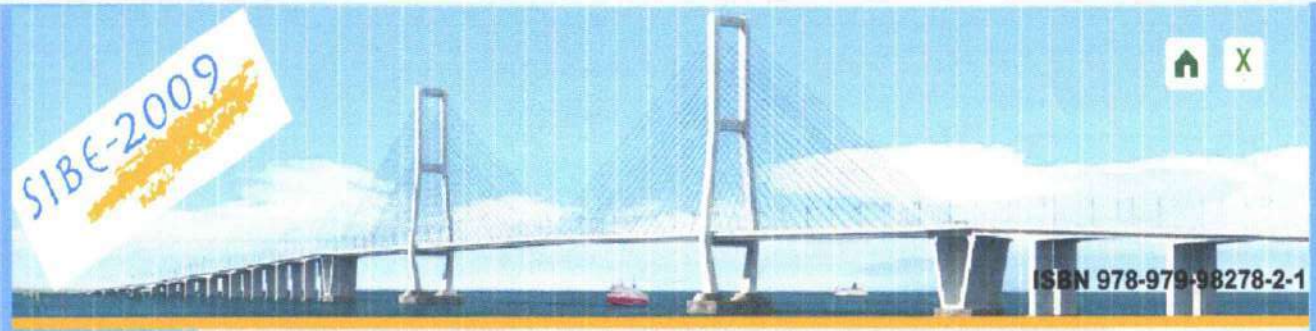

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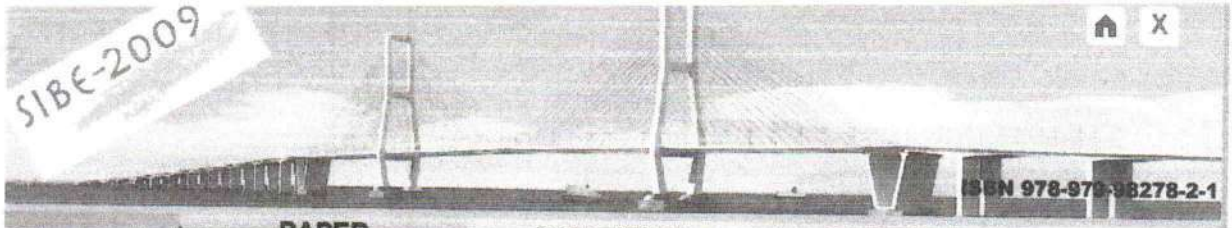

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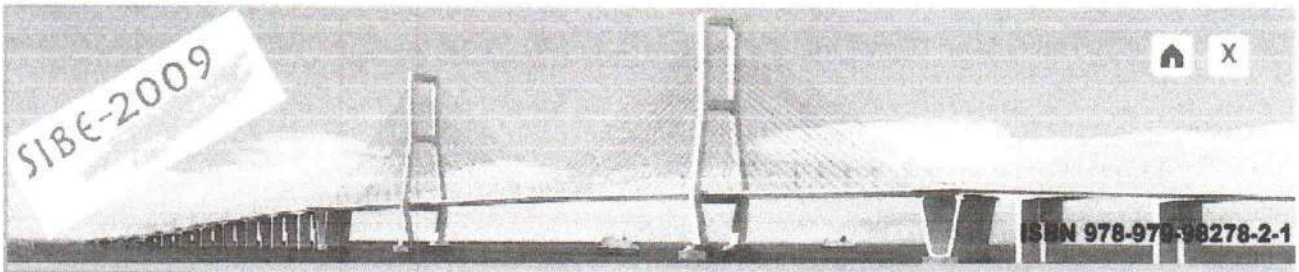

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Investigating Structural Relationships Between Service Quality, Satisfaction and Loyalty for Informal Public Transportation Passengers (Case of Study: Ojek Motorcycle in Bandung)

Taslim Bahar[1], Ofyar Z. Tamin[2], B.S. Kusbiantoro[3], Russ Bona Frazila[4]
[1]Graduate Student of ITB, Transportation Laboratory ITB Labtek I Building 2nd Floor, Jl. Ganesha 10 Bandung 40132, Indonesia
[2]Teaching Staff of FTSL ITB, Transportation Laboratory ITB Labtek I Building 2nd Floor, Jl. Ganesha 10 Bandung, 40132, Indonesia
[3]Teaching Staff of SAPPK ITB, Jl. Ganesha 10 Bandung 40132, Indonesia
[4]Teaching Staff of FTSL ITB, Transportation Laboratory ITB Labtek I Building 2nd Floor, Jl. Ganesha 10 Bandung, 40132, Indonesia
Corresponding author: taslim_bahar@yahoo.com

Abstract
Service quality and customer satisfaction are ones of the important factors which users considerate in making decision on using transportation modes. In traditional concept, the decision was made by considering technical and measured factors. Ojek motorcycle (ojek MC) is one of the informal public transportation services that has been popular and has tendency to increase gradually as urban public transportation in Indonesia. It is assumed that quality and satisfaction factors that the users perceive for short distance travel cause the matter. The objectives of the study include the investigation of service quality and customer satisfaction factors and the relationships between service quality, satisfaction and loyalty in using ojek MC. The work of the study has been done by questioner survey and home interview with ojek MC users in Bandung city about location characteristics and user's socio-economics/demographics. The first analysis is to explore factors that influence service quality using confirmatory factor analysis (CFA) method, the second is to obtain the relationships between the influence of service qualities, customer satisfaction and loyalty using structural equation modeling (SEM) method. The study shows that from CFA analysis, punctuality and accessibility factors give very significant reflection toward service quality, while environment factor doesn't give enough contribution. SEM analysis shows that service quality has significant direct positive influence towards customer satisfaction, and continues to give influence to customer loyalty. From the study, can be concluded that ojek MC are still popular and needed as urban passenger's public transport in Indonesia cities for short distance travel.

Keywords: loyalty, ojek MC, SEM, service quality.

1. Introduction

User's satisfaction is the prime factor in grading the service quality because users evaluate the work of the service perceived and felt directly from the products (Cronin and

Taylor, 1992). Satisfaction quality is determined by the level of compatibility between offered service and perceived service (TRB, 1999). The higher the quality of the service, the higher the user's satisfaction. Furthermore, it gives positive impact to user's behavior in dealing with the service.

Ojek MC is one of the public transportation that has been significantly used these days. As an example, in the last 3 years, there has been an increase in the operation of ojek MC from 1524 units in 2003 to 5583 units in 2008. There is an assumption that the use of the transportation is influenced by service quality factors which caused customer satisfaction value towards ojek MC service. As we know, ojek MC is very inefficient. It has limited capacity, more expensive cost and lower rate of safety compared with other public transportation modes. In addition, the operation of ojek MC has not been legalized yet.

Some studies show that the service quality relates closely with customer satisfaction and service quality influences the customer satisfaction. Then the customer satisfaction influences the loyalty (Anderson and Sullivan, (1993); Cronim and Taylor (1992); Fornell (1992); in Chen, 2008).

One of the impacts from the movement fulfillment changing in some cities is the tendency of small capacity transportation to increase (informal public transportation). The use of small capacity modes is also caused by the change of modes use pattern, especially for short distance city travel which what users consider the most are travel time, accessibility and flexibility. Beside that, city's condition and physical development also influence the pattern of modes use (Cervero, 2000).

Cities in Indonesia, which generally have limited road network and geometry dimension (road width is less than 5 meters), cause limitation in service accessibility for vehicles with certain size. This condition motivates alternate public transportation with small capacity, such as ojek MC, to appear. The development of ojek MC use as public transportation is very significant, although this kind of transportation has limitations like less safety, limited capacity and the legalization of its operation has not been approved yet, as arranged in PP No. 41 Section 7 (1) in year 2005 about Road Transportation.

The increase of ojek MC use phenomenon shows certain customer satisfaction values toward offered service. And the service quality is determined by service quality values which influenced by some service factors as shown in the next chapter.

2. LITERATURE STUDY

2.1. Service Quality, Satisfaction and Loyalty

Service Performance is the performance of service perceived by users, who then compare it with service quality they really feel. Service Performance can solve the problems appear in determining service quality because anyhow, the users can evaluate the service quality they perceive from certain provider, not based on their own perception towards common service quality (Cronin and Taylor, 1992).

The concept of service quality is about the difference between the hope and the fact felt by users toward a service (Parasuraman et al, 1994), which service quality is a component from customer satisfaction (Zeithaml, V. A et al. 2009). The important factor in determining the service quality is Perceived Quality that is a service quality stage felt by users, which service quality felt by users is influenced by the previous service experiences (Cronin dan Taylor, 1992). Perceived value is a comprehensive approach from a certain service product utility based on perception towards what users felt about the product or a trade-off value between the benefit perceived and the price (Lovelock, 2000 in Chen, 2008).

Customer satisfaction is a contented feeling or a disappointment from user that appears after comparing their perception or impression about certain product's performance to their hopes. Satisfaction is a prediction of user's hope or trust towards what will happen (Spreng et al, 1996 in Dharmayanti, 2006). Oliver (1997) formulated satisfactory as a comprehensive response influences difference between the previous hope with what opinion after consuming the service product or an after-bought evaluation, which perception towards the service performance chosen fulfill the hope of the users. The behavior after the service use is a user's satisfaction or dissatisfaction. Then, the satisfaction is a function of user's hope on a certain product or service compared with perceived performance (Spreng et al, 1996 in Dharmayanti, 2006). Forneel (1992) and Bitner (1994) explained the concept of total satisfaction as an comprehensive evaluation from users after perceive a certain service product based on the previous concerning and experiences (Cheng, 2008). Earlier studies concluded that service quality has direct and significant influence to customer satisfaction and has positive influence to perceived value (Petrick, 2002; Zeithaml, 1988 in Chen, 2008). Loyalty shows the tendency for the user to use certain service product with high level of consistency, which a certain product is a biased behavior/purchasing response and revealed continuously by the decision maker considering one or more alternatives. This phenomenon is a function of psychology process. It means that loyalty relates to user's preferences and actual purchasing, different from frequently purchasing behavior, customer loyalty encloses emotion and belonging aspects within (Dharmmesta,1999 in Dharmayanti, 2006).

2.2. Relationships Between Service Quality, Customer Satisfaction and Loyalty

Some studies explained that service quality has close correlation with customer satisfaction and that service quality influences customer satisfaction which at the end influences loyalty (Zeithaml et al, 2009; (Cronim and Taylor (1992), Oliver (1980), Patrick and Backman (2002) in Chen, 2008). The structure of correlation between service quality, customer satisfaction and customer loyalty explained by Zeithaml, Bitner and Gremler can be seen at the following diagram.

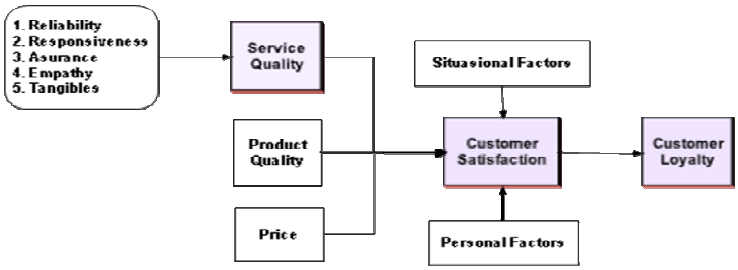

Figure 1 Correlation Between Service Quality, Customer Satisfaction and Loyalty (Zeithaml et al**,** 2009)

In general, the basis of service quality is service quality variables, explained by Parasuraman et al (1994), which are reliability, responsiveness, assurance, empathy and tangibles. From some researches done by TCRP 47, TRB (1999), Ang, Chooi-L (2005) and Joewono et al (2007), the service quality variables for transportation service contain accessibility, availability, reliability, information, customer services, comfort, security, fare, and environment. Meanwhile, this research considers the characteristic of ojek MC service quality that consist of variables are accessibility, reliability, customer care, comfort, security and environment.

3. Method of Research

Data are collected by fill up questioners and direct interview with ojek MC users in their house in Bandung. There are 400 respondents surveyed who are represented some characteristics such as hill topography area in north Bandung, flat field area in south Bandung, respondent's residence type from very simple to the elite one and distance from respondent's residence to the formal public transportation's route (angkot/bus). User's characteristics are represented from all groups, included age, gender, occupation. The questioner contains 4 segments: the first is about data of user's socio-economic/demographics characteristics, the second is about daily routine travel characteristic, the third is about data of the usage of ojek MC, the last is about user's perception towards service quality. Questioner about user's perception consists of 1-5 likert's scale, from very bad to very good.

3.1. Indicators and Variables of Service Quality

The research uses 6 service quality variables that are accessibility, punctuality, pleasure, driver's attitude, environment, and safety. These variables are reflected on indicators shown as follow:

- Variable Accessibility (ACCESS), the indicators are : the availability of modes (ACC1), the ease to get the mode (ACC2) and the ease to reach the end of destination (ACC3).
- Variable Punctuality (TIME), the indicators are : Walking time to the base (TIME1), Waiting time (TIME2), Running time (TIME3).
- Variable Comfortable (COMFORT), the indicators are : During on the vehicle (NYM1), During walking to the base (NYM2).
- Variable Driver's attitude (DRIVER), the indicators are : Discipline (DRV1), Skill (DRV2), Attitude, willingness to help user (DRV3).
- Variable Safety (SAFETY), the indicators are : During on the vehicle (SAFE1), While going to the base (SAFE2), Environmental criminal (SAFE3),
- Variable Environment (ENVIR), the indicators are : Noise pollution (ENV1), Air pollution (ENV2), View/Disorganize (ENV3).

3.2. Hypothesis of Relationships Between Service Quality, Customer Satisfaction and Loyalty

Indicators of transportation service satisfaction, from some researches such as: Ang, Chooi-L (**2005**) explained indicator of willingness to use the modes, fare and service. Indicator of loyalty consists of the loyalty to continue the use of the mode and to recommend it to others.

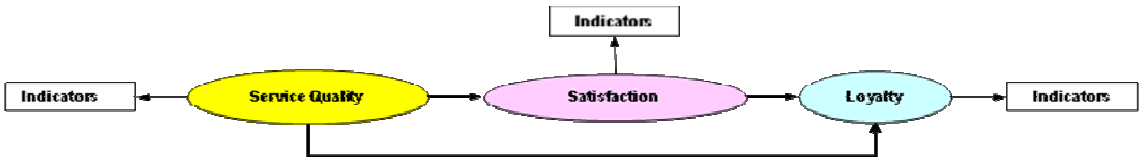

Figure 2 Relationships Between Quality, Satisfactory and Loyalty

Analysis method use structural equation modeling (SEM) approach with LISEL 8.7 program. SEM do the fit test towards estimated parameters, which is compatibility between the data and the model contains validity and reliability of measuring model and significant coefficients of structural model..

4. Analysis

4.1. Service Quality

From the fit test, the results of service quality measuring model using 2nd CFA are:

a. Overall model fit values, NFI = 0,90, NNFI = 0,92, CFI = 0,95, IFI = 0,95, AGFI = 0,92 and GFI = 0,95 > 0,90, show hypothesis model are in good fit. RMSEA = 0,045 < 0,05 shows model are close-fit with the data. Although RMR and P-value are not good enough, but generally the conclusion of overall model fit are good.
b. Measuring model validity test, with good criteria of validity if the standardized loading factor value ≥ 0,50 (Hair et al, 2006**)**. Analysis result shows that all standardized loading values on first stage have good validity. Meanwhile, on the second stage (2^{nd}CFA), environment variable (ENVIR) is means that environment variable reflects service quality less.
c. Reliability of measuring model, reliability grade determined by construct reliability (CR) and variance extracted (VE), reliability is good if CR ≥ 0,70 and VE ≥ 0,50 (Hair et al, 2006). It concluded that the reliability of the measuring model from latent variables are good.

Table 1 Standardized Loading, Validity and Reliability of Service Quality

Variable	Standardized Loading Factors ≥ 0,50	Errors	Reliability		Explanation
			CR ≥ 0,70	VE ≥ 0,50	
COMFORT	1.65	0.64	0.81	0.68	Good reliability
NYM1	0.8	0.36			Good validity
NYM2	0.85	0.28			Good validity
ACCESS	2.00	1.60	0.71	0.62	Good reliability
ACC1	0.8	0.36			Good validity
ACC2	0.69	0.5			Good validity
ACC3	0.51	0.74			Good validity
TIME	2.05	1.60	0.72	0.56	Good reliability
TIME1	0.62	0.62			Good validity
TIME2	0.71	0.5			Good validity
TIME3	0.72	0.48			Good validity
SAFETY	2.49	0.89	0.87	0.79	Good reliability
SAFE1	0.86	0.26			Good validity
SAFE2	0.85	0.28			Good validity
SAFE3	0.78	0.35			Good validity
ENVIR	2.66	0.65	0.92	0.85	Good reliability
ENV1	0.84	0.3			Good validity
ENV2	0.94	0.12			Good validity
ENV3	0.88	0.23			Good validity
DRIVER	2.24	1.33	0.79	0.66	Good reliability
DRV1	0.7	0.51			Good validity
DRV2	0.8	0.36			Good validity
DRV3	0.74	0.46			Good validity
QUALITY	4.45	1.36	0.94	0.72	Good reliability
COMFORT	0.75	0.15			Good validity
ACCESS	0.86	0.11			Good validity
TIME	0.96	0.02			Good validity

SAFETY	0.8	0.17			Good validity
ENVIR	0.43	0.72			Not good enough validity
DRIVER	0.65	0.19			Good validity

4.2. Correlation Between Quality, Satisfaction and Loyalty

The measurement of the correlation between variables are done by getting latent variable score, which is values of correlation between variables from 2ndCFA by calculating latent variable score and combining it with values of satisfaction and loyalty variables. SIMPLIS LISREL 8.7 program has available feature to get the values.

Table 2 Standardized Loading, Validity and Reliability of Measuring Model

Variable	Standardized Loading Factors ≥ 0,50	Errors	Reliability		Explanation
			CR ≥ 0,70	VE ≥ 0,50	
QUALITY	4.45	1.36	0.94	0.72	Good reliability
COMFORT	0.75	0.15			Good validity
ACCESS	0.85	0.11			Good validity
TIME	0.96	0.02			Good validity
SAFETY	0.81	0.17			Good validity
ENVIR	0.44	0.72			Not good enough validity
DRIVER	0.64	0.19			Good validity
SATIS	1.60	2.10	0.55	0.30	Not good enough reliability
SAT	0.69	0.52			Good validity
FARE	0.49	0.76			Not good enough validity
EXP	0.42	0.82			Not good enough validity
LOYALTY	1.62	0.64	0.80	0.68	Good reliability
USE	0.67	0.55			Good validity
REC	0.95	0.09			Good validity

Based on the standardized loading, CR and VE values from the table above, the fit test of service, satisfaction and loyalty measuring model shows:

a. Overall model fit values, NFI = 0,87, NNFI = 0,93, CFI = 0,95, IFI = 0,95, AGFI = 0,94 and GFI = 0,95, except for GOF > 0,90 show hypothesis model are in good fit. RMSEA = 0,045 < 0,05 shows model are close-fit with the data. Although RMR and P-value are not good enough, but generally the conclusion of overall model fit are good.
b. Measuring model validity test, with good criteria of validity if the standardized loading factor value ≥ 0,50 (Hair et al, 2006). Analysis result shows that standardized loading value of satisfaction variable = 0,69 > 0,50, fare indicator = 0,49 and experience indicator = 0,42 < 0,50. It means that the validity is not good enough, except for total satisfaction indicator that shows good validity. Indicators of quality variable have standardized loading factor value > 0,50, except for environment indicator (ENVIR) that has standardized loading factor = 0,44 > 0,50. In general, variables of quality and loyalty have good validity, except for environment indicator.

c. Reliability of measuring model, reliability grade determined by construct reliability (CR) and variance extracted (VE), reliability is good if CR ≥ 0,70 and VE ≥ 0,50 (Hair et al, 2006). The result of CR and VE values shown at the table. It concluded that the reliability of the measuring model from latent variables of service quality (QUALITY) and loyalty (LOYAL) are good. Meanwhile, satisfaction variable (SATIS) is not good enough.

Table 3 Parameter Estimation of the Correlation Between Quality, Satisfaction and Loyalty

Model	Estimate	t calculation	Errorvar	R^2
Measurement Model				
SAT ← SATIS	0.69	8,96	0,27	0,48
TARIF ← SATIS	0.49	8,68	0,50	0,24
EXP ← SATIS	0.42	7,48	12,09	0,18
USE ← LOYAL	0.67	7,42	0,45	0,45
REC ← LOYAL	0.95	8,75	0,082	0,91
COMPORT ← QUALITY	0.75	18,08	0,15	0,56
ACCESS ← QUALITY	0.85	25,24	0,11	0,73
TIME ← QUALITY	0.96	27,13	0,025	0,91
SAFETY ← QUALITY	0.81	21,19	0,17	0,66
ENVIR ← QUALITY	0.44	9,82	0,72	0,20
DRIVER ← QUALITY	0.64	14,91	0,19	0,40
Structural Model				
SATIS ← QUALITY	0,90	13,08	0,19	0,81
LOYAL ← QUALITY	– 0,18	-0,55	0,76	0,24
LOYAL ← SATIS	0,65	1,72		

The result of exogenous latent variable (QUALITY) and endogenous latent variables (SATIS and LOYAL) parameter estimation shows the following correlations:

a. Total influence of quality (QUALITY) towards satisfaction (SATIS) is 0,90.
b. Total influence of quality (QUALITY) towards loyalty (LOYAL) from direct influence is -0,18 and from indirect influence is 0,585. The total influence is 0,405.
c. Total influence of satisfaction (SATIS) towards loyalty (LOYAL) is 0,65.
d. Total influence of QUALITY towards indicators of continue using mode (USE) endogenous latent variable is 0,392. Influence of quality towards recommend to others (REC) indicator is 0,56.

5. Results And Discussion

Analysis factor using 2ndCFA obtains that variables of punctuality (TIME = 0,96) and accessibility (ACCESS = 0,85) shows strong reflection towards ojek MC service quality (QUALITY). Meanwhile, environment variable (ENVIR = 0,44) shows less significant reflection towards service quality (QUALITY). Customer satisfaction analysis obtains the total satisfaction indicator (SAT = 0.69) shows better reflection than fare indicator (FARE = 0,49) and experience indicator (EXP = 0,42) that shows less reflection towards customer satisfaction level (SATIS). The result of the analysis shows that users have the tendency to consider punctuality and accessibility of ojek MC. The study strengthen the opinion said that users put more interest in modes with high mobility and small capacity for short distance travel (Cervero, 2002; Soegijoko, 1982; Yagi, 2006).

Analysis of correlation between service quality (QUALITY), customer satisfaction (SATISFY) and loyalty (LOYAL) shows that service quality relates significantly to customer

satisfaction (0,90) and customer satisfaction has good influence on forming loyalty. In addition, service quality variable doesn't correlate directly to loyalty (-0,18), but correlate indirectly through customer satisfaction variable (0,40). The result of the analysis supports the previous concept explained that service quality has close correlation and influence to customer satisfaction, and continues to give influence to loyalty (Zeithaml et al, 2009; (Cronim and Taylor 1992, Oliver 1980, Patrick and Backman 2002) in Chen, 2008).

The analysis above indicates that the tendency of ojek MC use to increase gradually is caused by service quality and customer satisfaction, such as punctuality and accessibility, perceived by ojek MC users. If there is no access and increasing service on formal public transportation, it is possible that ojek MC use for short distance travel will still be popular. Further research is needed as an effort to develop the efficiency of city transportation system. Based on city's physical and road network condition in Indonesia, is the necessity to have small capacity modes that integrated in the urban public transportation system.

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