 2008.
2. Bloemer, J., K.D. Ruyter, and M. Wetzels. (1998). Linking Perceived Service Quality and Service Loyalty: A Multi-dimensional Perspective. *European Journal of Marketing*, 33(11), 1082-1106.
3. Bollen, K.A. (1989). *Structural Equation with Latent Variables*. Wiley. New York.
4. Dirjen Dikti, Departemen Pendidikan Nasional. 2008. http://www.dikti.go.id. Accessed on 18 October 2008.
5. Indahwati, L. (2008). Hubungan Perceived Service Quality dan Loyalitas: Peran Trust dan Satisfaction sebagai Mediator. *The 2nd National Conference UKWMS*.
6. Japarianto, E. (2007). Analisis Kualitas Layanan Sebagai Pengukur Loyalitas. Universitas Kristen Petra. Surabaya.
7. Kompas Edisi (2007). http://www.kompas.com/. Accessed on October 18, 2008.
8. Manurung, M. (2007). *Pengaruh Kinerja Pelayanan Terhadap Kepuasan Nasabah Pada PT. Bank Jatim Cabang Malang*. UBM. Malang.
9. Oliver, R.L. (1999). Whence Consumer Loyalty. *Journal of Marketing*, 63, 33-44.
10. Santoso, Singgih. (2007). *Structural Equation Modeling Konsep dan Aplikasi dengan AMOS*. PT. Elex Media Komputindo. Jakarta.
11. Tiro, M.A. and Sukarna (2008). *Meluruskan Konsep Pengembangan Instrumen Tipe Skala Likert*. Makassar.
12. Tiro, M.A., Sukarna, and Aswi. (2010). *Analisis Jalur*. Makassar: Andir Publisher, Makassar.

Applying SEM to ANalyze the RElationship between Loyalty, Trust, Satisfaction, and Quality

ORIGINALITY REPORT

4%	5%	0%	0%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	ajmse.leena-luna.co.jp Internet Source	2%
2	eprints.unm.ac.id Internet Source	2%

Exclude quotes	On	Exclude matches	< 2%
Exclude bibliography	On		