

## The Analysis of Lifestyle Affecting the Choice on River Transport in Banjarmasin

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**Abstract:** Banjarmasin is a city crossed by several rivers. It makes the river transport becomes one of alternative transportations. In the development, the interest in the river transport is decreasing. One of the reasons is due to the influence of lifestyle that is the changing attitudes toward the river transport. This research is intended to obtain what kind of lifestyle affecting the interests in river transport. The analysis used two models of Partial Least Squares (PLS) approach; they are Second Order Confirmatory Factor Analysis and Full Latent Variable Model. The river transports which become the objects of the research are the existing river transport and planned river transport suited to the will of the users. The results of the analysis obtained that the trip maker in addressing both the existing and planned river transports are influenced by the prestige, reputation, arrogance, skepticism and social status as well as the influence from their relatives and from the environment of the trip makers. There is a shift to a more supportive attitude towards the planned river transport.

**Key words:** River, transport, lifestyle, PLS, shift

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### INTRODUCTION

In the early development of transport in Banjarmasin, river transport has an important role as the dominant vehicles used by the public, either for the daily commuting or for commercial purposes (Petersen, 2000). But in its recent development, it is very unfortunate that the public's interest in using the river transport is decreasing compared to the use of road transportation. There are many factors that should be taken for consideration to ensure that the river transport can be readmitted and can compete with road transportation which is dominant. These factors are not only objectively measurable but should be noted for the subjective factor which is difficult to be measured. The objective factors may include trip time, costs and socio-demographics. The subjective factor is a growing opinion in real-life complications because of the heterogeneity of the individuals which is reflected in the form of behavior.

The complexity of the subjective factor in the choice of transportation becomes a transportation issue which is now increasingly demanded by the public (Anable, 2005; Dugundji *et al.*, 2011). Furthermore, the future studies involving intra-family interaction, social interaction both among the individuals and the environment to explain the motivations, characteristics and travel behavior is a way to improve the precision in describing the models of choice of modes of transportation. If it is reviewed based

on the group of influences, the subjective factor can be categorized into the psychological influence factor. The subjective factor is termed into the variable group of attitude and lifestyle preferences (Cervero, 2002). Lifestyle is divided into three dimensions: cognition dimension, condition dimension and change dimension (Hendricks and Hatch, 2006). Cognition dimension is generally understood as a mental schema or thinking patterns used to create, justify or rationalize choices. A cognition dimension lifestyle can be identified as subjectivity and considerations associated with "self-identity" such ego, pride and disgrace which become the measurement (Chaplin, 1997). The third dimension of lifestyle is a combination of internal psychological characteristics and local factors.

For example, in Banjarmasin, the society which is formed from several ethnics and undergo a process of melayunisasi (forming into the Banjarese) has a character that has a "weak side" as a negative stigma against the character of Banjarese. The characteristics of Banjarese which see that human has equality so that has dynamic and independent characteristics, unruly, undisciplined and free to choose based on profit-loss/ behave based on trade (Daud, 2002). Furthermore, the behavior of the Banjarese which is competitive individual is not welcome to accept or acknowledge the opinions from other people even if result in a good thing. On the other hand, the great influence of the environment results the attitude to not

have a standpoint or attitude based on the behavior of the people/group/role model/public figure. Moving from the typical of the characteristics of this community when it had been applied in a model of choice to the river transport which is already experiencing social exclusion (Goenmiandari *et al.*, 2010), it is necessary to conduct a more in-depth study with not only regarding to the lifestyle factor of “cognition” dimension but also together with the “condition” dimension. Therefore, this research needs to be conducted to look at what the lifestyle factors that influence the attitude towards the river transport that will ease the government agency in making river transport policy.

## MATERIALS AND METHODS

**Partial Least Squares (PLS) approach:** Quantitative modeling is generally conducted by using econometric and statistical analysis approach. If a model is built from a single or multiple dependent variables that are not interrelated, then it simply uses a simple regression approach. However when it involves the relationship among the dependent variables, it needs a more structured analysis and is often referred as Structural Equation Model (SEM). Thus, the SEM can be interpreted as a quantitative model that shows a causal relationship between several independent and dependent factors (Gefen *et al.*, 2000). Compared to the regression-based approach, SEM has some advantages for modeling the factors that can not be measured directly or the Latent or hidden Variables (LV) (Haenlein and Kaplan, 2004). Because of these advantages, a lot of researches regarding the behavior use SEM approach to model it. Lifestyle factors are the subjective factors and can not be measured directly. Therefore, lifestyle factors can be categorized as latent variables. By using SEM, it will obtain the lifestyle in the form of the measurement of dominant behaviors which form the lifestyle. The chosen forming-behavior lifestyle then is used as an influencing factor in the selection model. Basically, there are two approaches in estimating the parameters of SEM, they are the covariance-based and variance-based SEM approaches (Haenlein and Kaplan, 2004). Furthermore, the covariance-based SEM is well known as Covariance Based-SEM (CBSEM) while the variance-based SEM is known as Partial Least Squares (PLS) approach or PLS Path Modelling (PLS-PM) (Vinzi *et al.*, 2010). Similarly to CBSEM, the PLS Model consists of structural parts that reflect the relationship among the latent variables and measurement components which show the relationship between the latent variables and indicators, also have another third component, that is the weight relations to estimate the value of the latent variables (Vinzi *et al.*, 2010). When reviewing lifestyle factors as the

Implementation of coexistence perception, behavior or characteristic, the PLS approach is more appropriate to use in building the model. This is because the PLS can explain the causal relationship between the unmeasured variables and indicators which do not have a normal distribution.

### **The concept of determination of lifestyle attributes:**

Attributes lifestyle is determined by referring to the lifestyle that is developed in the study area as a manifestation of daily habit or custom and lifestyle factors used in several studies that have been conducted. Lifestyle is divided into two major groups include lifestyle with cognition and with condition dimension. The groupings of attributes of lifestyle as the variables used in the analysis of SEM-PLS are as follows: Lifestyle with a cognition dimension as a lifestyle resulted by individual's behavior with the following variables:

- Prestige, an illustration of behavior showing the authority, honor, dignity or pride of an individual regarding to the achievement of ability
- Reputation, an illustration of behavior showing that his/her act will affect his/her reputation
- Arrogance, an illustration of behavior which accentuates self-pride
- Skeptic, an illustration of behavior of which the prejudice does not believe or doubts something new
- Social Status, an illustration of behavior showing the social boundaries (condition, position) in its relation to the surrounding environment. This condition results in disgrace for violating the social boundaries
- Life Orientation, an illustration of behavior showing the viewpoint underlies thinking, attention or tendency
- Frustration, an illustration of behavior showing the resignation, the existing prejudice without trying to make any changes

Condition dimension lifestyle as a lifestyle resulted by the social and environmental interactions with the variables:

- Relatives, an illustration of behavior resulted by the influence of behavior formed in the family
- Community, an illustration of behavior as the understanding in a group either in the association (living place, office, spare time) or in the relatives group
- Environment, an illustration of behavior as the realization of behavior of the society in general
- Role Model, an illustration of behavior resulted by an example of someone's behavior considered as the role model

The data used to determine the lifestyle affecting the use of river transport in the form of preference data from the trip maker in the riverside areas either using private vehicles, road public transportation or the river transport itself. The sample size collected is 220 respondents. The questionnaire of preference data (lifestyle) to the existing and planned river transport was designed in Likert scale of 22 questions. The form of existing and planned river transport was illustrated in Fig. 1. The typical planned river transport used was the result of a study that had been conducted in the same study area (Radam *et al.*, 2014).

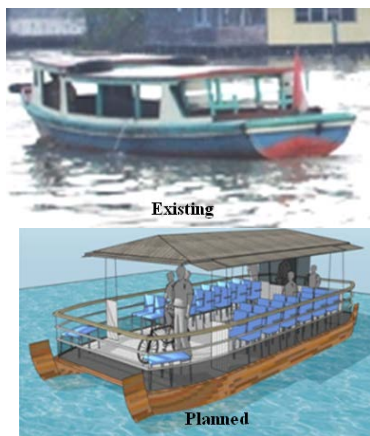


Fig. 1: The form of existing and planned river transport

## RESULTS AND DISCUSSION

The analysis was done in two approach models, an analysis model of Second Order Confirmatory Factor Analysis for testing the used indicator (lifestyle) and the model of Full Latent Variable Model to describe the entire structural model. Furthermore, the analysis process was assisted by SmartPLS software (V.3.2.1) (Ringle *et al.*, 2015).

### Second order confirmatory factor (SO-CFA) analysis:

This SO-CFA analysis was conducted in two approach conditions, namely lifestyle preferences approach to the condition of existing river transport and to the condition of planned river transport. The path diagram model for this SO-CFA is described in Fig. 2. In the selection of these indicators, the initial analysis process was correcting the loading factor value of each indicator on the reflective model (cognition lifestyle) and the amount of t-value on the formative model (condition lifestyle). The loading factor value and t-value were obtained from the path diagram model (Fig. 2) by using the data from the lifestyle preferences of each approach condition. In the process, the indicator of cognition lifestyle with a loading factor value of = 0.50, cross loading indicator < construct and the indicator of condition lifestyle that have a t-value of = 1.96 (5% of significance level) was reduced from the model as a requirement of Goodness of Fit Model by

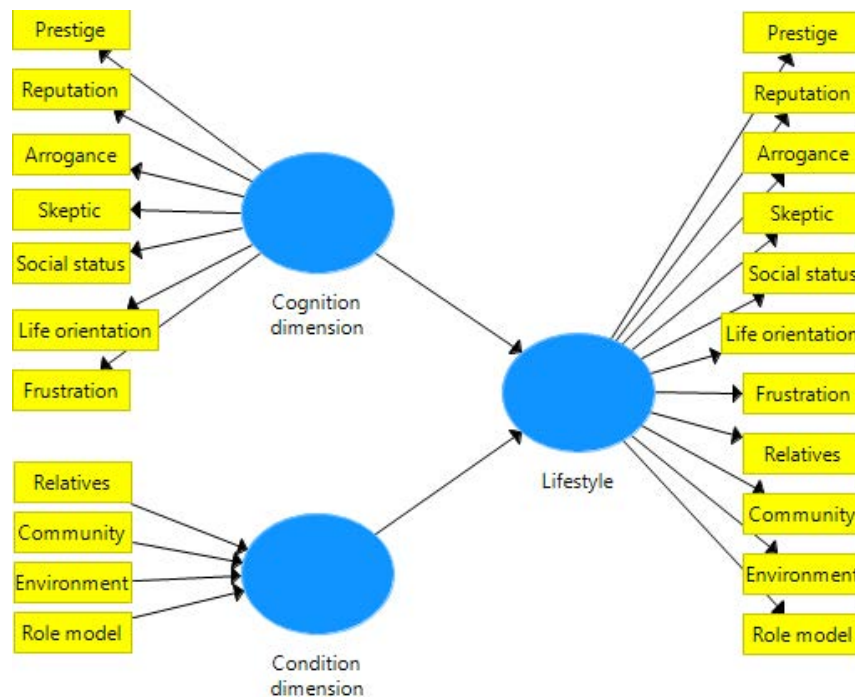


Fig. 2: Model of path diagram of SO-CFA for lifestyle

Table 1: Goodness of fit model of SO-CFA of lifestyle

		Exiting river transportation		Planned river transportation	
Criteria	Description	Indicator model	Value	Indicator model	Value
Reflective model (Cognition dimension)					
Convergent validity	Loading factor>0.50	Prestige	0.592	Prestige	0.899
		Reputation	0.872	Reputation	0.894
		Arrogancgre	0.843	Social status	0.899
		Skeptic	0.643		
		Social status	0.847		
Reliability	AVE>0.50	Model	0.590	Model	0.799
	Cronbach's alpha>0.70	Model	0.819	Model	0.874
	Comosite reliability>0.70	Model	0.876	Model	0.923
Discriminant validity	Cross loading , loading factor indicator>its respective latent variable	Prestige	0.593>0.584	Prestige	0.899>0.897
		Reputation	0.872>0.861	Reputation	0.894>0.888
		Arrogancgre	0.843>0.835	Social status	0.889>0.888
		Skeptic	0.643>0.638		
		Social status	0.847>0.841		
Formative model (Condition dimension)					
Significance of weights	t>1.96	Relatives	2.214		
		Environment	4.012	Relatives	3.509
		Role model	4.198	Role model	5.377
Multicollinearity	VIF<5	Relatives	1.155		
		Environment	1.213	Relatives	1.243
		Role model	1.098	Role model	1.243

using PLS (Henseler *et al.*, 2009; Hair *et al.*, 2012). The final result of the process of reduction of this indicator is shown in Fig. 3 for the existing river transport and Fig. 4 for the planned river transport.

Furthermore, the results of the testing of lifestyle models for the both condition of river transport are explained in Table 1. From the results of model testing in Table 1, it can be explained that the cognition lifestyles that affects the use of the existing river transport are prestige, reputation, arrogance, skeptic and social status. While the condition lifestyles of which play a role are the influence from the relatives, environment and role model. In the planned river transport condition, the cognition lifestyles that influence the choice are reputation attitude, arrogance and social status. While the condition lifestyles that influence the trip maker are relatives and role model.

From the affecting lifestyle indicators above towards both river transport conditions, it can be determined that the indicators used for the next hypothesis are prestige, reputation, arrogance, skeptic, social status, the influence of relatives, environment and role model. All indicators were analyzed entirely in a Full Latent Variable Model.

**Full Latent Variable Model (FLVM) analysis:** FLVM analysis is a further analysis to get any indicator of every latent variable based on the linkages among the latent variables in a modeling of causal relationship. The hypothesis of structural model path diagram for lifestyle is shown in Fig. 5.

- $H_1$  : Cognition dimension lifestyle has a positive influence on the preference of the lifestyle of the trip maker towards river transport. This lifestyle is measured from prestige, reputation, arrogance, skeptic and social status of the trip maker

- $H_2$  : Condition dimension lifestyle has a positive influence on the preference of the lifestyle of the trip maker towards river transport. This lifestyle is measured from the influence from relatives, environment and role model
- $H_3$  : Condition dimension lifestyle has a positive influence on the cognition dimension lifestyle of the trip maker in addressing the river transport. The cognition dimension which is influenced by this condition dimension is called as change dimension lifestyle

The control variable in this structural model is the chosen dummy variable, it has a value of 1 if the trip maker assessing the condition of the planned river transport and 0 if assessing the condition of the existing river transport. In the process of estimating the parameter in FLVM by CO-CFA, the differences only on the evaluation of the loading factor value in FLVM that should be >0.70 (Henseler *et al.*, 2012; Hair *et al.*, 2011) to show the indication of high correlation between the indicators and other variables. The final results of this process of indicators reduction are shown in Fig. 6. Next, there was a test of goodness of fit which includes the convergent validity, reliability and discriminant validity tests on the reflective model, weight value significance and multicollinearity tests on the formative model and also  $R^2$  value, effect size  $f^2$  tests and the relevance of  $Q^2$  prediction the inner model as shown in Table 2.

From Table 2, it can be said that the reflective model which illustrates the cognition dimension lifestyle, the

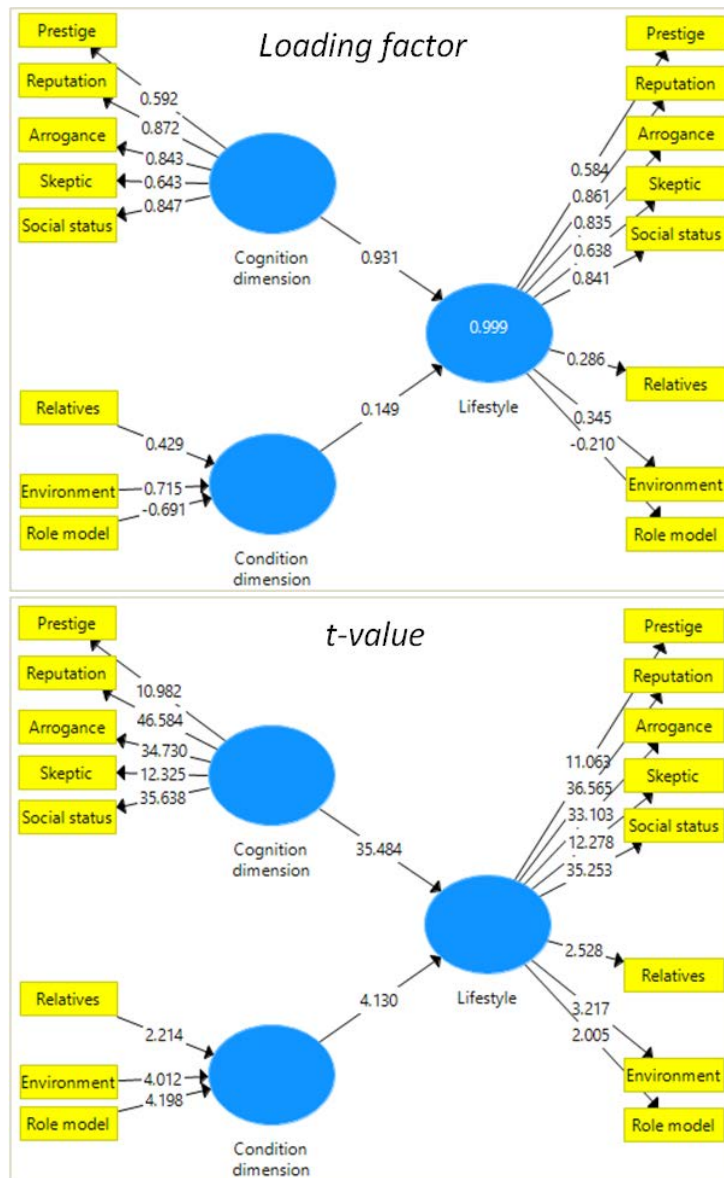


Fig. 3: The final process SO-CFA on the existing river transport conditions

Table 2: Goodness of fit model of FVLM model of life style towards river transport

Criterion	Test	Indicator/Mode	Values	Rule/Recommendation
<b>Reflective model (Cognition dimension)</b>				
Convergent validity	Loading factor>0.50	Prestige	0.763	
		Reputation	0.832	
		Arrogance	0.811	>0.700
		Skeptic	0.813	
		Social status	0.811	
Reliability	AVE Cronbach's alpha Comosite reliability	Model	0.650	>0.500
		Model	0.869	>0.700
		Model	0.903	>0.700
		Model	0.903	>0.700
Discriminant validity	Cross loading	Prestige	0.763	>0.541
		Reputation	0.832	>0.343
		Arrogance	1.0811	0.359
		Skeptic	0.813	0.605
		Social status	0.811	0.354

Table 2: Continue

Criterion	Test	Indicator/Mode	Values	Rule/Recommendation
<b>Formative model (Condition dimension)</b>				
Significance of weights	t-value	Relatives	4.897	>1.96
		Environment	7.868	
Multicllinearity	VIF	Relatives	1.247	<5
		Environment	1.247	
<b>Inner model (Lifestyle)</b>				
Coefficient of deremination	R <sup>2</sup>	Model	0.368	0.67 = Substantial
				0.33 = Moderate
Effect size	f <sup>2</sup>	Cognition-lifestyle	0.335	0.02 = Weak
		Codition-lifestyle	0.060	0.15 = Medium
		Codition-Cognition	0.171	0.35 = Large
Prediction relevance	Q <sup>2</sup>	Model	0.359	>0

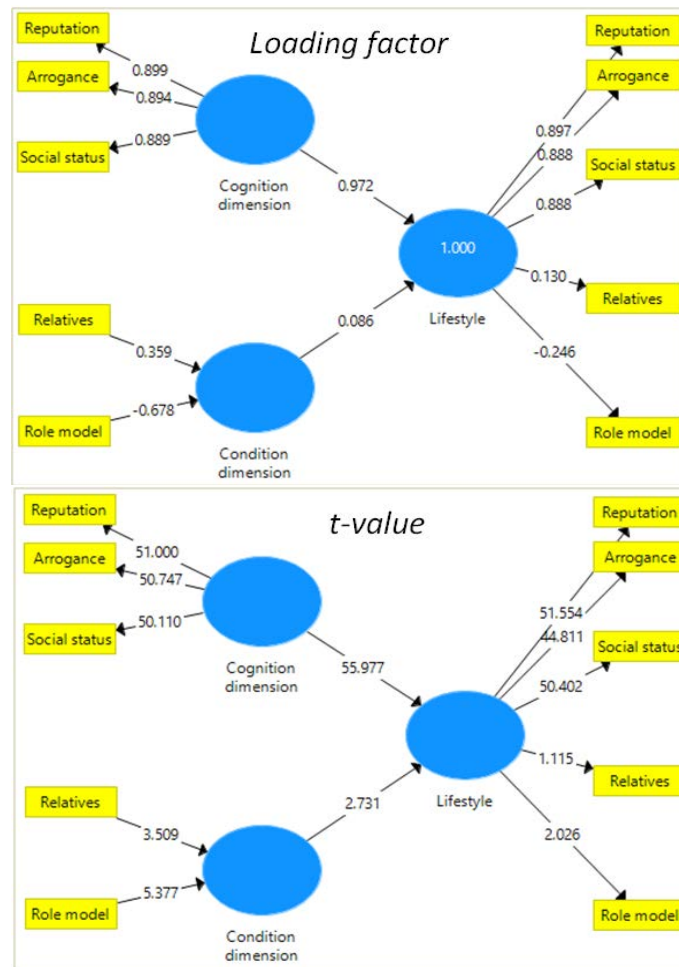


Fig. 4: The final process SO-CFA on the planned river transport conditions

formative model which illustrates the condition dimension lifestyle and the inner model which illustrates the structural model of both dimensions on the lifestyle of the trip maker have met the criteria of goodness of fit. Next, there was a model hypothesis test by using the bootstrapping method that is a test method by conducting sampling from each indicator. The data

samples used are usually the data of the average of which the values are not far from the initial data. The indicator used in the model hypothesis test is t-value > t-table (1.96) or  $p < \alpha$  to explain the significance of the model, the  $\alpha$  value used is 0.05 (5% of significance level). The results of model hypothesis test of lifestyle can be seen on Table 3.

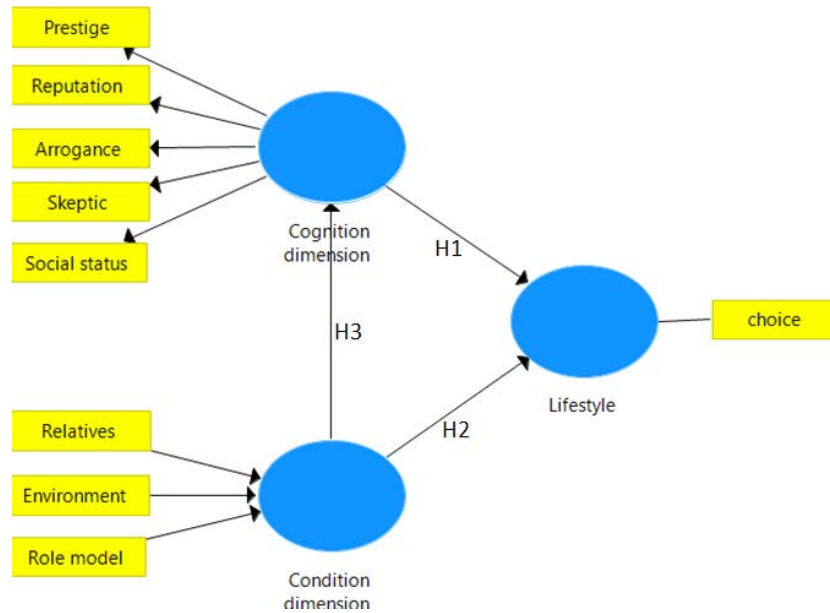


Fig. 5: FLVM path diagram hypothesis of structural model for lifestyle

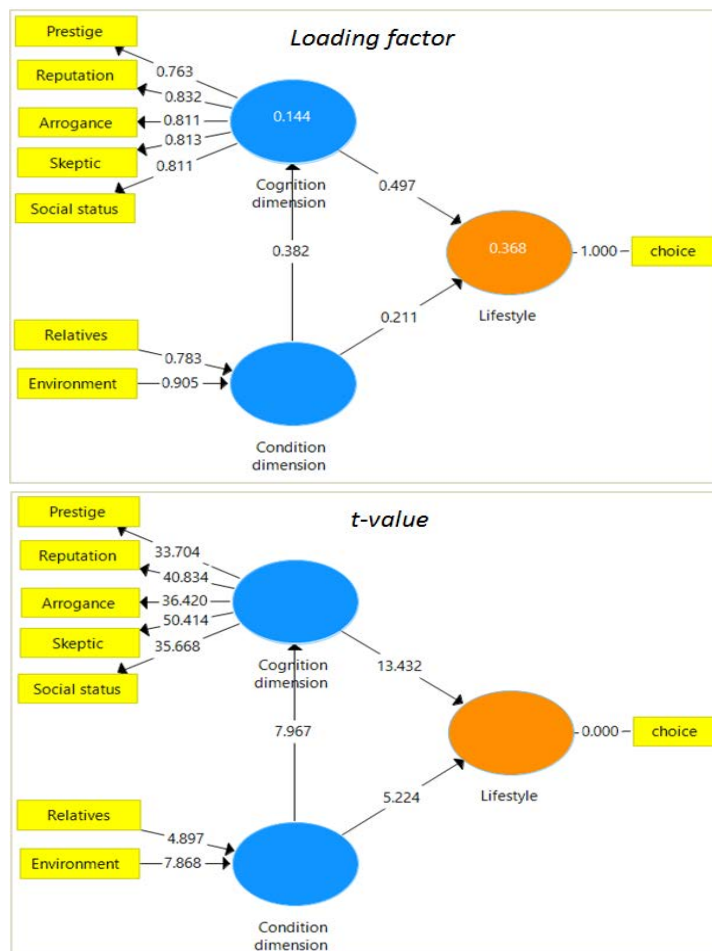


Fig. 6: The final process of FLVM of lifestyle towards river transport

Table 3: The results of model Hypothesis test of lifestyle towards river transport

Hypothesis	Path	Expected sign	Coefficient estimate	t-test	p-value
H <sub>1</sub>	Cognition~lifestyle	(+)	0.497	13.342	0.000
H <sub>2</sub>	Codition~lifestyle	(+)	0.211	5.224	0.000
H <sub>3</sub>	Codition~Cognition	(+)	0.382	7.967	0.000

From Table 3, the value of t-test of each path is larger compared with of t-table which means that there is a significant influence on the cognition dimension lifestyle and dimensions in relation to the lifestyle of the trip maker in addressing the river transport. Similarly, the condition dimension lifestyle significantly affects the cognition dimension lifestyle arising from any behavior of the trip maker. Reviewing from the  $p > 0.05$ , it shows the constructed hypotheses are acceptable. The cognition dimension lifestyles that are prestige, reputation, arrogance, skeptic and social status of the trip maker positively influence the lifestyle preferences of the trip maker towards the river transport (H<sub>1</sub>). The condition dimension lifestyles that are the influence from the relatives and environment are not only directly influence the lifestyle preferences of the trip maker positively towards the river transport (H<sub>2</sub>) but also influence positively the cognition dimension lifestyle of the trip maker in addressing the river transport (H<sub>3</sub>). From both dimensions of lifestyle, the cognition dimension (0.497) is more influential than the condition dimension (0.211). The condition dimension lifestyle has a greater influence on the attitude of the trip maker (cognition dimension) with a coefficient estimation value of 0.382 compared to directly influence the lifestyle.

### CONCLUSION

Based on the results of the testing of the goodness of fit and models hypothesis, it can be concluded that the trip maker in addressing both the existing and planned river transport were influenced by the attitude of the prestige, reputation, arrogance, skeptic and social status, as well as by the relatives and environment of the trip maker. The results of the model explain that there is a positive influence of the lifestyle with dimension cognition to the use of river transport. There is shifting on the decrease in unsupportive or unfavorable attitudes or feelings from the existing to the planned river transport. It means that the attitude of the trip maker when using the existing river transport will have a greater influence to reduce the ability of work activities (prestige), reputation in the community (reputation), great depression (arrogance), high level of incompatibility with current conditions (skepticism) and disgrace with the surrounding

community (social status), while there is a decrease on the attitude when using the planned river transport. The influence of relatives and the environment in the use of river transport occurs greater in the planned than the existing river transport, directly affect the overall lifestyle and attitude of the trip maker formed as a change dimension lifestyle. The results of this study are expected to be used by government agency or policy makers in making decision in the river transport, especially in Banjarmasin.

### ACKNOWLEDGEMENTS

This research was supported in part by Study Program of Civil Engineering Universitas Lambung Mangkurat (ULM) Grand.

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