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Analysis of the Performance of Koasi K01A Public Transport During the Implementation of the PSBB

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Abstract

This research shows that the average number of passengers during the implementation of the PSBB is reduced by 50%, although there are still some Koasi K01A whose number of passengers exceeds the health protocol standard recommended by the government. Respondents considered the feasibility of the K01A Koasi to operate as still quite feasible, because there were still some respondents who still needed this Koasi K01A to travel so that it could be judged that the K01A Koasi was still feasible to operate to serve its passengers, only had to replace the old Koasi units with a newer unit that provides comfort for Koasi K01A passengers. The comfort and safety provided by the K01A Koasi manager are still considered very uncomfortable and safe by respondents.

Keywords :
Koasi K01A Public Transportation.

1. Background

City transportation or commonly referred to as angkot, is a means of urban passenger transportation which is usually run on the highway in mixed traffic conditions provided by private or public operators and is in certain groups and routes. People in both small and large cities have taken advantage of the function of this angkot as a tool to move people and goods from one place to another which is the destination. In addition, the policy of providing mass transportation tends to override the role of existing transportation. This needs special attention from the government because it cannot be denied that public transportation is still needed and still has the potential to be developed.

One of the routes for the materials in this study is the K01A co-operation with the Bekasi - Cikarang route, which has changed the route because the route is waiting for passengers and picks up and lowers passengers carelessly, causing traffic jams. but for now the K01A Coasi has obtained a permit to use its old route.

2.Methodology

The system is a combination of several components or objects that are interrelated. In any system organization changes to one component can cause changes to other components. In a mechanical system the components are mechanically related, for example the components in a car engine. In non-mechanical systems, for example in the interaction of land use systems with transportation network systems, the existing components cannot be mechanically related, but changes in one component can cause changes in other components Tamin, (2000).

Meanwhile, transportation according to Miro (2012) in general can be defined as an effort to move or move people or goods from a location called the location of origin, to another location which can be called the destination location, for certain purposes by using certain tools as wells. Certain needs at the destination location, such as social economy, etc. If one of the three dimensions is independent or does not exist, this cannot be called transportation. This transportation needs to be considered planning. Not paying attention to transportation planning can lead to problems in transportation in the future, such as congestion, traffic accidents and others.

The essence of the transportation problem is the use of roads that are over-capacity or in other words, there are too many vehicles using the same road at the same time, therefore, according to Tamin, (2000) human interference in the transportation system (transportation planning is needed) as:

a. changing transportation technology
b. changing information technology
c. change the characteristics of the vehicle
d. change the characteristics of the road sections
e. change the transport network configuration
f. change operational and organizational policies
g. changing institutional policies
h. change travel behavior
i. change activity options

2.1 Quality of Public Transport Performance

Asikin, Arifin, (1998) in Chrisdianto, (2013) explain that bus management is an attempt to create regular, fast, and precise bus movements that provide benefits to all parties. Giannopoulos, (1998) in Chrisdianto, (2013) provides several factors that affect the quality of operations, including:

1. Load Factor
2. Reliability
3. Comfort, safety and security
4. Route length
5. Length of journey
6. Time Between (Headway)
7. Speed
8. Waiting time for passengers
9. Start and end of travel time

2.2 Data Collection Techniques

In technical data collection, the researcher will conduct a survey by giving questionnaires from research respondents, namely users of public transportation K01A. This sample is determined randomly, in which each popolated city has the same opportunity to become a sample. Likert scale or Likert scale is a research scale used to measure attitudes and opinions.

2.3 SPSS theory

According to Yamin, Sofyan dan Kurniawan, (2014), SPSS or Statistical Product and Service Solution is a statistical software that can be used to perform statistical calculations using available statistical analysis techniques. The development of the use of statistical analysis has made SPSS software increasingly recognized for its easy operation. In this research, SPSS is used as a tool for analyzing questionnaire data which will display the results of the Data Quality Test, Classical Assumption Test, Model Fit Test, Hypothesis Test.

3. Result And Analysis

3.1 Survey Data Processing

3.1.1 Load Factor

Load Factor is a number that indicates the amount of use of space available in a vehicle to the carrying capacity of the vehicle or the ratio between the number of passengers transported in the vehicle.

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Table1. Average Load Factor (%) during peak hours

No.	Rush Hours (06.00-08.30) Day			Rush Hours (17.00-19.30) Day			Average
	Tuesday	Thursday	Monday	Tuesday	Thursday	Monday	
1	21.42%	14.28%	21.42%	28.57%	21.42%	21.42%	21.42%
2	35.71%	28.57%	21.42%	28.57%	21.42%	28.57%	27.38%
3	28.57%	28.57%	42.85%	35.71%	42.85%	21.42%	33.33%
4	21.42%	35.71%	21.42%	21.42%	42.85%	0.00%	23.80%
5	0.00%	28.57%	42.85%	14.28%	28.57%	21.42%	22.62%
6	28.57%	14.28%	28.57%	14.28%	35.71%	35.71%	26.19%
7	21.42%	42.85%	0.00%	35.71%	21.42%	42.85%	27.38%
8	14.28%	50.00%	50.00%	35.71%	28.57%	28.57%	34.52%
9	35.71%	28.57%	21.42%	42.85%	14.28%	14.28%	26.19%
10	21.42%	35.71%	28.57%	28.57%	0.00%	42.85%	26.19%
11	21.42%	21.42%	50.00%	28.57%	28.57%	28.57%	29.76%
12	14.28%	14.28%	42.85%	42.85%	35.71%	50.00%	33.33%
13	35.71%	28.57%	42.85%	42.85%	35.71%	50.00%	39.28%

Source: Results of survey data processing

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Table 2. Average Load Factor (%) during peak hours

Not Rush Hours (11.30 - 14.00)				
No.	Day			Average
	Tuesday	Thursday	Monday	
1	14.28%	14.28%	7.14%	11.90%
2	7.14%	7.14%	7.14%	7.14%
3	21.42%	7.14%	7.14%	11.90%
4	14.28%	14.28%	21.42%	16.66%
5	14.28%	21.42%	21.42%	19.04%
6	28.57%	28.57%	14.28%	23.81%
7	0.00%	28.57%	14.28%	14.28%
8	21.42%	0.00%	21.42%	14.28%
9	35.71%	7.14%	28.57%	23.81%
10	21.42%	21.42%	14.28%	19.04%
11	14.28%	14.28%	28.57%	19.04%
12	28.57%	21.42%	21.42%	23.80%
13	28.57%	21.42%	21.42%	23.80%

Source: Survey data processing results

From the results of the calculation of the Load Factor using the SPSS 21 program, it was found that the average value of the load factor during peak hours was 28.57%, while outside the peak hours was 17.58%. This shows that the load factor value according to the table of the Director General of Land Transportation is A.

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3.2.2 Travel Speed (km / h)

Travel speed is the time required to take a route from start to finish. Example:

Table3. Average Travel Speed (Km / Hour)

No.	Cikarang Terminal - Bekasi Station	V (Km / Hour)			Average
		Tuesday	Thursday	Monday	
1	06.00 - 08.30	26.99	24.24	20.97	
2	11.30 - 14.00	25.49	18.95	21.65	22.33
3	17.00 - 19.30	21.53	20.58	20.59	

Source: Results of survey data processing

From the table above, the average value of travel speed is 22.33 km / hour.

3.2.3 Travel time

Travel Time is the time required to cover 26.3 kilometers of the length of the route, the unit used is Minutes / Km.

Table 4 Average Travel Time (Minutes / Km)

No.	Cikarang Terminal - Bekasi Station	Travel Time (Minutes / Km)			Average
		Tuesday	Thursday	Monday	
1	06.00 - 08.30	4.82	4.95	5.05	
2	11.30 - 14.00	2.08	5.89	5.25	5.08
3	17.00 - 19.30	5,56	6.55	5.61	

Source: Results of survey data processing

3.2.4 Anntara Time (Headway) and Frequency

Headway is the interval between the K01A Coation to the next Coasi K01A. To get this Headway by recording the Koasi departure time in sequence.

Whereas Frequency, is the number of K01A Coations that operate during a certain intermediate time.

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Table 5. Average K01A Koasi Headway

No.	Time	Cikarang Terminal - Bekasi Station	*Headway*			Average
			Monday	Wednesday	Friday	
1	Busy time	06.00 - 07.30	3.91	4.29	3.91	
		17.30 - 19.00	3.21	4.09	3.91	4.17
2	Outside Rush Hours	11.30 - 13.00	4.74	4.5	5.0	

Source: Results of survey data processing

From the table above, it is obtained that the average value of K01A Headway is 4.17 vehicles / hours.

Table 6. Average frequency values

No.	Time	Cikarang Terminal - Bekasi Station	Frequency			Average
			Monday	Wednesday	Friday	
1	Busy time	06.00 - 07.30	23	21	23	
		17.30 - 19.00	28	22	23	21.89
2	Outside Rush Hours	11.30 - 13.00	19	20	18.0	

Source: Results of survey data processing

From the table above, the average value of K01A Coasi Frequency is 21.89 Kend./Hours.

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3.2.5 Passenger Waiting Time

Waiting Time is the average time needed to get the Koasi.
This waiting time is ½ of the Headway.

Table 7. Average K01A Coation waiting time

No.	Waiting time			Average
	Monday	Wednesday	Friday	
1	2.19	2.24	2.23	2.22

Source: Results of survey data processing

From the table above, it is obtained that the average waiting time for Koasi K01A is 2.22 minutes.

3.3 Characteristics of Respondents

3.3.1 Validity Test Results

The validity test is used to measure whether a questionnaire is valid or not. A questionnaire is said to be valid if the statement on the questionnaire is able to reveal something that will be measured by the questionnaire. A statement item is said to be valid if the Pearson correlation (r count) is greater than r table (df = 100 - 2 = 0.1966).

Table 8. Results of Performance and Satisfaction Validity Test with SPSS 21 Program

PERFORMANCE	
STATEMENT	PEARSON CORRELATION
K1	0.603
K2	0.527
K3	0.651
K4	0.674
K5	0.448
K6	0.723
K7	0.690

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Table 9. Results of Performance and Satisfaction Validity Test with SPSS 21 Program

SATISFACTION	
STATEMENT	PEARSON CORRELATION
KP1	0750
KP2	0.682
KP3	0.655
KP4	0.592
KP5	0.622
KP6	0.421
KP7	0.684
KP8	0.555

Based on the table, the statement on the performance variable and the satisfaction variable is declared valid, because it has a Pearson correlation value (r count) is greater than r table (0.1966).

3.3.2 Reliability Test Results

The reliability test is a continuation of the validity test, where the test items that enter the test are only valid items. A questionnaire is declared reliable if the Croncbach Alpha value is more than 0.60.

Table 10. Reliability Test Results with SPSS 21 Program

RELIABILITY		
VARIABLE	CRONBACH'S ALPHA	N OF ITEMS
PERFORMANCE	0750	8
SATISFACTION	0.752	9

Source: Results of SPSS data processing

Based on Table 4:32, the performance and satisfaction variables show the Cornbach Alpha value is more than 0.60. which means that all variables in this study are declared reliable.

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3.3.3 Normality test

The normality test aims to test whether in the regression model, confounding or residual variables have a normal distribution or not. As it is known that the significance value> 0.05 assumes that the residual value is normally distributed and vice versa if the significance value is <0.05 then the residual value is not normally distributed.

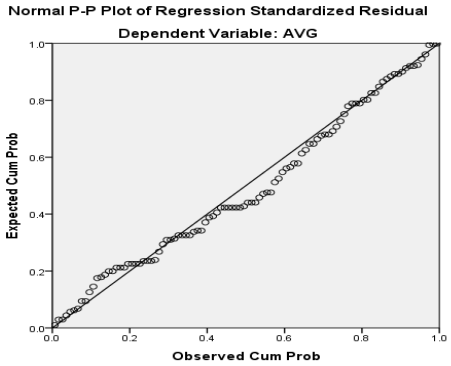

Figure 1. Graph of the results of the Normality test with SPSS

Table 11. Normality Test Results with the SPSS 21 Program

One-Sample Kolmogorov-Smirnov test

		Unstandardized Predicted Value
N		100
Normal Parameters ab	the mean	3.2637500
	Std. Deviation	.37464345
MostExtreme Difference	Absolute	.135
	Positive	.135
	Negative	-830
Kolmogorov-Smirnov test		1,345
Asymp. Sig. (2-tailed)		.054

Source: Results of SPSS data processing

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To find out whether the data is normally distributed or not, it is enough to read the significance value (Kolmogorov-Smirnov Z). If the significance is more than 0.05, then the data is normally distributed. Based on table 4:33, the significance level is 1,345, this means that the residual data is normally distributed.

3.3.4 Multicoloniality Test

In conducting the multicolonierity test in this study, researchers used a method by looking at the Tolerance and VIF values in the regression model, with the following conditions:

1) If the VIF value <10 and the Tolerance value> 0.1, there is no multicolonierity.
2) If the VIF value> 10 and the Tolerance value <0.1 then multicolonierity occurs.

Table 12. Multicoloniality Test Results with the SPSS 21 Program

Multicoloniality Test		
Independent Variable	Tolerance	VIF
Performance	1,000	1,000

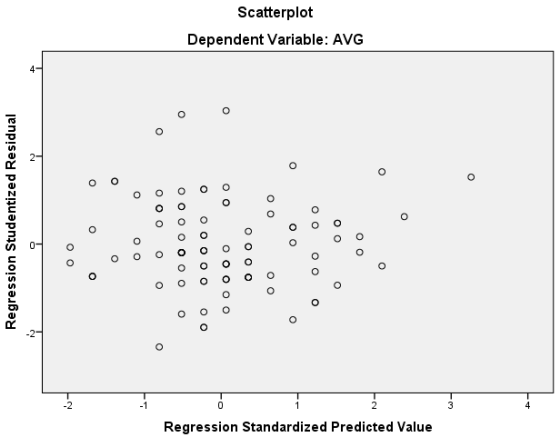
Source: Results of SPSS data processing

Based on the table, it can be seen that the three independent variables in this study have a Tolerance value of more than 0.10 and a VIF of less than 10. Thus, it can be said that there is no multicollinearity symptom among the independent variables in this study.

3.3.5 Heteroscedacity test

The heteroscedasticity test aims to test whether in the regression model there is an inequality of variants from the residuals of one observation to another. In conducting the heteroscedasticity test in this study, the researcher used the Glejser test method. The Glejser test is carried out by regressing the independent variables with an absolute residual value of more than 0.05 or in the graph if the dots do not converge, there is no heteroscedasticity problem.

Figure 2. Heteroscedacity Test Results with the SPSS 21 Program



Source: Results of SPSS data processing

Based on table 4:35 using the graph method it can be seen that the independent variables do not converge into one, which can be said that there is no heteroscedasticity in this regression model.

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3.3.6 Linearity Test

Linearity test aims to test whether the relationship between two variables is linear. The linearity calculation is used to determine whether the predictors of data change independently are linearly related or not with related changes. Linearity test is carried out by using analysis of variance to the regression line which later will be obtained Fcount.

The value of F obtained is then consulted with Ftable at a significant level of 5%, the criterion is if the Fcount price is smaller or the same as Ftable at the 5% significant level, the relationship between the independent variables is said to be linear. Conversely, if Fcount is greater than Ftable, then the relationship of the independent variable to the related variable is not linear Nurgiantoro burhan, (2012)

Table 13. Multicoloniality Test Results with SPSS 21 Program

ANOVA Table

			Sum of Squares	df	Mean Square	F	Sig.
AVG * AVG	Between Groups	(Combined)	15,343	16	.959	7,076	.000
		Linearity	13,895	1	13,895	102,537	.000
		Deviation from Linearity	1,447	15	.096	.712	.766
	Within Groups		11,248	83	.136		
	Total		26,590	99			

Source: Results of SPSS data processing

Based on the table 4.36 above, it can be said that the significant result of the service quality variable on customer satisfaction is 0.766, which means that a significant value> 0.05 occurs in a linear relationship.

3.3.7 Determination Coefficient Test (R2)

The coefficient of determination test basically measures how far the ability of the model to explain the variation of the independent variables. A small R^2 value means that the ability of the independent variables to explain the variation of the dependent variable is very limited, on the other hand, the R^2 value which is close to one means that the independent variables provide almost all the information needed. to predict the variation in the dependent variable. The value of the coefficient of determination used in this study is the adjusted R2 value because the independent variables used in this study are more than two variables.

Table 14. Results of the Determination Coefficient Test with the SPSS 21 Program

Model Summary b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.723a	.523	.518	.359919

Source: Results of SPSS data processing

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Based on table 4:37 above, the value of Adjusted R Square (R^2) is 0.518 = 51.8%. This means that the performance variable can explain the customer satisfaction variable by 51.8% while the remaining 48.2% is explained by other variables not included in this study.

3.3.8 F analysis of variance (ANOVA) test

ANOVA F test, namely the joint regression coefficient test (F test) to test the significance of the influence of several independent variables on the dependent variable. The test uses a significance level of 0.05. The test criteria are as follows:

If F count <F table then there is no effect simultaneously.

If F count> F table then there is an effect simultaneously.

Table 15. Results of the F Analysis on Variants with the SPSS 21 Program

ANOVAa

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	13,895	1	13,895	107,266	.000b
	Residual	12,695	98	.130		
	Total	26,590	99			

Source: Results of SPSS data processing

Based on Table 4:38, the results of the F ANOVA test obtained F count of 107,266 and a significance value of 0,000. F table can be seen in the statistical table at a significance level of 0.05 with df 1 (number of variables - 1) = 1, and df 2 (n - k - 1) or 100 - 1 - 1 = 98, the results are obtained for F table of 3.94 (Attachment).

These results indicate that the F count is greater than the F table, it means that the multiple linear analysis model is valid and can predict the effect of performance variables on passenger satisfaction.

3.3.9 Hypothesis testing

Partially, hypothesis testing is carried out by means of the t-test. The t statistical test basically shows how much influence one individual or independent variable has in explaining the dependent variable. In this study the t test is used to test the hypothesis.According to Ghozali, (2011), the t test is done by comparing the significance of the t count with the t table with the following provisions:

If t <t table and significance> 0.05, the hypothesis is rejected.

If t count> t table and significance <0.05, the hypothesis is accepted.

Table 16. Hypothesis Test Results with the SPSS 21 Program

Model		t	Sig.
1	(Constant)	3,241	.002
	AVG	10,357	.000

Source: Results of SPSS data processing

Based on table 4.39 shows that, the results of hypothesis testing for the promotional variable obtained the t value of 10,357 greater than t table 1.66055 (Attachment) (10,357> 1,66055), and the significance of 0,000 is less than 0.05 (0,000 < 0.05), which means that performance has a significant effect on passenger satisfaction.

4. Conclusions and Suggestions

4.1 Conclusion

After the data that has been obtained from various sources is processed and analyzed by the researcher, it can be concluded that several things are:

1. The safety and comfort factor for passengers is still not being noticed by this transportation service provider, because there are still many drivers who drive recklessly.
2. According to respondents, for feasibility of operating, Koasi K01A is still feasible to operate, because there are several respondents who really need Koasi K01A.
3. There are still many Koasi K01A that do not comply with the health protocol regulations recommended by the Government.

4.2 Suggestion

Based on observations and interactions with respondents in Koasi K01A, several suggestions can be made in this study, namely:

1. For these transportation service providers, they can pay more attention to the comfort of their users.
2. It is better if this public transport service is managed directly by the local government so that it becomes more organized and orderly.
3. Immediately rejuvenate the Koasi K01A car because there are many unsuitable cars that will ensure the safety of both drivers and passengers who are still operating, thus endangering passengers.
4. Further improve the regulatory health protocol recommended by the government.
5. It is not too long to wait for passengers at certain points because it causes congestion for other vehicles and makes passengers uncomfortable because it takes too long to use Koasi K01A, so Koasi K01A users can turn to other modes of transportation.

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