

# EFFECT OF SERVICE QUALITY AND SATISFACTION ON LOYALTY THROUGH MEDIATION OF ZONE OF TOLERANCE

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## ABSTRACT

*The aim of the current research is to examine and analyze the effect of service quality and satisfaction on loyalty with the mediation of zone of tolerance. In the research, zone of tolerance refers to an area between desired service and adequate service and plays a role as mediator in the effect of service quality and satisfaction on loyalty. Data were collected with questionnaire. Sample of research involved 409 respondents from five management departments at five private higher educations on the Third Coordinator Area of Private Higher Education in Jakarta. Data were analyzed using Partial Least Square-Structural Equation Modeling supported by Warp PLS 7.0. Result of research shows that service quality and satisfaction have positive and significant effect on loyalty. Service quality, however, was not mediated by zone of tolerance because the function of zone of tolerance in the relationship of satisfaction and loyalty was found to be low if the attractiveness of alternative options is proved to be high. The effect of satisfaction on loyalty was mediated by zone of tolerance and the effect of zone of tolerance on loyalty was positive. The finding confirms that there is significant difference between respondents whom have narrow and wide zone of tolerance. The research has theoretical and practical implication.*

**Keywords:** Service Quality, Satisfaction, Loyalty, Zone of Tolerance.

**JEL Classification:** J28, L310.

## INTRODUCTION

Higher education is obliged to perform education and research activities and also to provide community service. Completed facility is needed by higher education to fulfill its obligation effectively and efficiently. However, several higher educations, especially private higher educations, often have limitation on structure and infrastructure, less number of lecturers, and poor learning and teaching process that is always below standard. Number of higher educations in Indonesia registered in the Data Base of Higher Education (PDPT) in the Ministry of Education and Culture on 2019 is 4621 comprising of 122 State Higher Educations (PTN), 178 Ministry-Based Higher Educations (PTK), 1192 Religion-Based Higher Educations (PTA), and 3129 Private Higher Educations (PTS) (Kemenristekdikti, 2019). These numbers are seemingly huge that cause high competition among higher educations. Any higher educations that want to be highly competitive must find effective and innovative way to build, maintain, and foster strong relationship with their students (Erdoğan & Ergun, 2016).

Private higher educations with poor service quality will find difficulty to develop. Conversely, private higher educations that have good service quality and been given Accreditation A by the National Agency for the Accreditation of Higher Education (BAN-PT) are relatively popular despite its expensive tuition. In 2019, private higher educations decreased in number by 1.3 % if compared to its number in 2018 (Higher Education Ministry, 2019). It can be said that developing private higher education is not easy as it is seen. At least, private higher educations must improve its adaptive capacity to maintain and manage its service quality. It must be noted that service quality is the needed factor to create satisfaction (Narteh, 2015). Main customer of higher education is student. Good service quality gives positive and significant impact on student's mouth to mouth recommendation (Nadiri et al., 2011). Service quality and satisfaction are factors used by student to assess the performance of higher education. In service sector, service quality and satisfaction are important factors to measure customer loyalty (Cha & Borchgrevink, 2018; Satti et al., 2020).

Besides service quality and satisfaction, the implementation of zone of tolerance is also a factor that must taken into account in measuring the effectiveness of service quality improvement (Hsieh et al., 2013). Zone of tolerance is the impact of service provided to customer to satisfy customer expectation (Zeithaml et al., 1996). Zone of tolerance is also referred to the different level of satisfaction and trust that determines loyalty to any service delivered (Wu, 2011). Therefore, service quality, satisfaction and zone of tolerance of higher education are important factors that may create student loyalty. Anyway, student loyalty is a crucial factor to the feasibility of higher education. The aim of the current research is to examine and analyze the effect of service quality and satisfaction on loyalty with the mediation of zone of tolerance. Loyalty in the research refers to the loyalty of students at the department of management on private higher educations in Jakarta. The study program of management is selected as research object because the study program is the largest in number on any higher educations. In 2019, there were 1,140 study programs in management on higher educations in Indonesia (Higher Education Ministry, 2019). However, researchers did not yet find comprehensive studies concerning the department of management at private higher education in Jakarta.

## LITERATURE REVIEW

Within the context of the research, loyalty is integrity strongly held to repeatedly purchase certain product in the future regardless conditional intervention and marketing department's capability to convince behavioral change (Kotler & Keller, 2016). Loyalty is a positive posture or good sentiment given by customer to service provider (Zangmo et al., 2014). Loyalty cannot be forced but must be given voluntarily by customer. Repeated purchase and willingness to give recommendation to other individual are the reflection of loyalty (Gupta et al., 2018). Any companies find as important to the increase of customer loyalty because strong customer loyalty helps the companies to save corporate cost. It is said so because customer loyalty enables the companies to reduce marketing cost, to decrease transaction cost, to minimize customer turnover, to activate mouth-to-mouth promotion, to improve cross-selling to customer, and to cut down failure cost (Griffin, 2002). Student shows strong loyalty to a certain study program at higher education because student has intention since the beginning to select that study program, to recommend that study program, and to plan to continue the study at the postgraduate study program on the same department (Erdoğan & Ergun, 2016). In that case, loyalty is

significantly affected by service quality and satisfaction. On service sector in Pakistan, loyalty is greatly affected by service quality with the mediation of satisfaction (Satti et al., 2020).

Service quality is a factor needed to convince customer to select an organization over others. High service quality is a vital artery to supply organizational service to loyal customer (Bostanji, 2013). A comprehensive effort is needed if organization wants to improve service quality and also to make customer perception better again. Customer may use organizational service more frequently in the future if customer satisfies with the service. Usually, the satisfied customer will persuade other customer to use the service (Zangmo et al., 2014). Previous researches showed that service quality affects customer loyalty. For instance, Zangmo et al. (2014) found that service quality affected customer loyalty at Drukair, Bhutan airline enterprise. Fida et al. (2020) discovered that service quality has positive effect on customer loyalty at Islamic Bank of Oman Sultanate. In addition, Bostanji (2013) said that service quality influenced customer loyalty at five-star hotels in Riyadh. However, Hapsari et al. (2017) revealed that service quality does not have significant effect on customer loyalty at Indonesian five-star airline enterprises. Based on the explanations above, the first hypothesis is stated as following:

*H<sub>1</sub> Service quality has positive effect on loyalty*

Satisfaction is a feeling of joy after comparing the performance of product that has been used with the expectation (Kotler & Keller, 2016). Satisfaction is one element used to interpret the retention level of the existing customer or the curiosity level of new customer. The relationship between desire, hope and necessity and also its fulfillment can be seen from the satisfaction in getting what is expected. Satisfaction can be defined as post-sale evaluation where the selected alternative will give same result or beyond expectation. Dissatisfaction emerges because there is difference between what has been gotten and what is expected. The tolerated difference between the service delivered and the expectation is called zone of tolerance (Nadiri, 2012). Previous researches mentioned that satisfaction affected loyalty. For instance, Zangmo et al. (2014) discovered that satisfaction affected the loyalty of customer of Drukair, Bhutan airline enterprise. It was Barusman & Riorini (2016) who said that customer satisfaction affected customer loyalty at Bank Mandiri. Moreover, Leninkumar (2017) revealed that customer satisfaction has positive effect on customer loyalty at commercial banks in North Srilanka Province. Fida et al. (2020) found that customer satisfaction has positive effect on customer loyalty at Islamic Bank of Oman Sultanate. Regarding to the explanations above, the second hypothesis is written as following:

*H<sub>2</sub> Satisfaction has positive effect on loyalty*

Zone of tolerance is an area between the expected service standard and the minimum service standard that customer perceives as acceptable (Johnston & Brandon Jones, 2015). Zone of tolerance contains not only various expectations of customer but also various degrees of service interaction involving customer (Wu, 2011; Nadiri & Hussain, 2016). Customer may be dissatisfied if the service given is less than the minimum service standard. Customer will be greatly satisfied if the service given is exceeding the expected service standard. In case of higher education, the measurement of zone of tolerance is a new dependable method to determine service variation (Nadiri et al., 2011). Any institutions, including higher education, need to improve its minimum service quality to the level of zone of tolerance. Even, higher education should improve its service quality to exceed customer expectation. The findings of previous

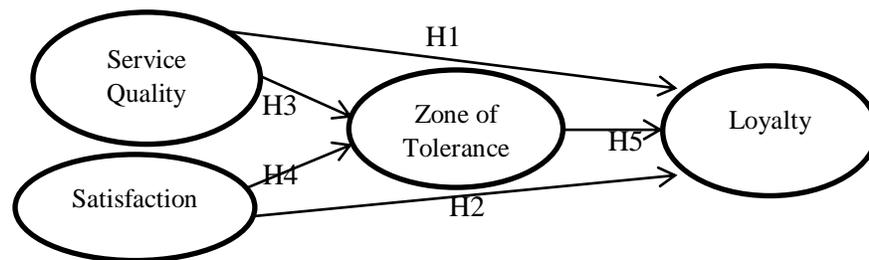
researches showed that zone of tolerance plays role of moderator in the relationship between service quality and business outcome (Yap & Sweeney, 2007). It was also found that zone of tolerance is significantly moderating the effect of satisfaction on loyalty in positive way. In this matter, higher education should estimate the comparison between the expected service performance and the realization of service received by customer. The understanding about the span of zone of tolerance enables higher education to allocate resources focusing on satisfaction (Wu, 2011). With respect to the explanations above, the hypotheses are proposed:

*H<sub>3</sub> Zone of tolerance mediates the effect of service quality on loyalty*

*H<sub>4</sub> Zone of tolerance mediates the effect of satisfaction on loyalty*

*H<sub>5</sub> Zone of tolerance has positive effect on loyalty*

By taking into consideration of several findings from previous researches, it can be said that loyalty is created through service quality, satisfaction and zone of tolerance. The relationship of each construct is shown in Figure 1.



**FIGURE 1**  
**RELATIONSHIP ACROSS RESEARCH VARIABLES**

## METHODOLOGY

Data of research are cross section in nature in which data were collected from questionnaire distributed to the students who actively attend the lecture in higher education. Population of research includes all undergraduate students who actively attend the lecture at management study program on five private universities in Jakarta. These universities are University of Bina Nusantara, University of Gunadarma, University of Mercu Buana, University of Trisakti, and University of Tarumanegara (Table 1). These five universities are selected with two conditions. First condition is that management study programs in these universities have been given Accreditation A by the National Agency for the Accreditation of Higher Education (BAN-PT). Second condition is that the number of student enrolled in management study programs on these universities is relatively greater than the number of student on other equivalent higher educations in Jakarta.

Sample size is determined using the procedure provided in the scheme of Partial Least Square-Structural Equation Modeling (PLS-SEM). Sample size plays important role in predicting the result of research. The needed sample in PLS-SEM scheme is usually five times indicator minimally. In the current research, sample was selected randomly using a sampling technique called proportionate stratified random sampling. This research involved 34 indicators. Several students were selected from management study programs in five private universities, and

the obtained number was 409 students. This number passed minimum limit of sample requirement. Data from each university were different one another because the percentage of students who actively attends the lecture at the management study program on each university was also different. The percentage was divided by total of active attendant students. The collected data are then processed and analyzed with an application program named WarpPLS.

<b>NO</b>	<b>Higher Education</b>	<b>Total Number of Student in Management Study Program</b>	<b>Proportional Sample</b>	<b>Sample Size</b>
1	University of Bina Nusantara	5,675	5,675 : 18.236 x 409	127
2	University of Gunadarma	5,321	5,321 : 18.236 x 409	119
3	University of Mercu Buana	2,771	2,771 : 18.236 x 409	62
4	University of Trisakti	2,439	2,439 : 18.236 x 409	55
5	University of Tarumanegara	2,030	2,030 : 18.236 x 409	46
	Total	18,236		409

Four variables are used in the current research, respectively service quality, satisfaction, loyalty, and zone of tolerance as mediating variable. Service quality is customer judgment on the service received after comparing it with the expected service. In the current research, service quality is measured using tangible and intangible variables that involve 9-point measurement scale. Number 1 represents disagree very much whereas number 9 refers to agree very much. Tangible variable comprises of 4 indicators, respectively modern equipment improvement, physical facility ownership, neatly dressed employee, and teaching-learning materials in management study program. Intangible variable consists of several indicators such as on-time promise fulfillment, deep concern in problem-solving, properly service delivery, on-time service delivery, data archive with less error, service program communication, responsive employee service, employee willingness to help, employee activity, transactional security, employee politeness, employee knowledge, employee attention, work-hour adjustment, and understanding on student specific demand.

Satisfaction is measured with several indicators such as satisfaction with facility provided by the management study program, satisfaction with academic administration service, satisfaction with lecture, and satisfaction with study program reputation. Loyalty is explained by several indicators such as giving positive information about management study program to others, convincing and recommending others to enroll in management study program, and giving concern to the reputation of management study program. Zone of tolerance is indicated by various degrees of service performance that customer considers as satisfying, such as *“the expected service performance”* in upper scale and *“the sufficient service performance”* in lower scale. The measurement of zone of tolerance also uses the formula that is similar to those used in tangible and intangible variables, which is, the expected service quality minus tolerable minimum service quality (Nadiri & Hussain, 2016).

Data analysis technique of the research is Partial Least Squares (PLS)-Structural Equation Modeling (SEM). The analysis technique is carried out with a computer application named WarpPLS 7.0. The current research is both predictive and explorative in nature. The use of PLS-SEM is decided based on two benefits. First benefit is that PLS-SEM can still work efficiently in small sample size and on complex model. Second benefit is that the assumed data distribution at PLS-SEM is relatively loose than other techniques such as CB (Covariance-based)-SEM. For testing Hypothesis 1 to 5, two equations are developed as following:

$$LOY = \alpha_1 + \beta_1 SQ + \beta_2 SAT + \beta_3 ZOT + \varepsilon_1 \quad (1)$$

$$ZOT = \alpha_2 + \beta_4 SQ + \beta_5 SAT + \varepsilon_2 \quad (2)$$

## RESULTS AND DISCUSSION

Provisions	Conclusion
Average path coefficient (APC)=0.262, P=<0.001	FIT
Average R-squared (ARS)=0.404, P=<0.001	FIT
Average adjusted R-squared (AARS)=0.400, P=<0.001	FIT
Average block VIF (AVIF)=1.878, acceptable if <= 5, ideally <= 3.3	FIT
Average full collinearity VIF (AFVIF)=2.353, acceptable if <= 5, ideally <= 3.3	FIT
Tenenhaus GoF (GoF)=0.476, small >= 0.1, medium >= 0.25, large >= 0.36	FIT

Source: Data processing with WarpPLS 7.0

As shown by the contents of the Table 2 above, research model is said to be fit. The position is supported by AVIF value of 1.878 and AFVIF value of 2.353, which all these values are less than 3.3. The result declares that there is no multicollinearity problem across indicators and across exogenous variables. Predictive capacity of research model is shown by GoF value of 0.476. The result signifies that research model has quite large predictive capacity because the value is larger than 0.36.

	LOY	SQ	SAT	ZOT
Full collinearity	2.720	2.369	2.114	1.207
R-Squared	0.633			0.175
Adj R Squared	0.630			0.171

Source: Data processing with WarpPLS 7.0

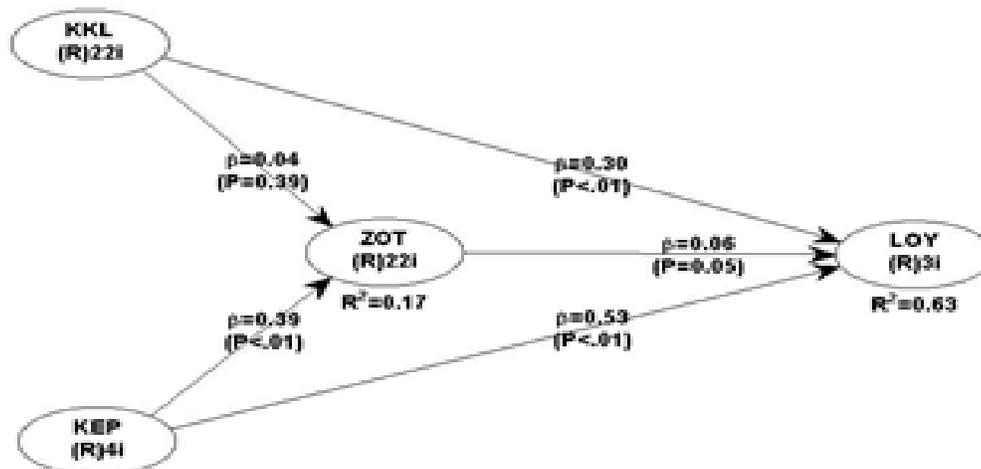
In regard of the contents of the Table 3 above, it is shown that research constructs are in very good category because the rule of thumb for <3.3 is fulfilled. In accordance with the situation, it can be said that research model is free from problems of vertical collinearity, lateral collinearity, and common method bias.

Path Description	Effect Size	VIF	Path Coefficient	P-Value
SQ → LOY	0.208	2.162	0.297	<0.001
SAT → LOY	0.404	2.397	0.252	<0.001
ZOT → LOY	0.021	1.210	0.058	0.055
SQ → ZOT	0.012	1.809	0.040	0.388
SAT → ZOT	0.163	1.809	0.390	<0.001

Source: Data processing with WarpPLS 7.0

The question whether there is vertical collinearity problem or not in research model is answered by conducting tests on Effect Size and VIF. Result of the tests shows that all variables of research have strong effect and their VIF values are less than 3.3, which signify that there is no vertical collinearity problem (Table 4). Hypothesis test was carried out on the first hypothesis

stating that service quality has positive effect on loyalty. The result shows that coefficient value of the hypothesis is 0.297 and its p-value is  $<0.001$ , which signify that first hypothesis is accepted. Quality of service has positive and significant effect on loyalty. It means that the higher service quality, the higher the loyalty. Second hypothesis stating that satisfaction has positive effect on loyalty was tested. The result indicates that coefficient value of this hypothesis is 0.252 with p-value  $<0.001$ , which confirms that second hypothesis is accepted. Third hypothesis stating that zone of tolerance mediates the effect of service quality on loyalty was also tested. Result of the test reveals that coefficient value of the hypothesis is 0.040 with p-value of 0.388. Based on the result, the third hypothesis is rejected. Fourth hypothesis stating that zone of tolerance mediates the effect of satisfaction on loyalty was tested. Result of the test shows that coefficient value of this hypothesis is 0.390 with p-value sebesar  $<0.001$ . In regard of the result, the fourth hypothesis is accepted. Finally, hypothesis test was also conducted on the fifth hypothesis stating that zone of tolerance has positive effect on loyalty. Result of the test indicates that coefficient value of this hypothesis is 0.058 and its p-value is 0.055. In accordance with this result, fifth hypothesis is accepted in which zone of tolerance as intervening variable mediates the effect of service quality on loyalty (Figure 2).



**FIGURE 2**  
**FULL SCALE OF RESEARCH MODEL**

According to Baron & Kenny (1986), mediation variable is used in the analysis to ensure whether there is full mediation or partial mediation in the model. Full mediation is a situation when independent variable does not have significant effect on dependent variable because there is no mediation involved. Partial mediation is that independent variable can still influence dependent variable directly without involving mediation variable. It must be noted that mediation variable will be involved only if independent variable can predict dependent variable directly but its predictive value is smaller than the predictive value of mediation variable. If the coefficient value of the effect of independent (predictor) variable on dependent variable is greater than the coefficient value of the effect of mediator variable on dependent variable, then there is no mediation effect. Coefficient value of the indirect relationship can be determined by putting indirect effect relationship and total effect relationship on the test. The formulation and

implementation of mediation test are in compliance with test procedure proposed by Baron & Kenny (1986).

<b>Indirect effect</b>	<b>Path coefficient</b>	<b>P-value</b>
SQ → ZOT → LOY	0.404	0.002
SAT → ZOT → LOY	0.065	0.017
<b>Total effect</b>	<b>Path coefficient</b>	<b>P-value</b>
SQ → ZOT → LOY	0.040	0.388
SAT → ZOT → LOY	0.390	<0.001

Source: Data processing with WarpPLS 7.0

After conducting test on indirect effect relationship (mediation hypothesis) (Table 5) involving SQ→ZOT→LOY, the coefficient value of the indirect effect is 0.404 with p-value of 0.002 ( $p < 10\%$ ). The result indicates that ZOT value significantly mediates to the effect of SQ on LOY. Direct effect relationship (direct path) involving SOQ→LOY was also tested and the obtained value was significant at level of  $< 0.001$ . Other mediation path is SAT→ ZOT→ LOY. After testing the mediation hypothesis, it is found that the coefficient value is 0.390 with P-value  $< 0.001$ . Regarding to all these results, it can be said that there is partial mediation where SAT affects LOY (loyalty) through ZOT (zone of tolerance) as mediation variable.

<b>No</b>	<b>Result of Hypothesis Test</b>	<b>P-Value</b>	<b>Description</b>
1	Service quality has positive effect on loyalty	<0.001	Accepted
2	Satisfaction has positive effect on loyalty	<0.001	Accepted
3	Zone of tolerance mediates the effect of service quality on loyalty	0.388	Rejected
4	Zone of tolerance mediates the effect of satisfaction on loyalty	<0.001	Accepted
5	Zone of tolerance has positive effect on loyalty	0.055	Accepted

Source: Data processing with WarpPLS 7.0

Hypothesis test (Table 6) was conducted on the first hypothesis stating that service quality has positive effect on loyalty. Result of the test shows that p-value of the hypothesis is  $< 0.001$ . It means that the first hypothesis is accepted. Logically, if service quality is good, then customer will be loyal. In the context, customer loyalty is defined as the allegiance given by certain individual to certain product or service. According to Bell et al. (2005), service quality is determiner of customer loyalty. If customer loyalty is high, then corporate income is also high. Hypothesis test was also conducted on the second hypothesis stating that satisfaction has positive effect on loyalty. Result of the test indicates that the p-value of the hypothesis is  $< 0.001$ , which confirms that the second hypothesis is accepted. If the position is understood with logic, it can be said that if customer feels highly satisfied, then customer will be loyal to the product or service offered. Hallowell (1996) and Bowen & Chen (2001) declared that the relationship between satisfaction and loyalty is the determinant of high profitability.

Mediation test was carried out on the third hypothesis stating that zone of tolerance mediates the effect of service quality on loyalty. Result of the test reveals that p-value of the hypothesis is 0.388, which signifies that the third hypothesis is rejected. Zone of tolerance as mediator variable is not proved as mediating the effect of service quality on loyalty. Few previous researches (Wu, 2011; Wu & Wang, 2012) explained that negative mediation effect of

zone of tolerance in the effect of satisfaction and loyalty can be minimized if the attractiveness of alternative options is increasing. In the other hand, positive mediation effect of zone of tolerance in the effect of satisfaction on loyalty can be low if the attractiveness of alternative options is found to be high. Mediation test was also applied on the fourth hypothesis stating that zone of tolerance mediates the effect of satisfaction on loyalty. Result of the test shows that p-value of the hypothesis is  $<0.001$ . It means that the fourth hypothesis is accepted but the mediation is partial. Zone of tolerance is an area between desired service and adequate service. If the service received by individual is below the level of adequate service, then the receiver of service will be disappointed. If the service received is above the level of desired service, then the receiver of service will be very satisfied (Durvasula et al., 2006). The result also proves that the satisfied customer is usually loyal to any product or service offered. Finally, hypothesis test was implemented on the fifth hypothesis stating that zone of tolerance has positive effect on loyalty. Result of the test indicates that p-value of the hypothesis is 0.055, which based on this result, it can be said that zone of tolerance has significant effect on loyalty. Significance level is 5 percents (below 10 percents). It proves that high level of zone of tolerance is associated with high level of loyalty. The position is consistent to the findings given by previous researches (Yap & Sweeney, 2007; Barusman & Riorini, 2016), which generally said that customer with either narrow or wide ZOT can strengthen the effect of customer satisfaction and customer trust on customer loyalty.

## CONCLUSIONS

The aim of the current research is to examine and analyze the effect of service quality and satisfaction on loyalty with the mediation of zone of tolerance. Population of research includes all undergraduate students who actively attend the lecture at five management study programs on five private universities in Jakarta. These five universities are selected with two conditions. First condition is that management study programs in these universities have been given Accreditation A by the National Agency for the Accreditation of Higher Education (BAN-PT). Second condition is that the number of student enrolled in management study programs on these universities is relatively greater than the number of student on other equivalent higher educations in Jakarta. Direct effect and indirect effect have been tested. Result of direct effect test shows that service quality and satisfaction have significant effect on loyalty. Significance value of this effect relationship is  $<0.001$ . Result of indirect effect test gives several findings. The mediation of zone of tolerance in the effect of service quality on loyalty is rejected. If the attractiveness toward customer is low, then customer loyalty to any product or service offered is also low. The effect of satisfaction on loyalty is mediated partially by zone of tolerance. Furthermore, the effect of zone of tolerance on loyalty is also significant at level of 5 percents. By virtue of all these results, it can be said that research has been able to answer Hypotheses of 1, 2, 4 and 5. Therefore, the current research has been successful in reducing the gap of previous researches.

In connection with all the results explained previously, the following is practical implication that the universities in the current research should be taken into consideration if the universities plan to improve student loyalty to management study program: 1) to improve student's loyalty, management study program should improve the quality of tangible service related with the indicator of modern equipment improvement and the indicator of deep concern in problem-solving. Respondent responses on the indicators show that they are not yet optimum, 2) to improve student's loyalty, management study program should improve student satisfaction related with the indicator of satisfaction with facility provided by the program and the image of

study program related with the indicator with satisfaction with study program reputation. Respondent responses on the indicators show that they are not yet optimum, 3) to improve student's loyalty, management study program should comprehend about student's zone of tolerance between the quality of tangible service and intangible service. The reason is that there is different perception on service quality between student with narrow zone of tolerance and student with wide zone of tolerance.

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