THE MEDIATION EFFECT OF REGIONAL DEVELOPMENT IN RELATIONSHIP BETWEEN COMMUNITY PARTICIPATION TO SUSTAINABLE TRANSPORTATION IN THE CITY OF MEDAN, NORTH SUMATRA INDONESIA

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Abstract

The paper aims is to investigate the mediation effect of regional development on the relationship between community participation to sustainable transportation in the city of Medan, North Sumatra Indonesia. This research was conducted by an explanatory approach using primary data with purposive sampling technique method based on criteria of 300 respondents. Data analysis techniques used was SEM (Structural Equation Modeling). The results of this study indicate that community participation has positive influence on regional development in the city of Medan, regional development has positive direct effect on sustainable transportation in the city of Medan, community participation has positive direct effect on sustainable transportation in the city of Medan, and community participation has positive indirect effect on sustainable transportation in the city of Medan. Regional development has positive mediation effect between community participation to sustainable transportation in the city of Medan, North Sumatra Indonesia.

Keywords: SEM, Regional Development, Community Participation, Sustainable Transportation.
JEL Codes: *H63, L91, R48, R58,*

1. INTRODUCTION

Transportation system (sustainable transportation) is one aspect of sustainability (global sustainability), which has three interrelated components, namely: environment, society and economy. Big cities cannot be separated from the transportation system if they want to grow and develop well in the future, in this occasion, we will analyze the city of Medan, North Sumatra Indonesia. Urban areas, home to more than half of the world's population, face unprecedented transportation and mobility challenges. With rapid population and economic growth, the demands for urban mobility are steadily rising. Globally, some 8 billion trips are made every day in cities of which nearly half (47%) are by private motorized modes. Almost all of which are propelled by fossil fuels (Pourbaix, 2011). In 2050, there may be 3 to 4 times as many passenger-kilometers travelled as half a century earlier (International Transportation Forum, Robert Cervero, 2011). Therefore, the need for of infrastructure and energy is needed. The regional development is basically aimed to improve the welfare of the people of a region in a sustainable manner. The city of Medan is the gate of west area of Indonesia, as well as

the gate for the tourist to go to Brastagi in Karo highland, orangutan tourism object in Bukit Lawang and water tourism in Lake Toba. Medan is rapidly growing as the third largest city in Indonesia with high population growth, increasing activities and high mobility. However, without area enlargement, problems are occurred, especially in the regional development. Several issues that can be recognized are the flood management, transportation, traffic jam, cleanliness and garbage handling, street vendors' arrangement, lack of open areas, slums and other issues. The handling of those issues should be conducted in well planned and coordinated actions, something that has not happened yet. A comprehensive and integrated action that involve public is something that must be done immediately. Public planning and participatory planning are applicable approaches that can be used so that the public feels the ownership of the city.

Table 1. GRDP, The Population Growth and Total Area of Medan 2003 -2013

Year	GRDP (billion)	Economic Growth (%)	Population	Area (Km2)	Population Density/Km	Long Road			
						State	Province	City	Total
2003	22.017,78	5.75	1.993.602	265,10	7,520	79,250	45,10	2.951.380	3.035,41
2004	23.623,14	7,29	2.006.142	265,10	7,567	79,250	45,10	2.951.380	3.035,41
2005	25.271,63	6,97	2.036.185	265,10	7,681	79,250	45,10	2.951.380	3.035,41
2006	27.210,12	7,67	2.067.288	265,10	7,798	70,920	45,10	2.951.380	3.035,41
2007	29.352,92	7,87	2.083.156	265,10	7,858	79,520	45,10	2.951.380	3.035,41
2008	31.334,34	6,75	2.102.105	265,10	7,929	79,520	45,10	2.951.380	3.035,41
2009	33.430,69	6,69	2.121.053	265,10	8,001	79,520	45,10	2.951.380	3.035,41
2010	35.822,22	7,15	2.097.610	265,10	7,913	140,70	11,94	3.017.400	3.170,04
2011	38.576,23	7,68	2.117.224	265,10	7,987	121,40	24,48	3.032.560	3.102,32
2012	41.519,32	7,62	2.122.804	265,10	8,008	111,80	33,20	2.951.380	3.096,38
2013	44.696,27	7,65	2.123.210	265,10	8,009	73,030	40,20	2.951.380	3.064,61

Source: North Sumatera Statistical Board (2017).

Tabel 1 shows the population growth of Medan in the last 12 years, from 1,993,602 in 2003 became 2,497,187 in 2014. That means the population had increased by about half million people. On the other hand, the total area is still the same (265,100 m2). This is the fact that stirs various issue as described by Prof. Sirojuzilam in his book "Problematics of urban and regional areas" 2011. This population growth is of course followed by the increase of activities, mobilities, and various life requirements as clothing, food and home.

Various aspect of area development will surely cause transportation issue, as happened in many big cities in Indonesia; issues that including network operational aspects, financial, economy, environment and health (Marhayanie *et al*., 2017 and Muda *et al*., 2018). The indications of those problems can be seen in traffic jam, the increase of the proportion of personal usage, high level of accidents, inefficient consumption of fuel, etc. The regional development issues remind us that transportation problem requires participation from community, comprehensive thoughts and handling with an emphasis on increasing the efficiency and effectiveness of the existing infrastructures and optimize the limited resources in order of transportation system development to anticipate the area increasing (Sjafruddin, 2011).

Table 2. Personal and Public Transportation in the city of Medan 2004 – 2013

Year	Passenger Car (amount and growth)	Car Cart (amount and growth)	Bus (amount and growth)	Motorcycle (amount and growth)	Total
2004	140.302 (8,04 %)	104.776 (5,34%)	12.108 (5,34%)	756.560 (5,34%)	1.022.755 (5,34%)
2005	164,134 (14,02 %)	112.001 (6,89%)	12.406 (2,46%)	883.406 (16,76%)	1.172.127 (14,6%)

2006	175.198 (6,62%)	116.184 (3,73%)	12.619 (2,46%)	985.745 (16,76%)	1.289.746 (10%)
2007	189.157 (7,96%)	120.328 (3,56%)	12.751 (2,46%)	1.103.707 (11,96%)	1.425.943 (10.55%)
2008	209.527 (11,80%)	140.986 (17,20%)	22.130 (73,60%)	2.104.026 (90,60%)	2.476.669 (73,68%)
2009	222.891 (6,40%)	144.865 (2,80%)	22.123 (-7%)	2.318.632 (10.20%)	2.708.511 (9,36%)
2010	241.012 (8,13%)	149.182 (2,98%)	21.680 (-2%)	2.914.520 (25,7%)	3.326.394 (22,81%)
2011	268.198 (11,28%)	154.657 (3,67%)	22.013 (-1,54%)	3.464.198 (18,86%)	3.909.066 (17,52%)
2012	293.945 (9,6%)	158.987 (2,80%)	22.277 (-1,20%)	4.188.215 (20,9%)	4.663.424 (14,76%)
2013	315.461 (7,32%)	161.689 (1,70%)	22.633 (-1,60)	4.881.783 (16,56%)	5.381.566 (15,4%)

Source: Medan Statistic Biro (BPS), Department of Transportation of Medan 2015

The number of personal and public transportation in Medan has increased in the last 10 years from 1,022,755 units in 2004 to become 5,381,566 units in 2013 or 4,358,811 units increasing (426%) as described in Tabel 2. On the other hand, the road length in Medan had only increased 29,2 km (0,096%). In 2003, the road length in Medan (state, province and city properties) was 3.035,41 km and became 3.064,61 km in 2013, which was barely grown. This condition will become even harder in the future without proper handling. Not to mention, the centre of economy, social, cultural and politics is the city area that causes a high increase of transportation's sector.

ANTARA News (2013) published the wasted social cost that caused by traffic jam in Jakarta Indonesia and the surroundings which were approximately 68 trillion rupiahs annually. How about Medan? Is there any calculation about the wasted cost? Analisa News (2014) published the lost social cost alone caused by traffic jam in the city of Medan, North Sumatra Indonesia was 5,2 trillion annually. These 68 trillion and 5,2 trillion are huge amount which will bring significant benefits should they are allocated to improve the welfare of the society, education health system and or to develop infrastructures and public facilities. Therefore, for a better future development of areas in Medan, there must be knowledgeable about the effect of community's participation role, development of transportation's infrastructures, and well integrated sustainable transportation to be able to create a successful regional development of Medan with more benefits for all parties in the long term. Referring to the description of problems and possibility of problems that may be faced by Medan city in the future, the researchers present the title of research "The mediation effect of regional development in relationship between community participation to sustainable transportation in the city Medan, North Sumatra Indonesia".

Conceptual Frame of Research

Based on the purpose of the research and literature study that had explained in previous chapter, the conceptual frame of research as follows:
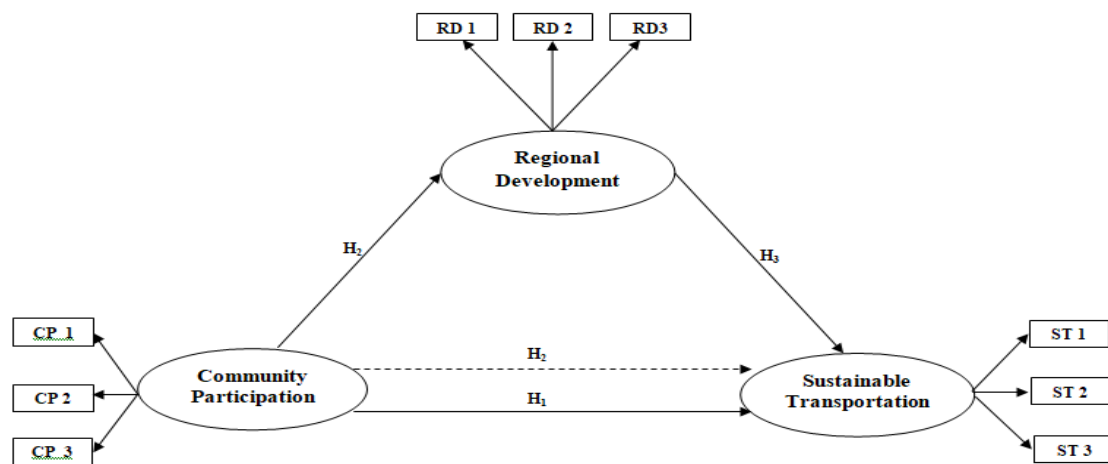
Figure 1. Conceptual Framework

Description of Symbols
→: Direct Impact
‑‑▶ Indirect Impact
Community Participation
CP_1:   Decision Making
CP_2:   Implementation
CP_3:   Evaluation
Regional Development

RD_1:   Enhancement of Local Revenues
RD_2:   Economical Growth
RD_3:   Labor
Sustainable Transportation
ST_1:   Social
ST_2:   Economy
ST_3:   Environment

2. METHOD

Quantitative research is the research that is intended to express the symptoms in a holistic-contextual manner through the collection of data from the natural setting by using the researcher self as a key instrument. Quantitative research is descriptive and tends to use inductive approach analysis (Muda, 2017). Process and meaning are more highlighted in qualitative research. Quantitative research is more prominent in the form of a narrative that is creative and deep and shows the characteristics of naturalistic full of authentic values (Erlina *et al*., 2017; Sihombing *et al*., 2017; Muda *et al*. & 2017 2018). Community participation is an active involvement of the society in the process of decision making, application, result's utilization and evaluation. Regarding that, the Community Participation can be described as the involvement of the community in ideas, mentally and emotionally during the process of decision making, implementation, result's utilization and evaluation of the development of Medan city. The indicators of community participation in this research were measured by (1) decision making; (2) implementation and (3) evaluation.

2.1 Research Design

This is an explanatory research, conducted by explaining generated symptoms of the research object, and aim to explain the causality relation (Hutagalung *et al*., 2017; Situmorang *et al*., 2017; Pohan *et al*., 2018; Muda and Nurlina, 2018; Muda and Hasibuan, 2018 & Kesuma *et al*., 2018) . This is to find whether there is a connection between community participation and sustainable transportation via regional development in the city of Medan, North Sumatra Indonesia.

2.2 Time and Location of Research

The location of this research was in centre area, middle area, and suburban area of Medan city. It was specifically conducted in main stations in Medan and also several offices for principals and staffs of related institutions; Regional Planning Agency (Badan Perencanaan Daerah), Land Transportation Employers' Organization (Organisasi Angkutan Darat), Department of Transportation (Dinas Perhubungan), Public Transportation Organization of Indonesia (Masyarakat Transportasi Indonesia), Cooperative Public Transportation of Medan (Koperasi Pengangkutan Umum Medan). The time of research was started in June 2016 until September 2016.

2.3   *Population and Samples*

The population of this research was citizen of Medan North Sumatra Indonesia. The number of citizens in 2015 was 2,468,429; consisted of 1,241,826 males and 1,226,603 females. The objects of this research were stakeholders of public transportation (public, users, owners, and other related stakeholders) that related to the research. The sampling collection method was non-probability sampling technique (purposive sampling), which was one of the sample collection techniques that was purposively conducted based on certain criteria from the researchers. The researchers decided the taken samples based on certain criteria or consideration that was related to the research, community of transportation in the city of Medan. The criteria were as follows:

1. Drivers of public transportation in the city of Medan.
2. Users of public transportation in the city of Medan.
3.   Drivers of *becak motor* (pedicab) in the city of Medan.
4. The owners of public transportation in the city of Medan.
5. Committees and or members of ORGANDA of Medan (*Organisasi Angkutan Darat*).
6. Committees and or members of MTI of Medan (*Masyarakat Transportasi Indonesia*)
7. Committees and or members of KPUM of Medan (*Koperasi Pengangkutan Umum Medan*)
8. Officials and staffs of department of transportation of Medan (*Dinas Perhubungan*)
9. Officials and staffs of urban planning of Medan (*Perencanaan Kota*)
10. Officials and staffs of bina marga of Medan (*Dinas Pekerjaan Umum*)
11. Officials and staffs of BAPPEDA of Medan (*Badan Perencanaan Daerah*)

The number of respondents was decided according to Roscoe opinion (Sugiono, 2003), that mentioned that regardless the population number in social research, the appropriate number of samples should be between 30 to 500 persons. The determination of sample numbers used Slovin formula because the number population in this research was known (Sangadji *et.al*.,2010). The Slovin formula is

$$n = N /(1 + Ne^2)$$

Note

n = samples number
N = population size
e = Percentage of allowance because of mistakes in sample collection that can be tolerated (10%).

The number of population (N) in the research is 2,468,429 of citizens of Medan in 2015, with the mistake assumption (e) of 10%, the minimum sample numbers to be used in this research is:

$$n = \left(\frac{2,468,429}{1 + 2,468,429(0.10)^2} \right)$$

n = 100.0

The minimum number of samples chosen was 100 persons to anticipate the outlier sample data (not suitable with the need of data measurement) and also because there will be the application of maximum likelihood estimation technique, it will require 300 samples. Based on that opinion, the sample numbers will be 300 respondents related to the research.

2.4   Data Analysis Technique

The analysis technique used to answer the hypothesis test is Structural Equation Model (SEM) with programme AMOS 21.0 and SPSS 15.0. Structural Equation Model (SEM) is a series of statistical techniques that enable test of a sequence of relatively complicated relations simultaneously (Ferdinand, 2000; Muda *et al*., 2018). Steps of SEM development are as follows:

1.   Theory-based model development.
2.   Development of line chart to show a casualty relation.
3.   Conversion of line chart into series of structural equation and measurement model specification.
4.   Choosing of input matrix and estimation technique regarding developed model.
5.   Evaluating identification issue.
6.   Model evaluation with goodness-of-fit criteria.
7.   Interpretation and model modification.

2.5 Hypothesis

The hypothesis is temporary assumptions using prior to the research (Sugiyono, 2010, Sirojuzilam *et al.*, 2017; Lubis *et al*., 2017; Tarmizi *et al*., 2017; Erlina *et al*., 2017 and Muda *et al*., 2018). A research hypothesis is the statement created by researchers when they speculate upon the outcome of a research or experiment (Martyn Shuttleworth). Based on the above conceptual frame figure, the hypothesis can be formulated as follows:

H_1: The Community Participation is positively affecting the regional development in the city of Medan.
H_2: The Community Participation is positively affecting the sustainable transportation in the city of Medan.
H_3: The Community Participation is indirectly affecting the sustainable transportation through regional development in the city of Medan.
H_4: The regional development is positive mediation effect between community participation to sustainable transportation in the city of Medan.

3. RESULTS

3.1 Confirmatory Factor Analysis

The CFA test was intended to know whether the indicators are representative enough to shape each inherent variable including Community Participation (X), Regional

Development (Z), and Sustainable Transportation (Y); all with the help of AMOS 21.0

3.1.1   CFA of Community Participation Variable (X)

The data processing result of confirmatory analysis of Community Participation can be seen in figure 2 as follows:
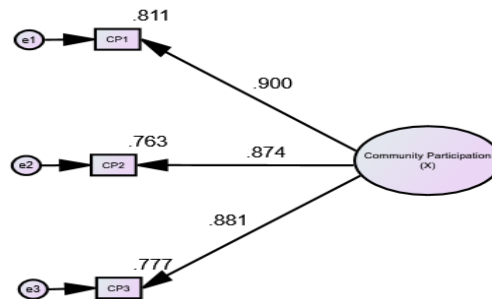

Figure 2. Confirmatory analysis of Community Participation

Based on the confirmatory analysis in figure 2, the variable indicators of Community Participation consist of decision making (CP1), implementation (CP2), and evaluation (CP3) have convergent validity score (loading factor) above 0,5. That means all three indicators are eligible to shape the Community Participation variable.

3.1.2 CFA of Regional Development Variable (Z)

The data processing result of confirmatory analysis of regional development can be seen in figure 3, as follows:
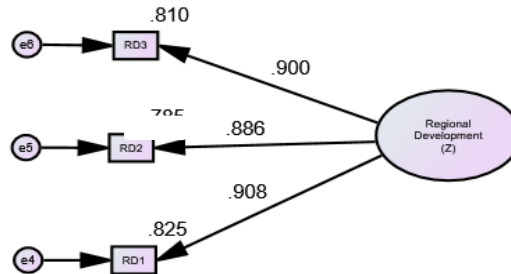

Figure 3. Confirmatory Analysis of Regional Development

Based on confirmatory analysis in figure 3, the variable indicators of regional development consist of increasing of district own revenue (RD1), economic growth (RD2), and labours (RD3) are in convergent validity value (loading factor) above 0,5. That means those three indicators are eligible to shape the variable of regional development.

3.1.2.1 CFA Variable of Sustainable Transportation (Y)

Data processing result of confirmatory analysis of sustainable transportation can be seen in figure 4 as follows:
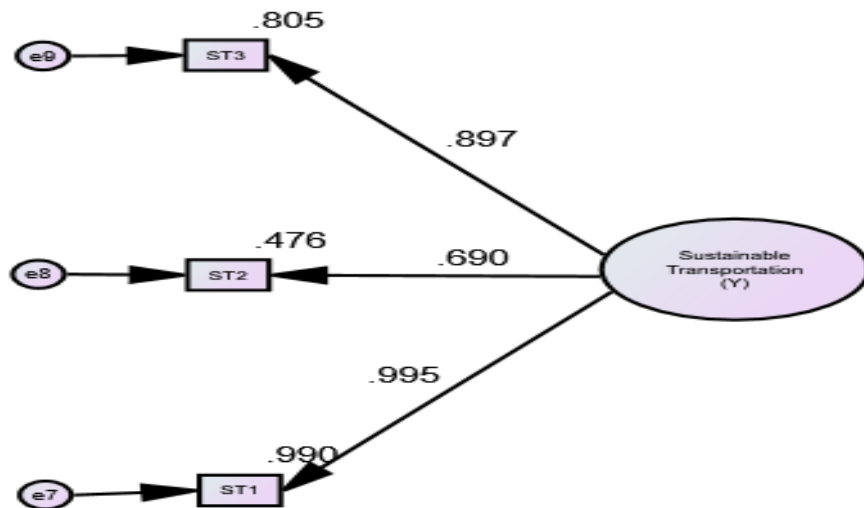
Figure 4. Confirmatory Analysis of Sustainable Transportation

Based on the confirmatory analysis in figure 4, the variable indicators of sustainable transportation that consists of social (ST3), economy (ST2), and environment (ST1) are in convergent validity value (loading factor) above 0,5. That means those three indicators are eligible to shape the variable of sustainable transportation.

3.2 Construct Reliability and Variance Extract Test

The test result of construct reliability can be seen in table 3 that explained the construct reliability of latent variables in this research as follows;

Table 3. Test Result of Construct Reliability

Construct	Indicators	Standardize Factor Loading	SFL Kuadrat	Error [εj]	Construct Variance Reliability Extracted	Construct
Community Participation (X)	CP1	0.900	0.810	0.190	0.916	0.78
	CP2	0.874	0.764	0.236		
	CP3	0.881	0.776	0.224		
Regional Development (Z)	RD1	0.908	0.824	0.176	0.926	0.81
	RD2	0.886	0.785	0.215		
	RD3	0.900	0.810	0.190		
Sustainable Transportation (Y)	ST1	0.995	0.990	0.010	0.901	0.76
	ST2	0.690	0.476	0.524		
	ST3	0.897	0.805	0.195		
Limit Acceptable					$\geq 0,7$	$\geq 0,5$

Source: data processing result using AMOS 21.00, 2017

Table 3 shows that the result of internal consistency reliability test for every construct indicated good result, that is the coefficient of construct reliability achieved is suitable was the appropriate limitation > 0.7 (Ferdinand, 2002 and Muda, 2018).

3.3 Result of AMOS

AMOS or measurement model testing. Model measurement is part of SEM model that consists of the latent variable (construct) and several manifest variables (indicators). The purpose of test is to see how exactly those manifest variables are able to explain the

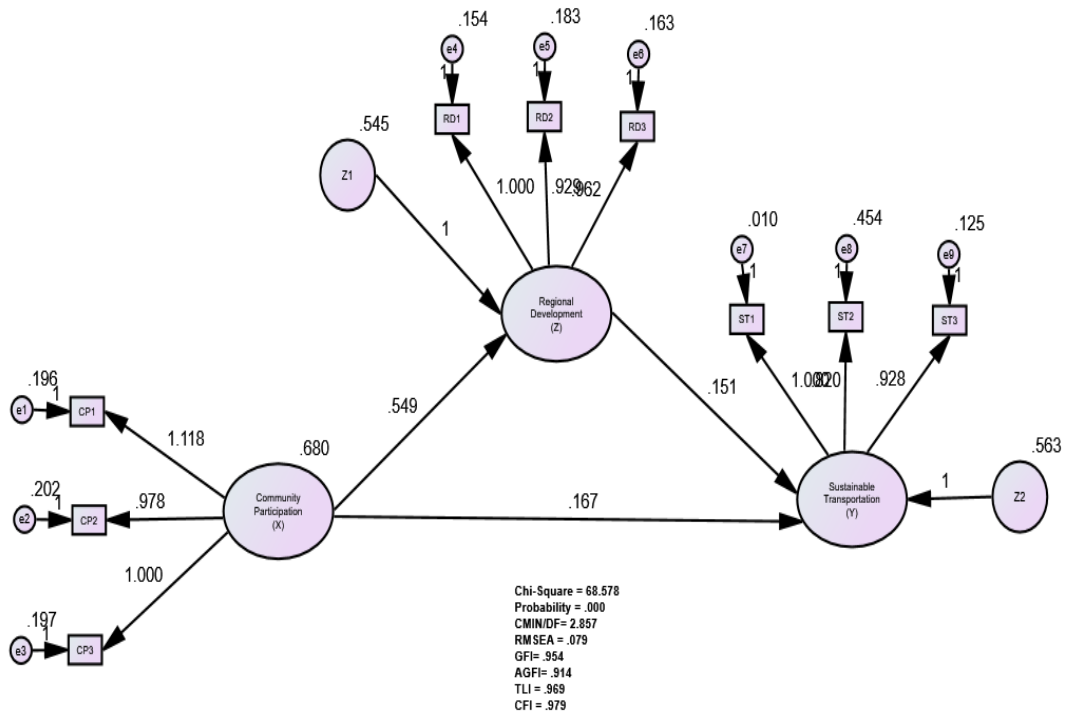existing latent variable. The test result can be seen in Figure 6 and Table 4.

Figure 6. Measurement Model before Modification

Table 4. Evaluation of criteria Goodness of Fit Indices before Modification Model

Criteria	Results	Critical Values	Model Evaluation
Chi-Square	68.578	$\leq \chi^2$ tabel (51.18)	Not Fit
Probability	0.000	$\geq 0,05$	Not Fit
CMIN/DF	2.857	$\leq 2,00$	Not Fit
RMSEA	0.079	$\leq 0,08$	Fit
GFI	0.954	$\geq 0,90$	Not Fit
AGFI	0.914	$\geq 0,90$	Not Fit
TLI	0.969	$\geq 0,95$	Marginal Fit
CFI	0.979	$\geq 0,94$	Marginal Fit

Source: data processing result using AMOS 21.00, 2017.

The calculation result of SEM model had yielded index goodness of fit as shown in table 4. The chi-squares value and probability is showing a slightly bad result. But then the chi-squares value are highly sensitive to the amount of samples, and the RMSEA value is quite not fit. Therefore, it is recommended to apply SEM model modification. The result of SEM modification can be seen in Figure 7 and Tabel 5
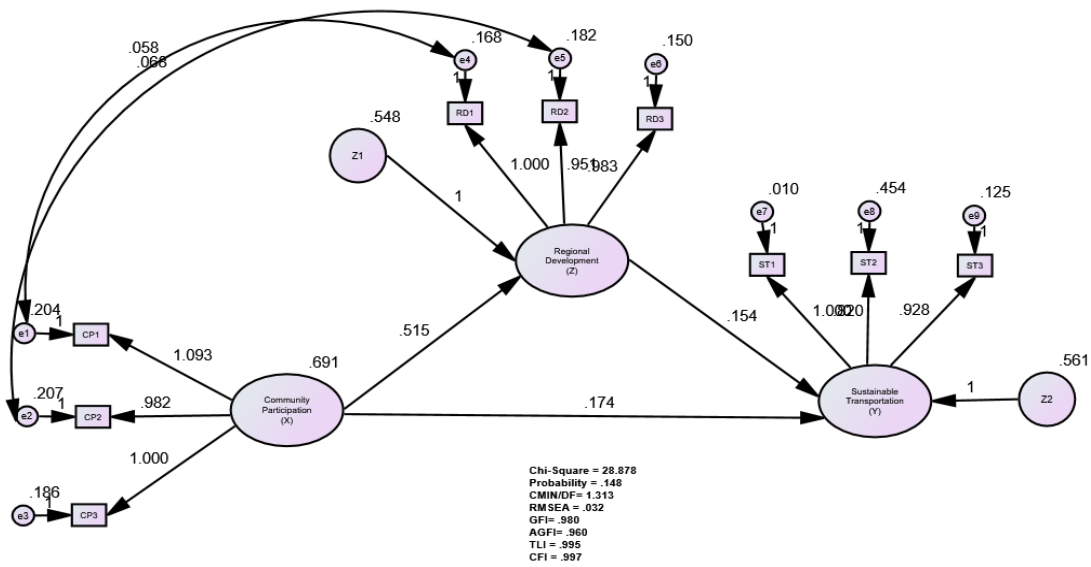
Figure 7. Model Measurement after Modification

Table 5. Criteria Evaluation Goodness of Fit Indices after Model Modification

Criteria	Results	Critical Values	Model Evaluation
Chi-Square	28.878	$\leq \chi^2$ tabel (48.27)	Fit
Probability	0.148	$\geq 0,05$	Fit
CMIN/DF	1.313	$\leq 2,00$	Fit
RMSEA	0.032	$\leq 0,08$	Fit
GFI	0.980	$\geq 0,90$	Fit
AGFI	0.960	$\geq 0,90$	Fit
TLI	0.995	$\geq 0,95$	Fit
CFI	0.997	$\geq 0,94$	Fit

Source: data processing result using AMOS 21.00, 2017

3.4. Hypothesis Testing

3.4.1. Direct Effect Analysis

The test result of direct effect hypothesis that submitted for this research is briefly shown in table 6.

Table 6. Direct Effect Hypothesis Testing Result

Hypothesis Effect	*Direct*	Estimate	S.E.	C.R.	P	Information
Z <---	X	0.515	.061	8.433	***	Significant
Y <---	Z	0.154	.063	2.454	.014	Significant
Y <---	X	0.174	.065	2.687	.007	Significant

Source: data processing result using AMOS 21.00, 2017.

Table 6 shows the result of direct effect hypothesis testing, explained as follows:

1. Community participation (X) is positively affecting regional development (Z). It can be seen from positive marked path coefficient of 0,515 with C.R. value of 8,433. There is also positive probability of 0,000 that is bigger than the determined positive level (α) of 0,05 (Muda *et al.*, 2017). It is concluded that community participation is

positively affecting regional development. The first hypothesis that mentioned "Community participation is positively affecting the regional development in the city of Medan" is proven.

2. Community participation (X) is positively affecting sustainable transportation (Y). It can be seen from positive marked path coefficient of 0,174 with C.R. value of 2,687. There is also positive probability of 0,007 that is bigger than the determined positive level of 0,05 (Muda *et al*., 2018). It is concluded that community participation is positively affecting sustainable transportation. The second hypothesis that mentioned "Community participation is positively affecting the sustainable transportation in the city of Medan" is proven.

3. Regional development (Z) is positively affecting sustainable transportation (Y). It can be seen from positive marked path coefficient of 0,154 with C.R. value of 2,454. And there is also positive probability of 0,014 that is bigger than the determined positive level (α) of 0,05. It is concluded that regional development is positively affecting sustainable transportation. The third hypothesis that mentioned "Regional development is positively affecting sustainable transportation in the city of Medan" is proven.

3.4.2. Indirect Effect Analysis

The test result of indirect effect hypothesis proposed in this research is briefly shown in Table 7.

Table 7. Indirect Effect Hypothesis Testing Result

	X	Z	Y
Z	.000	.000	.000
Y	.079	.000	.000

Source: data processing result using AMOS 21.00, 2017

Table 7 shows the testing result of indirect effect hypothesis that explained as follows:

1. Community participation (X) is indirectly affecting sustainable transportation (Y) through regional development (Z) or Z was as a mediation effect. It can be seen from the positive marked path coefficient of indirect effect of 0,079. The fourth hypothesis that mentioned "Regional development is positive was a mediation effect between community participation to sustainable transportation in the city of Medan.

4. Discussions

4.1. The Effect of Community Participation to Regional Development

The data analysis result and findings from this research shows that community participation is positively and significantly affecting the regional development, so that the first hypothesis "Community participation positively affecting the regional development in the city of Medan" is proven. This finding means the Community participation will give positive effect to the regional development. The community participation that supports various decisions regarding to the regional development will support the process of achieving the regional development's target. The result of this research supports the statement of Arnstein (1969) that mentioned that participation as power redistribution would enable those whose economically and politically marginalized to be deliberately getting involved in the planning of the future development. The strategy of participation

application is reached by involving the community in information sharing, goal formulation, policies setting, funding resources allocation, operational of program and distribute the gained benefits. In other words, it should involve community since the planning until implementation and the equity spreading of the results and including the controlling phase.

According to Sukawi (2010), the involvement of community in public consultation is a role manifestation of community regarding spatial planning, that in term of suggestion, advice or objection to the government. It is also stated in the opinion of Ericson (in Slamet, 1994) that participation in the stage of implementation is an involvement of a person in the work stages of a project. Sutami (2009) mentioned that the activities of the community to participate in development is quite strong in PPMK.

4.2. The Effect of Community Participation to Sustainable Transportation

Based on data analysis result and findings in research, there is the conclusion that community participation is positively and significantly affecting the sustainable transportation, so it can be said that second hypothesis "Community participation is positively affecting sustainable transportation in the city of Medan" is proven. Community participation is positively affecting sustainable transportation, according to opinion of A.R. Barter Tamin Raad (2000) who mentions sustainable transportation system must possess principles that ensures enough access to all part of society including the disables, children and elderly to at least acquire their basic needs as healthcare, education and job opportunity. The transportation system was provided for public. Therefore, public must have enough portion to participate in deciding the transportation mode and also to involve in the procurement process. Every level of society must be included, regardless their capability to possess certain transportation facilities such as car or motorcycle. This participation must be nurtured so that their opinion is calculated in the process of planning, implementation and management of transportation system of the city. Transparency is one important thing to keep. Availability and transparency of information during the process is a warrant for the conduct of good and public oriented system.

4.3. The Effect of Regional Development to Sustainable Transportation

Data analysis result and research' findings showed that the regional development significantly and positively affects the sustainable transportation, so the third hypothesis "Regional development is positively affecting the Sustainable transportation in the city of Medan" is proven. This research's findings mean that the regional development will positively affect the sustainable transportation. According to Lawrence W. LAN research, in the transportation sector, some important undertakings for sustainability are also examined. To be sustainable, overall transportation systems including infrastructures, vehicles, operation and maintenance must not endanger the public health or ecosystems while meeting the mobility needs. They must at least comply with two basic principles: use of renewable resources at below their rates of regeneration and use of non-renewable resources at below the rates of development of renewable substitutes. The research of Sunardi (1999) in Magelang region has proved that accessibility factor is the potential area factor that closest related with the service facilities availability compared with other area's potential factor. The accessibility factor was determined by comparing areas wide-

ranging with road's length. In other word, the more crowded the transportation line is the bigger possibility is the avaiability of service facilities.

4.4. *The Effect of Community Participation to Sustainable Transportation through Regional Development*

The result and finding of the research declared that the community participation is indirectly affecting sustainable transportation through regional development in the city of Medan. That means the community participation had of course through several ways, that is participation in decision making, the participation in proposing ideas in strategy and policy decision in the management of public transportation in the city of Medan. The next is community participation in investment, that means community must be actively involved in the operations such as involved in the procurement process, and to decide the route of the transportation to avoid any route's overlapping that leads to conflict (Sirojuzilam *et al*., 2017 and Achmad *et al*., 2017). Some crowded routes are packed with numbers of transportation owners, and the less crowded routes are less interesting for the business owners. Another problem arise is the number of unregistered public transportation that increased and caused conflict with the registered transportation owners. Also, the increasing number of illegal station in Medan. Regarding those issues, there is an urgent need for supervision and strict law enforcement to those who break the regulation. The third is through the community participation in the evaluation of public transportation's performance. That means the community participation in term of providing inputs should have their best opportunity by creating regular meeting forum and forum for the owners of public transportation.

5. Conclusion

The results of this study indicate that:
1. Community participation has positive influence on regional development in the city of Medan,
2. Regional development has positive direct effect on sustainable transportation in the city of Medan,
3. Community participation has positive direct effect on sustainable transportation in the city of Medan,
4. Community participation has positive indirect effect on sustainable transportation in the city of Medan.
5. Regional development has positive mediation effect between community participation to sustainable transportation in the city of Medan, North Sumatra Indonesia.

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