Student Interest Analysis At Hasanuddin University And Alauddin State Islamic University In Public Transportation

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Abstract: *The displacement of the campus of Hasanuddin University's Faculty of Engineering and Alauddin State Islamic University in Gowa Regency of South Sulawesi has implications for increasing the volume of vehicles coming in and out of Gowa Regency. Even though public transportation modes have been provided, but are less attractive to students. This study aims to analyze the interest of motorbike user students at the Hasanuddin University's Engineering Faculty Campus and Alauddin State Islamic University to switch to using mass transportation mode, and find strategies that need to be done so that the percentage of mass transit use increases.*

This research is a descriptive with qualitative and quantitative approaches. The results of this study show that 65% of motorcycle riders are willing to switch to mass transportation mode while 35% are not willing. The test results with Chi-square value and Significance value using the SPSS program show motorbike users who have the willingness to switch to buses have a tendency to have characteristics of pocket money/average income between IDR 300,000.- to IDR 400,000.- with the distance of residence to campus more than 10 km. Expected travel time is less than an hour, with a four-week trip activity with the hope that the bus can pass certain areas and the tendency of students to switch modes in the second year and above. The strategies that need to be done to increase the use of mass transportation based on the results of the SWOT analysis are; Make a Memory of Understanding (MoU) on joint cooperation and commitment between relevant agencies, socialization of public transportation among students, the application of online-based transportation information facilities that can be accessed by the public and improve the condition of road infrastructure and mass transportation.

Keywords*: Public Transportation, Interest, Campus*

I. Introduction

Problems of population density, concentrated development, and a high level of urbanization is generally problems that are always faced by developing countries like Indonesia. Like the Mamminasata Metropolitan City (Makassar, Maros, Sungguminasa and Takalar) which experienced rapid development. The movement of several campuses from Makassar to Gowa Regency such as Hasanuddin University Faculty of Engineering, Alauddin Makassar Islamic University, Patria Artha University, and several other campuses, led to an increase in the mobility potential of campus communities (students, lecturers, staff) in and out of Makassar and Gowa cities. Sombaopu and Bontomarannu sub-districts become one of the educational fields and new territorial nodes that have the potential to generate traffic congestion and traffic which are quite dense.

Previous research (Samang, 2013) states that 96% of students prefer to ride a motorcycle compared to other vehicles. It indicates a good opportunity to invite to switch modes of transportation to mass transit. So it is necessary to formulate public policy by focusing on public transportation service facilities and increasing the efficiency and effectiveness of the use of existing transportation infrastructure. The goal is to influence motorcycle users to switch modes to mass transit.

Through the implementation of good Transport Demand Management (TDM) science and theory (Hendri, TH T. 2010), existing transportation facilities and facilities are used efficiently in order to influence travel behavior more interested in using bus transportation, especially students who are active in Gowa Regency. Thus the volume of vehicles on the highway is reduced. So that the realization of the master plan for urban transportation networks in the Mamminasata agglomeration area becomes more organized and directed.

II. Methodology

This research is a descriptive with qualitative and quantitative approaches. Research locations are Bontomarannu and Sombaopu Districts.
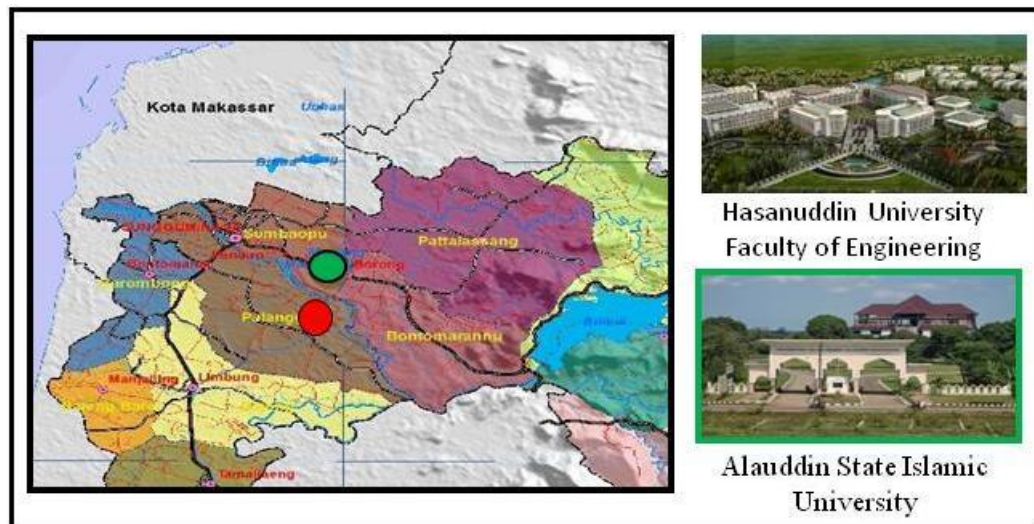

Figure 1. Research Locations

Data collection was done by distributing questionnaires to 140 respondents. The research variables are; domicile/residence of the respondent, distance of the trip to the campus, travel time, departure time, frequency of travel, student activities/activities, mode of travel to and from campus, the amount of allowance and expenses. Analysis of the data used is multiple linear regression analysis to determine factors that influence motorcycle users in assessing the quality of public transportation services. To find out the transition of the use of private transport modes, especially motorcycle users to move to student bus transportation, the analysis carried out includes the perception of motorcycle users on student transportation services. In developing this transportation system development strategy plan, the Strength, Weakness, Opportunity, and Threat (SWOT) method is used.

III. Results And Discussion

Condition of Road Transportation Infrastructure

a. Road

Student bus operators are managed by each campus and Damri. In the Hasanuddin University campus the route served by Tamalanrea to the Campus of the Faculty of Engineering, Hasanuddin University Gowa. Likewise, the campus of Alauddin State Islamic University serves inter-campus from Alauddin State Islamic University on Sultan Alauddin Makassar Street to Tun Abdul Rasak Street, Samata Gowa. While the official public transport route only passes through the campus of the Gowa Hasanuddin University leads to Malino.

For transportation to the State Islamic University, the Department of Transportation stipulates the temporary route on the first campus to the second campus with the public transport mode on the State Islamic University campus, assisted by the Sungguminasa-Samata route and the Antang-Samata route. But the stop is only on the Aroeppala road by Abdul Kadir Dg. Suro. So that to enter the campus must take an *ojek* (online driver) or *bentor* (motorcycle rickshaw). The Hasanuddin University student transport bus that operates at the moment is 3 buses that are only served at 09:00 am, 12:00 am and 16:00 pm, which is the beginning of the movement from the campus of Hasanuddin University Tamalanrea. While on the campus of the Alauddin State Islamic University for student transport buses the Alauddin State Islamic University only operates one bus.

b. Bus Stop

In Gowa Regency around the route that is passed by student buses there is only a campus bus stop in the dictionary of the State Islamic University, the border stop of the Gowa-Makassar Bus Rapid Transit (BRT), Balla Lompoa, while in Makassar there is a Hertasning field bus stop, BRT bus stop (Makassar-Pettarani State University campus, Alauddin State Islamic University, and Muhammadiyah Islamic University), while the student bus routes of Hasanuddin University as long as there is no access at all in Gowa district.

Factors that influence the assessment of motorcycle users on public transport services

There are factors that influence prospective bus passengers in assessing the quality of service provided by student bus operators. These factors are obtained through multiple linear regression analysis. In regression analysis, the dependent variable (the attitude of the student agrees/disagrees) is denoted by Y, while the independent variable is denoted by X which consists of Cost (X1); Time (X2); Distance (X3); Frequency of Mode Change (X4); Activities (X5); and Income / income (X6).

First Test Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.564	.227		6.899	.000
	Cost	.021	.043	.043	.493	.623
	Time	**-.123**	**.043**	**-.254**	**-2.895**	**.004**
	Distance	.012	.024	.043	.502	.616
	Frequency	-.013	.031	-.035	-.415	.679
	Activity	-.002	.044	-.004	-.052	.958
	Income	-.014	.037	-.033	-.392	.695
a.	Dependent Variable: Attitude					

The data above shows that only the hypothesis time variable is accepted where the value of Sig of the time variable is 0.004 <0.05. While other variables> 0.05 so that the hypothesis is rejected, meaning that the cost, distance, frequency of travel, activity, and income have no significant effect on the attitude to switch modes using mass transit

Second test ANOVA[a]						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	1.988	6	.331	1.475	.191[b]
	Residual	29.862	133	.225		
	Total	31.850	139			
a. Dependent Variable: attitude						
b. Predictors: (Constant), Income, Cost, distance, Activity, Frequency, Time						

Based on the data above, the sig value is obtained. F is 0.191 (p <0.05) so it can be concluded that the hypothesis is unacceptable, meaning that the variables of cost, time, distance, frequency, activity and income have a significant effect together with the attitude of students to switch modes.

Identification and Characteristics of Student Activity Movement Patterns

Based on the results of a field survey of 140 respondents, it can be seen that the number of motorcycle users who are willing to use the student bus/BRT is 65% (91 respondents). While as many as 35% (49 respondents) motorcycle users are not willing to use the bus to travel to campus. Influential characteristics consist of student income/pocket money, travel time, distance, residence, frequency of travel, activities other than to campus, and semester rate of respondents.

These characteristics were tested with Chi-square values and Significance values using the SPSS program. With the terms are Chi-square calculation> chi-square table and Sig <0.05. The following results of data processing can be seen in Table 1.

Table 1. Characteristics of Respondents

No.	Characteristics of respondents	Attitude (person)			Chi-Square	Sig
		Interest	Not Willing	Total		
1.	Pocket Money Data (Income) • Below < 300,000.- • Between IDR 300,000.- to IDR 400.000.- • Between IDR 400,000.- to IDR 500.000,- • Above IDR 500.000.-	10 49 15 17	34 0 4 11	44 49 19 28	62,797 > 7.815 (Count > table)	0,000 < 0.05
2.	Distance of residence • Below < 4 km • between4 km to 6 km • Between 6 km to 8 km • Between 8 km to10 km • Above > 10 km	11 9 8 11 52	28 8 2 4 7	39 17 10 15 59	39,624 > 9,4888 (count > table)	0,000 < 0,05
3.	Time travel • Less< 30 minutes • Between 30 minutes to 1 hour • Between 1 hour to 1 hour 30 minutes • Between 1 hour 30 minutes to 2 hours • Between 1 hour 30 minutes to 2 hours	54 37 0 0 0	20 2 20 3 4	74 39 20 3 4	67,508 > 9,888 (Count> table)	0,000 < 0.05

No.	Characteristic					
4.	Travel Frequency				46,725 > 9,4888 (count > table)	0.000 < 0.05
	• Twice	0	10	10		
	• 3 times	1	9	10		
	• 4 times	27	0	27		
	• 5 times	12	6	18		
	• More than 5 times	51	24	75		
5.	Other Activities on Campus				90,425 > 7,815 (count> table)	0.000 < 0,05
	• Home-campus-house	1	24	25		
	• Other house-campus-house	0	10	10		
	• Home-campus-another place-home	80	6	86		
	• Other houses-campuses-other places-houses	10	9	19		
6.	Semester level				40,571 > 9,4888 (count > table)	0.000 < 0,05
	• First years	19	36	55		
	• Second years	12	2	14		
	• Third years	25	9	34		
	• Fourth years	10	0	10		
	• > Fourth years	25	2	27		

Source: Results of data processing, 2016

Based on Table 1 Above all characteristics can be seen H_0 rejected and concluded that the data or sample does not come from a population with a normal distribution. Motorcycle users who have the willingness to switch to buses have a characteristic tendency to have pocket money/average income between IDR 300,000 - up to IDR 400,000 with a distance of more than 10 Km from the campus, the expected trip time is less than an hour, with a four-week trip activity with the hope that the bus can pass through certain areas and students want to switch modes in the semester second up.

Public Transportation Service Strategy
To develop a public transportation system development strategy plan, the Strength, Weakness, Opportunity, and Threat (SWOT) method is used; this SWOT Analysis aims to identify internal and external factors. This data retrieval stage is used to determine the factors that become strengths, weaknesses, opportunities and threats that are carried out by interviewing stakeholders or quantitative analysis. The following is the weighting matrix presented in the SWOT analysis process in Table 2.

Table 2. Weighting Matrix in the SWOT Analysis Process

Factors	Weight	Rating	Score
Power			
- Accessibility and high mobility	0.13	2	0.25
- Strong commitment from the government	0.17	2	0.33
- The number of passengers is high	0.13	3	0.38
- Development of education zones	0.17	2	0.23
Total strength scores			1.29
Weakness			
- Coordination between relevant agencies is still low	0.08	3	0.25
- The quality of human resources is still low	0.13	3	0.38
- Lack of route information facilities and bus routes	0.08	4	0.33
- Conditions for road infrastructure and transportation are limited	0.13	4	0.50
Number of **Weakness scores**			1.46
Total strength-weakness score			**-0.17**
Opportunity			
- MP3EI & Gowa Regency Spatial Plan	0.09	3	0.27
- Law no. 32 of 2004 concerning local government	0.09	3	0.27
- Mass transit fleet (student bus)	0.12	4	0.48
- Planning and development of the Mamminasata BRT network	0.12	4	0.48
- Mobility in using mobile phones as a means of information.	0.12	4	0.48
Total score opportunity			2.00
Threat			

Factors	Weight	Rating	Score
- Limited local government budget	0.14	4	0.48
- Limited transportation facilities	0.14	3	0.36
- The local transportation mode is dead	0.10	3	0.27
- Student transportation costs are increasing.	0.12	4	0.48
Number of threat scores			1.12
Total score of threats			**0.88**

Source: Results of data processing, 2016

From the SWOT weighting matrix it can be seen that the position of the road network development strategy in supporting economic improvement in Gowa Regency is the coordinate point (-0.17; 0.88) in the WO strategy. This shows that the strategy to increase student interest in transporting in Gowa District identifies strategies to minimize weaknesses by utilizing the opportunities that exist so what must be done is: 1) Make a Memory of Understanding on cooperation and joint commitment between relevant agencies, 2) Hold seminars, open discussions about transportation among students, 3) Application of online-based transportation information facilities that can be accessed by the public, and 4) Improve the condition of road infrastructure and mass transportation.

IV. Conclusions And Recommendations

The factors which have a significant effect on student attitudes to switch transportation mode, are: cost, time, distance, frequency, activity and income. Characteristics of motorcycle users from the study (140 respondents) 65% were interested in switching to mass transportation (dominated by students in the second year and above), while 35% were not willing to switch. Strategies that can be applied are through knowledge approaches to students, among others: Making Memory Of Understanding (MoU) of cooperation and joint commitments between relevant agencies, public transportation socialization among students, application of online-based transportation information facilities that can be accessed by the public and improving conditions of road infrastructure and public transportation. It is necessary to study the improvement of the application of digital technology as a means of information center for bus existence, bus stops, tariffs, and estimated time so that students are motivated to use mass transit bus facilities. For further research, economic studies, environmental studies, and legal studies that are more deeply related to economic feasibility and other environmental impacts of transportation can be applied well.

References

[1]. Anonim, Online Transportation Encyclopedia, 2002b, Campus Transport Reduction, http://www.vtpi.org/tdm/tdm5.htm (Last accessed on 05/02/2015
[2]. Balitbang Dephub, 2009. Priority Study on the Development of Transportation Infrastructure and Service Networks, Jakarta. Hendri, T H T. 2010. Analysis of Transportation Implementation Demand Management in Reducing Private Vehicles in DKI Jakarta, PPS Faculty Thesis. University of Indonesia Social Politics, Jakarta
[3]. Jinca, M.Y., et al., 2002, Transportation Planning, Lecture Module, Hasanuddin University, Makassar.
[4]. Nasution, 2008. Transportation Management, Third Edition. Ghalia Indonesia, Jakarta.
[5]. Miro, F., 2004. Transportation Planning, Erlangga, Jakarta
[6]. Morlock E.K, 1978. Introduction to Engineering and Transportation Planning. Erlangga, Jakarta.
[7]. Riduwan, 2002. Research Variables Measurement Scale. Alfabeta, Bandung.
[8]. Rudy, S,. 2004. "Application of Campus Transportation Management as an Effort to Reduce Car Use", Symposium VII FSTPT, Parahyangan University, September 11, 2004, UNPAR, Bandung.
[9]. Ronando, F. 2009. "Possibility of Transition to Use Private Transport Mode to Mode of Public Transportation of Depok-Jakarta Travel". Journal of Regional and City Planning, Vol. 20 No. 3, December 2009, pp. 183 - 198, Jakarta.
[10]. Samang, 2013. Study of Motorcycle Use. Thesis. Makassar city
[11]. Supangat, 2007. Statics in Descriptive, Inference, and Nonparametric Studies. Kencana Prenada Media Group. Jakarta.
[12]. [Tamin, Ofyar Z. 2008. Transportation Planning and Modeling, Third Edition. ITB. Bandung.
[13]. Tamin, OZ, 2002. Planning and Transportation Modeling, Volume 2. ITB Publishers. Bandung.
[14]. Republic of Indonesia Law Number 38 Year 2004 concerning Roads
[15]. of Indonesia Law Number 22 Year 2009 concerning Road Traffic and Transportation, Ministry of Transportation.
[16]. Walpani, S., 1990, Designing a Transportation System, ITB, Bandung