

Influenced Factor Due to Service Quality and Satisfaction of Public Transport User at Sulawesi

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ABSTRACT

This paper intended to find and identify the dominant factor which influenced transport user in selection kind of public transport. The choice was due to hold and increase satisfaction and loyalty of transport user fitted to the transport demand pattern of transport service that accessed the area of Mamminasata, Sulawesi of Indonesia. Samples used in this study were focussed on service user for researching the influence of service quality due to the increasing of satisfaction and loyalty in using public transport service based on general and many users like bus. The methodology consisted of descriptive and factor analysis. Beside it, this study used Structural Equation Modelling (SEM). Results showed that no one of variables related to finding service had negative value of line coefficient. The other variables had positive value of line coefficient that indicated that there was positive influence. Behaviour of servant, transport fee, and safety to either the satisfaction or loyalty of service user, transport time, and physical condition to service user, safety and accessibility had negative influence due to the loyalty of service user.

Keywords: transport, quality, satisfaction, loyalty

INTRODUCTION

Population growth of 4.3% per-year with development rate of economical activity of 5.62% and industrial or service growth reached 11% at South Sulawesi, had increased demands of transportation and communication until 8% per-year (South Sulawesi in number, 2009). Trend of increasing on using road would cause fearful on the development of transport network was very low and it was not able to fullfil the movements of well society, goods, and services. High demand of the movement would push the trend of transportation facility demand.

System of land transportation movement nationally was still dominated by private transport compared with the public one [1]. Condition of road at Indonesia was generally as 5% of city number area (the ideal condition was 20% of city number area) and the priority of user was private transport. Therefore, moda of bus ability was predicted lower than the number as mentioned above. Kusbiantoro [1] described that nationally, the ratio between the usage of private and public transport was 62% and 38%. Private transport at Sulawesi was more dominant, it was approximate 65% and 35% was using public transport. The public transport user of bus was about 10,000 until 20,000 persons/ hour for one way.

Researchs of Basri [2][3] presented that transportation of bus began to be known in the year of 1970 by the company of Liman Express, and then followed by some other companies. Nowadays, manager company of public service of bus had reached 27 companies. It was included 17 companies that managed 95 units of big buses, 14 companies that managed 869 units of medium buses, and there were 4 companies that managed both of them. Growth level of transport armada in average was 2.78% per-year for big bus and it reached the development of 9% for medium bus on the scale of 5 end years. Growth level of transport frequency was each of 2.86% for big bus and it reached 10% for medium bus with the number of users in average of 14,370 until 25,729 passengers/hour for one way. This information as above gave an indicator that the interest of using public transport service was trended to the kind of medium bus compared to the big one although performance of company finance was generally increasing 10.54% per-year and more dominant for kind of the big one. The reason indicated that door to door services was given by the medium scale one and transport network was relatively narrow. It indicated that there was needed to minimize the factor of transport cost and waiting time related to the process of inter moda changes. The other factors that significantly influenced the quality of services due to increase the satisfaction and loyalty of public transport was needed advanced and depth study.

The increasing of bargained service quality and the more critical service user would make transportation moda could fight for the marketing. Demand on the increasing of service quality was referring to the principal of modern marketing at this time that was more oriented on user behaviour compared to production oriented. Extension of city area and section network would open the probability to use big public transport with high level of service and it would be easier to apply the transformation of small transportation (mikorelet) to feeder transportation.

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MATERIALS AND METHODS

This study was conducted at Sulawesi of Indonesia. Map of location was as in Figure 1. Samples used in this study were focussed on service users. Number of samples were included 280 respondenses of 10 north AKDP sections, 168 respondenses of 6 south AKDP sections, and 112 respondenses of 4 AKAP sections.

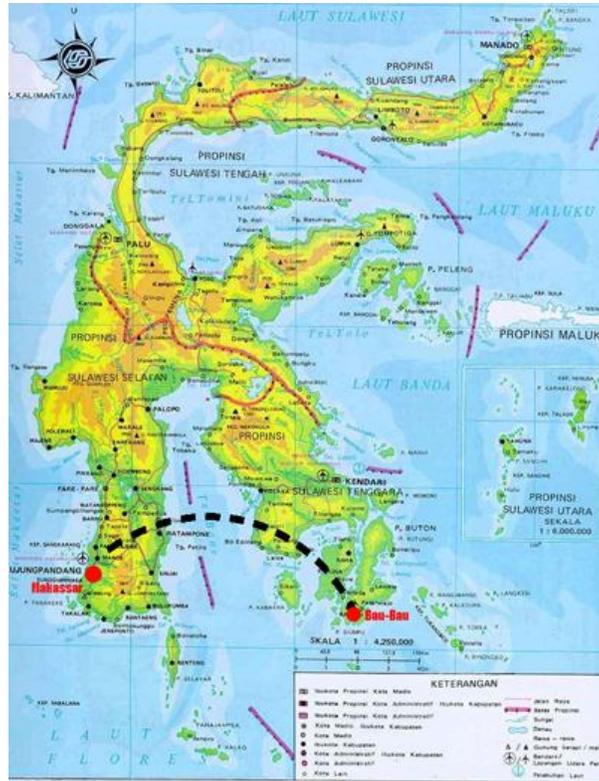


Figure 1 Map of Location

Marketing of transportation moda at existing condition was very influenced by some factors such as moda, time and travelling cost, frequency, service, safety, and comfortability. These factors as above were also depended on income level, kind of work, transport aim, age group, and level of vehicle belonging. Perangin-angin [4] had described that factor of time and cost dominantly but it was not too detail how the time factor could influence service moda marketing. Pasaribu [5] presented that comfortability and pleasure of service user was as the main and dominant factor, but this idea was only suitable to a section route of special transport of executive initial bus. In further Pasaribu showed that the main factor of passengers included students and unemployment was cost, but for businessman was accessibility factor and the main factor of employee was service. There was not found time factor as dominant one for looking the satisfaction of transport user. Pasaribu also showed some ideas about the factors of safety, pleasure, comfortability, time, and cost which sequently influenced on travelling in selecting executive class of transport moda as written by Bakhry [6] which strengthened at the factors of comfortability, pleasure, and accessibility.

Parasuraman *et.al.* [7] expressed that service quality was influenced by private attention from a servant to understand customer demand. High motivation would push someone to work dynamically included service quality. Well environment would create good job situation too, whenever if someone was supported by well educational level, there would create good manner of job. Cost unsure in service was influenced by operation of vehicle included time value that was transfered to cost value of a transport [8]. Tamin [8] had not entered cost unsure of overhead cost such as brooker, waiting cost, addition cost from freeder as cost payed by someone from home to the main journey at departure process either a journey being home at arrival process. According to Morlock [9], transportation was a concept about transportation itself which included the function, system, and economical aspect. Transportation function was to move goods or persons from a location to other ones. Transportation system would include the moda of land, sea, and air transportation of each road or line, terminal, kind of vihicle, and operational system. Economical aspect would be related to distribution of production, goods

consume, and service which had demand value of human life. A movement of X would only occur from location-1 to location-2 due to the principal as follow [10]:

$$NU(X)_2 > 0, NU \text{ was as Net Utility, and } X \text{ was human or good, and}$$

$$NU(X)_2 = \text{Max} [GU(X)_2 - E(X)_{1..2}]$$

Gronroos [11] expressed that service was often described as characteristic like intangibility, heterogeneity, and inseparability at consumption of production and it was impossible to save service. According to base phenomena of transportation which presented that transportation demand was as differentiated demand which appeared due to the demand of commodity or other service. Therefore, the analysis had to consider the characteristics of socio-economic, facility, and traffic operational system as follow: [12]

$$d_{ij}^{pm} = D^{pm}(S_i, S_{ij}; C_{ij}^m, \dots; S_k; C_{ik}^m, C_{ik}^n, \dots; \dots) s$$

Note:

d_{ij}^{pm} = demand quality from city of i to j for doing p using moda or transport tool

D^{pm} = function for estimating demand

S_i, S_{ij} = sosio economic characteristic of i city

C_{ij}^m = characteristic of value and service level with m moda from i to j city

K = alternative of destination city

N = alternative of m moda

Warpani [13] said that there were some transportation models related to transportation service demand such as direct demand model, sequential model, and time series model. Zeithaml & Bitner [14] described that customer satisfaction was due to 5 factors those were product quality, personal factor, price, situational factor, and service quality. Customers at objective market would have some levels of experience so that they were growing as a loyal customer due to product or service of company [15]. The level of experiences were suspect, prospect, disqualified prospect, first time customer, repeat customer, clien, and advocate. Sivadas [16] divided customer loyalty into 4 levels those were the loyalty of cognitive, affective, conative, and action

Method used for finding samples was purposive sampling. This method was applied to determine 20 managers of transportation service at Sulawesi. Then, each transport section was selected by random. Population in this research included the users of public transport service, supplier of bus transport service which had traffic section permit at north and south side of Mamminasata (included driver). Population of bus were PIPOSS, LITHA, LIMAN, CAHAYA SOLO, MEGA MAS, "237", SARTIKA, BINTANG PRIMA, ADHI PUTRA, BINTANG SURABAYA, GOLDEN TORAJA, GARUDA, CAHAYA MADINAH, SINAR WAHYU, PRIMA, JABAL RAHMA, ANEKA TRANSPOR, and DAMRI. Sample size of population was determined with the formula as follow:

$$n = N / (1 + N \cdot e^2)$$

Note: n = number of samples; N = population size; e = limitation of error

Number of samples for each operator was selected 7 respondenses which included 1 response of employers of the service supplier and, and 1 response of drivers. There were selected 5 respondenses of service suppliers for each vehicle with determining 2 operated bus for each kind of operator bus (name of transport company), and it was included 1 vehicle each depart and arrive section. The five respondenses were randomly selected based on job and socio-economic level included the gender of transport service user. Number of samples were 560 samples and it based on standard error of 5%. This size was fitted to used tool. Number of samples were at least 4 or 5 times of variable used in the research. Number of sample was every independent variable, it was about 15 until 25 observations [17].

Data were collected from 1) library research, it was carried out by reading, studying, and collecting some ideas from related books, journals, and scientific articles; 2) field reasearch, it was carried out directly to observed object with observation, interview, documentation, and questioner. Observation was due to the symptom or phenomena which was observed based on direct observation. Interview was due to related person, in this case was operasional manager of transport service and driver. Information would be studied included service pattern starting from ticketing, operational standard of cost, time planning of departure and arrival, handling of claim, number of operated section and armada, number of available class, number and skilfull of human resources, employer motivation, trend of passenger, and the possibility of near distance service. Documentation was as photos and note book which related to the study. Questioner was tehnique of data collecting with giving some questions to respondenses, for this case were passengers as the user of transport service.

RESULTS AND DISCUSSION

Instrument of questioner was used as the main instrumentin data collecting of quantitative research. Method of interview and observation were also used in this study. Interview was carried out to make suitable condition between data and information of respondenses. But the main instrument of qualitative research was observation.

Inductive analysis showed that there were 3 hypothesis which were proved and accepted and 12 hypothesis were not proved and accepted though they had positive relation. But qualitative analysis represented that there were some factors causing the hypothesis was not proved. It showed that for the next development of public transport service, it was needed base strategies especially related with the effort of increasing manager service resources and improving transportation facility.

The characteristic of variable was produced by analysing the whole influenced factors. Analysis result to 560 responses of service users showed that there was 37.86% responses did not feel comfortable and the others 31.96% was enough. The condition was presented as in Table 1 below.

Table 1 Value of safety factor

NO	Category of evaluation	Total	
		Frequency	%
1	Not very comfortable	17	3,04
2	Not comfortable	57	10,18
3	Less comfortable	95	16,96
4	Enough (good enough)	179	31,96
5	Comfortable	130	23,21
6	Very comfortable	62	11,07
7	Very very comfortable	20	3,57
Total		560	100,00
Mean of group		3,89	

Table 2 showed that mean of group was 3.89. It indicated that the mean was more than 3.5 or it was said that generally responses felt comfortable with the service system of available public transport. There was the same way carried out to the other variable and it produced the range mean of group was 4.04 until 4.76 and it indicated more than the average so that responses had good service level of transport.

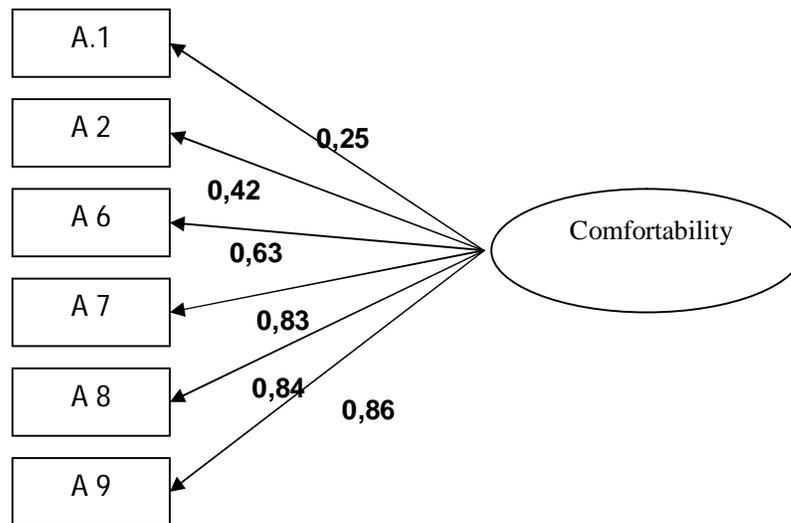


Figure 2 Loading factor of comfortability

In confirmatory analysis using loading factor at Structural Equation Modeling (SEM), it was found that from 12 questions of comfortable and pleasure indicators, there were 6 significant indicators due to safety factor of public transport usage of bus. But the other 6 indicators were not significant. The 6 significant indicators were presented as in Figure 2 above. The other 6 non-significant indicators were lighting in vehicle, cleanliness in vehicle, restroom, and water supply, noise during in travelling, comfortable seat in bus, and credibility of company according to public transport users of bus

Result of using Amos version 5 software showed the informations presented as in Table 2 below. This information showed that generally all criteria were significant based on goodness of fit index. It indicated that sample were in conformity with population. In further information, it was concluded that this model was valid enough.

Table 2 Criteria of goodness of-fit Index for testing indicator of comfortability

Criteria	Value of cut-off	Result of computation	Information
Chi – Square	Being hoped small value	24,454	Good
Significant probability	≥ 0,05	0,02	Enough
G F I	≥ 0,90	0,986	Good
T L I	≥ 0,95	0,979	Good
C F I	≥ 0,94	0,989	Good
R M S E A	≤ 0,08	0,061	Good

To know goodness of fit level (undimentional), the indicator used to perform comfortability and pleasure of service users could carried out by researching the value of loading factor and significant level for each indicator. Table 3 below was described the loading factor and probability for each indicator of comfortability.

Table 3 Loading Factor and probability for each indicator of comfortability

Indicator	Loading factor	Probability	Information
A1	0,25	0,000 ≤ 0,05	Significant
A2	0,42	0,000 ≤ 0,05	Significant
A6	0,63	0,000 ≤ 0,05	Significant
A7	0,83	0,000 ≤ 0,05	Significant
A8	0,84	0,000 ≤ 0,05	Significant
A9	0,86	0,000 ≤ 0,05	Significant

Table 3 showed that loading factor for each comfortability indicator of transport service users was up to good enough of number, it meant that indicator using in the model was good enough. All of the probabilities were also significant, it meant that the model was in conformity with the indicator. Based on the testing result of loading factor and level of probability, it was concluded that the model was valid to be used in further analysis. To know the inter relation among the factors, it could be observed loading factor and signification of each factor as described in Table 4 below.

Table 4 Loading Factor and critical ratio of structural relation

No.	Indicator		Coefficient of line	Estimation standardi	Std. Error	C.R	Prob.	Inform ation.
I	Comfortability	Quality of service	0,019	0,029	0,031	0,913	0,361	NS
	Comfortability	Satisfaction of service user	0,998	1,832	0,413	4,434	0	S
	Comfortability	Loyalty of service user	- 0,193	- 0,235	0,620	0,380	0,704	- NS
II	Behaviour of servant	Quality of service	0,012	0,008	0,022	0,391	0,696	NS
	Behaviour of servant	Satisfaction of service user	- 0,007	- 0,006	0,007	- 0,803	0,422	- NS
	Behaviour of servant	Loyalty of service user	- 0,018	- 0,010	0,010	- 0,984	0,325	- NS
III	Transport time	Quality of service user	1,034	1,182	0,206	5,727	0	S
	Transport time	Satisfaction of service user	- 0,028	- 0,039	0,053	- 0,731	0,465	- NS
	Transport time	Loyalty of service user	0,815	0,759	0,245	3,103	0,002	S
IV	Transport cost	Quality of service	0,026	0,017	0,019	0,911	0,362	NS
	Transport cost	Satisfaction of service user	- 0,001	- 0,001	0,007	- 0,151	0,880	- NS
	Transport cost	Loyalty of service user	- 0,010	- 0,006	0,010	- 0,579	0,562	- NS
V	Welfare	Quality of service	0,011	0,004	0,010	0,428	0,669	NS
	Welfare	Satisfaction of service user	- 0,004	- 0,002	0,003	- 0,544	0,587	- NS
	Welfare	Loyalty of service user	- 0,015	- 0,005	0,005	- 1,031	0,303	- NS
VI	Accessibility	Quality of service	0,081	0,033	0,013	2,501	0,012	S
	Accessibility	Satisfaction of service user	0	0	0,004	0,059	0,953	NS
	Accessibility	Loyalty of service user	- 0,024	- 0,008	0,007	- 1,118	0,263	- NS
VII	Physical condition of vehicle	Quality of service	0,049	0,026	0,011	2,453	0,014	S

	Physical condition of vehicle	...>	Satisfaction of service user	- 0,004	- 0,003	0,004	- 0,726	0,468	- NS
	Physical condition of vehicle	...>	Loyalty of service user	0,090	0,039	0,019	2,062	0,039	S
VIII	Quality of service	...>	Satisfaction of service user	0,036	0,044	0,045	0,984	0,325	NS
	Quality of service	...>	Loyalty of service user	0,322	0,262	0,171	1,537	0,124	NS
IX	Satisfaction of service user	...>	Loyalty of service user	0,201	0,133	0,336	0,397	0,691	NS

Note: S = significant, NS = non significant

Table 4 showed that there were 10% or about 40% of 24 variables had negative value of line coefficient. It meant that the variable had negative influence those were behaviour of servant, cost of journey, and welfare due to satisfaction, welfare, and accessibility of user loyalty. This study showed the phenomena that no one variable related to service quality had negative value of line coefficient. The other variable had positive value of line coefficient and it indicated that there was positive influence.

CONCLUSION

There were 10% or approximate 40% of 24 variables had negative value of line coefficient. It meant that the variables had negative influence those were behaviour of servant, cost of journey, welfare of either satisfaction or loyalty of service user, time of journey, physical condition of service user satisfaction, safety and accessibility of service user loyalty. Result of this study showed the phenomena that no one of variables related to service quality, had negative value of line coefficient. The other variables had positive value of line coefficient and it indicated would give positive influence.

Based on significant measuring of the probability, it was found that relation of variables were not all significant or non significant. Non significance of a variable was marked by the probability was more than 0.05. . Therefore, significant variable included relation between comfortability and service quality, time of journey and service quality, loyalty and service user, accessibility and service quality, physical condition of vehicle and quality and loyalty of user. The other variable was expressed non significant though they had positive influence.

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