TRANSIT SYSTEM SERVICE QUALITY OF TOURISM – EDUCATION CITY AND BUSINESS CITY
(Case Study: Transjogya and Transmusi Indonesia)

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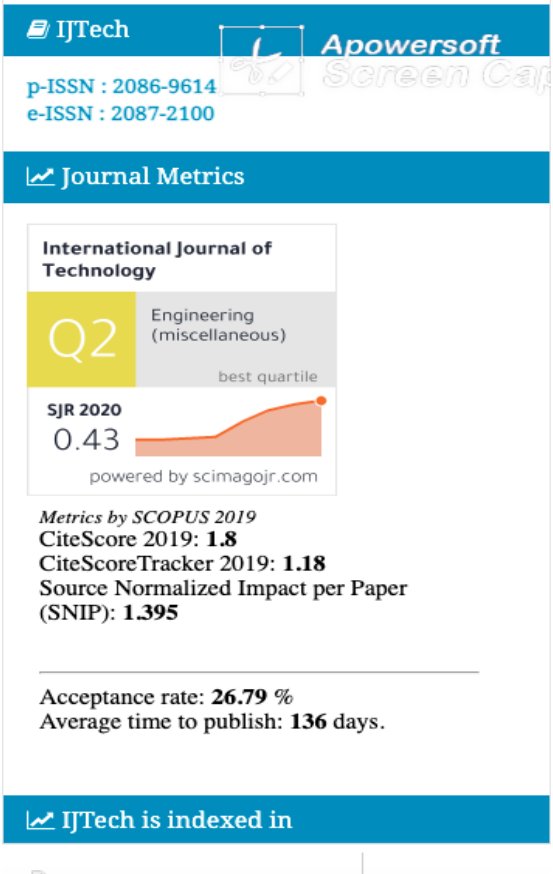

Daftar Isi

CURRENT ISSUE :
VOL 12, NO 4 (2021)

BROWSE

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27 Dec 2017

Volume 8, Number 6

Science, Technology and Innovation for Sustainable World

Nyoman Suwartha, Ardiyansyah , Mohammed Ali Berawi , Isti Surjandari, T. Yuri M. Zagloel, Paramita Atmodiwirjo, Yandi Andri Yatmo

Publication Date (Online):
Dec 27, 2017
DOI: https://doi.org/10.14716/ijtech.v8i6.1151
Pages : 979-982

Investigation of Subsurface Characteristics by using a Vs30 Parameter and a Combination of the Hvsr and Spac Methods for Microtremor Arrays

Sigit Pramono, Widjojo Prakoso, Astri Rahayu, Ariska Rudyanto, Fajri SukurRahmatullah, sofian Piandatte, Phil Cummins

Publication Date (Online):
Dec 27, 2017
DOI: https://doi.org/10.14716/ijtech.v8i6.682
Pages : 983-992

Comparing Shear-Wave Velocity Determined by MASW with Borehole Measurement at Merapi Sediment in Yogyakarta

Widjojo Prakoso, Astri Rahayu, Imam Sadisun, Agus Muntohar, M Muzli, Ariska Rudyanto

Publication Date (Online):
Dec 28, 2017
DOI: https://doi.org/10.14716/ijtech.v8i6.744
Pages : 993-1000

Mapping of Land Subsidence Induced by Groundwater Extraction in Urban Areas as Basic Data for Sustainability Countermeasures

Lolom Evalita Hutabarat, Tommy Ilyas

Publication Date (Online):
Dec 27, 2017
DOI: https://doi.org/10.14716/ijtech.v8i6.754
Pages : 1001-1011

Geotechnical Characteristics of Bantargebang Solid Landfill Waste Using a Laboratory Test on Artificial Waste Samples and a Field Test

Erly Bahsan, G.S. Boedi Andari, Sarah Pramiarsih, Syahrizal A. Latief

Publication Date (Online):
Dec 27, 2017
DOI: https://doi.org/10.14716/ijtech.v8i6.737
Pages : 1012-1020

Enhancing Removal Efficiency of Ammonia and Nitrate in Shrimp Farm Wastewater Using Biofloc Technology and Effective Microorganism S4 (EM4)

Nyoman Suwartha, Dian Rahayu Pujiastuti

Publication Date (Online):
Dec 27, 2017
DOI: https://doi.org/10.14716/ijtech.v8i6.685
Pages : 1021-1030

Water Recycling Opportunity in the Business Sectors of Greater Jakarta, Indonesia

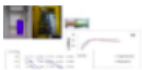
Cindy Rianti Priadi, Evelyn Suleeman, Linda Darmajanti, Shanty Novriaty, Nyoman Suwartha, Rina Resnawati, Rahayu Handayani, Gita Lestari Putri, Elzavira Felaza, Tri Tjahjono

Publication Date (Online):
Dec 27, 2017
DOI: https://doi.org/10.14716/ijtech.v8i6.743
Pages : 1031-1039

Fluid–Solid Interaction in the Case Of Piping Erosion: Validation of a SPH-ALE Code

Jessica Sjah, Eric Vincens

Publication Date (Online):
Dec 27, 2017
DOI: https://doi.org/10.14716/ijtech.v8i6.729
Pages : 1040-1049



Numerical Evaluation of the Shear Behavior of a Metal Shear Key Used in Joining Precast Concrete Segmental Bridge Girders without Epoxy

Heru Purnomo, Rosi Nursani, Sekar Mentari, Sjahril A. Rahim, Elly Tjahjono

Publication Date (Online):
Dec 27, 2017
DOI: https://doi.org/10.14716/ijtech.v8i6.711
Pages : 1050-1059

Error Estimation for the DKMQ24 Shell Element Using Various Recovery Methods

Irwan Katili, Imam Jauhari Maknun, Elly Tjahjono, Irene Alisjahbana

Publication Date (Online):
Dec 27, 2017
DOI: https://doi.org/10.14716/ijtech.v8i6.699
Pages : 1060-1069

How Kansei Engineering, Kano And QFD can Improve Logistics Services

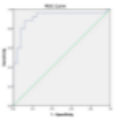
Markus Hartono, Amelia Santoso, Dina Natalia Prayogo

Publication Date (Online):
Dec 27, 2017
DOI: https://doi.org/10.14716/ijtech.v8i6.689
Pages : 1070-1081

Development of Eye Fixation Points Prediction Model from Eye Tracking Data using Neural Network

Boy Nurtjahyo Moch., Komarudin Komarudin, Maulana Senjaya Susilo

Publication Date (Online):
Dec 27, 2017
DOI: https://doi.org/10.14716/ijtech.v8i6.717
Pages : 1082-1088



Effect Of Driving Duration On Eeg Fluctuations

Maya Arlini Puspasari, Hardianto Iridiastadi, Iftikar Zahedi Sutalaksana, Ade Sjafruddin

Publication Date (Online):
Dec 27, 2017
DOI: https://doi.org/10.14716/ijtech.v8i6.716
Pages : 1089-1096

An Analysis of the Ergonomic Design of the Tactical Commander Console (Tacco) in the Virtual Environment of Medium-Range Twin-Engine Maritime Patrol Aircraft (MPA)

Billy Muhamad Iqbal, Armand Omar Moeis, Renalda Krissalam

Publication Date (Online):
Dec 27, 2017
DOI: https://doi.org/10.14716/ijtech.v8i6.704
Pages : 1097-1107

Material Studies as the Possible Channel to Re-Connect Dwelling and Building

Budianastas Prastyatama, Anastasia Maurina

Publication Date (Online):
Dec 27, 2017
DOI: https://doi.org/10.14716/ijtech.v8i6.720
Pages : 1108-1116

Material Studies as the Possible Channel to Re-Connect Dwelling and Building

Budianastas Prastyatama, Anastasia Maurina

Dec 27, 2017
DOI: https://doi.org/10.14716/ijtech.v8i6.720
Pages : 1108-1116

Enhanced Treatment of Reeds as Natural Materials for Use in Traditional Housing at Wae Rebo Village in Flores

Indri Juwono

Publication Date (Online):
Dec 27, 2017
DOI: https://doi.org/10.14716/ijtech.v8i6.728
Pages : 1117-1123

Front-End Planning – The Role Of Project Governance And Its Impact On Scope Change Management

Eric Too, Tiendung Le, Wei Yee Yap

Publication Date (Online):
Dec 27, 2017
DOI: https://doi.org/10.14716/ijtech.v8i6.708
Pages : 1124-1133

Defining Design Parameters for Housing Development in Tropical Climates Using the Near Zero Energy House (nZEH) Concept

Yusuf Latief, Mohammed Ali Berawi, Ario Bintang Koesalamwardi, Leni Sagita, Jade Sjafrecia Petroceany

Publication Date (Online):
Dec 27, 2017
DOI: https://doi.org/10.14716/ijtech.v8i6.719
Pages : 1131-1140

Increasing Added Value for the New City of Walini Through Infrastructure Project Development

Mohammed Ali Berawi, Perdana Miraj, Abdur Rohim Boy Berawi, Revaldo Agdhitya

Publication Date (Online):
Dec 27, 2017
DOI: https://doi.org/10.14716/ijtech.v8i6.755
Pages : 1141-1149

image

The Characteristics of Potential Passengers of an Indonesian High-Speed Train (Case Study: Jakarta—Bandung)

Andyka Kusuma, Nuryani Tinumbia, Pujas Leksono

Publication Date (Online):
Dec 27, 2017
DOI: https://doi.org/10.14716/ijtech.v8i6.724
Pages : 1150-1158

Transit System Service Quality in a Tourism-Education City and a Business City

Aleksander Purba, Fumihiko Nakamura, Dwi Herianto, I Wayan Diana, Muhammad Jafri, Chatarina Niken

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CURRENT ISSUE : VOL 12, NO 4 (2021)
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TRANSIT SYSTEM SERVICE QUALITY IN A TOURISM-EDUCATION CITY AND A BUSINESS CITY

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ABSTRACT

Service quality is a key performance indicator of a system, there being many elements that constitute service quality in a transport system. The customer's point of view is at the center of policy, planning and delivery decisions. As an education city, Jogjakarta's customers comes from all over Indonesia, and as an international tourism destination, Jogjakarta welcomes people from all over the world. As a business city, customers in Palembang have a different character to those in Jogjakarta. The aim of this research is to identify the main aspects of transit system service quality within tourism-education city and a business city.

Keywords: Business city; Service quality; Tourism-education city; Transit system

1. INTRODUCTION

Technological development is a significant factor to the gaining of product and project competitive advantage (Berawi, 2015). Continuity of long-term strategies and development plans is required to achieve such goals (Berawi, 2016). New systems of transportation have been applied in Jogjakarta and Palembang, Indonesia as part of a long-term strategy to achieve good service quality. Service quality is a key performance indicator, with Hensher (2015), mentioning that public transport services have become increasingly sophisticated. This growing sophistication has led to greater focus on an increasing number of key performance indicators as a way of measuring service quality (Hensher, 2015). There are many different elements that come together to define transport system quality. Purba et al. (2014) mentioned that satisfaction is different for different cities. Service employees also play a role in shaping customers' perceptions of service quality, with the interactions they perform during the service encounter influencing customer perception of the service delivered (Kennedy, 2011). Transport system customers have specific perceptions of service quality that they will typically use as performance indicators in relation to the transport system. The attitude of employees and the system of transportation both affect the interaction, with inconsistent service delivery potentially resulting in unfavourable customer experiences (Halvorsrud et al., 2016). As such, many service firms fail to deliver quality service to their customers (Kennedy, 2011).

In order to increase the level of service quality as seen from the point of view of transport system users (public transport users and non-users), service quality elements that need to be acted upon must be identified (Grujičić, 2014). Putting the customer at the center of policy,

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planning, and delivery decisions requires a system for measuring customer satisfaction that is both robust and, capable of benchmarking customer satisfaction for use in informing policy and service planning (Hensher, 2015). A framework based on customer journeys for a structured portrayal of service delivery from the customer's point of view, has also been studied (Halvorsrud et al., 2016). Eboli and Mazzula (2007) developed a structural equation model that explores the impact of the relationship between global customer satisfaction and service quality (SQ) attributes in a bus service context. The research was based on the bus services regularly used by University of Calabria students to reach their campus. In the context of this study, customers in Jogjakarta differ to those in Palembang. As an education city, Jogjakarta's customers comes from all over Indonesia and, as the tourism destination, Jogjakarta attracts visitors from all over the world. As a business city, customers in Palembang have a different character to those in Jogjakarta. This aim of this research is to look at the differences in both types of city in relation to SQ.

Purba et al. (2014) studied the service performance of the TransJogja and TransMusi bus transit systems from the user's point of view and concluded that the local governments of both Jogjakarta and Palembang should aim to improve the subsidy and fare aspects relating to SQ and satisfaction in order to maintain user satisfaction and loyalty. This paper, using the same data and method, explores in further detail the most important factors in determining SQ. The aim of this research is to identify the main aspects of SQ in tourism- education city and a business city.

2. EXPERIMENTAL PROGRAM

There are formidable challenges involved in the delivery and maintenance of SQ in the area of public transport. This relates to how to deal with such a complex, fuzzy, and abstract concept as SQ and whether we should use perception of performance only, or also customer expectation. Customer expectation should be considered in the form of either: ideal, desired, adequate, or tolerable quality. Additionally, consideration needs to be given to how to identify the most relevant attributes that affect SQ and how to deal with such related aspects (de Oña & de Oña, 2014).

3. RESULTS AND DISCUSSION

3.1. Descriptive Statistics

According to data from Indonesia's Central Agency on Statistics's, Jogjakarta has a population of 510,108, with a density of 15,695 people/km^2. The population of Palembang, meanwhile, whose growth has relied on natural resources, is more than three times the size (1,708,413) than that of Jogjakarta. It is also less dense, with a population density of only 4,765 people/km^2 (2013). For Jogjakarta, the actual number of people living in the city area is probably higher than the registered number as many students live in the city who are still registered at their parents' address. The new TransJogja transit system commenced operations in Jogjakarta in 2008, with the TransMusi system commencing in 2010. TransJogja has an average daily ridership of around 16,000, with an average ridership of 22,000 for TransMusi (2013). Table 1 provides a more detailed comparison of the two Trans bus systems. Gross regional domestic product (GRDP) per capita for the period 2011 to 2012 (Figure 1) shows that both cities are much smaller than Jakarta, the capital of Indonesia. It is undeniable that the disparity in incomes between the different regions, combined with greater job prospects in the capital, are factors behind the continuing large-scale migration to Jakarta from the surrounding provinces, municipalities, and regencies. GRDP is a sub-national gross domestic product figure that is used to measure the size of region's economy. It is the aggregate of gross value added of all resident

producer units in the region. GRDP includes regional estimates for the three major sectors of the economy, including their sub-sectors, namely:

- Agriculture, fishery and forestry (primary)
- The industrial sector, including mining and quarrying, manufacturing, construction, electricity and water (secondary)
- The service sector, including transport, communication and storage, trade, finance, renting and business services and other private services (tertiary).

Table 1 Profile of the Trans bus

	TransJogja	TransMusi
Urban Area Characteristics		
Area (km^2)	32.5	358.5
Population (people), 2013	510,108	1,708,413
Province	Jogjakarta Special Region	South Sumatera
Provincial capital	Jogjakarta	Palembang
Physical Measures		
Year of implementation	2008	2010
Size of fleet	54	120
Number of routes	3	8
Bus capacity	40	40-55
Average length/route	34	37
Number of bus stops/route	17	32
Dedicated lanes available	No	No
Regulatory Framework		
Regulator	UPTD	Dishub
Bus operator	Consortium	BUMD
Bus provider	MoT, province, consortium	MoT, municipality
Approach to competition	gross cost	net cost
Other modes within the city	bus, PT, rickshaw	bus, PT, rickshaw, river bus
Method of payment	cash/card at the bus stop	cash/card on the bus
Multimodal integration	Airport	Airport, river bus
Operational Performance		
Average daily ridership	16,000	22,000
Average load factor (%)	40	42
Headway (minutes)	5-10	5-10
Average speed (km/h)	20-30	20-35
% Fare subsidy (2013/2014)	36.4	28.6
% Fare box revenue*	35	41

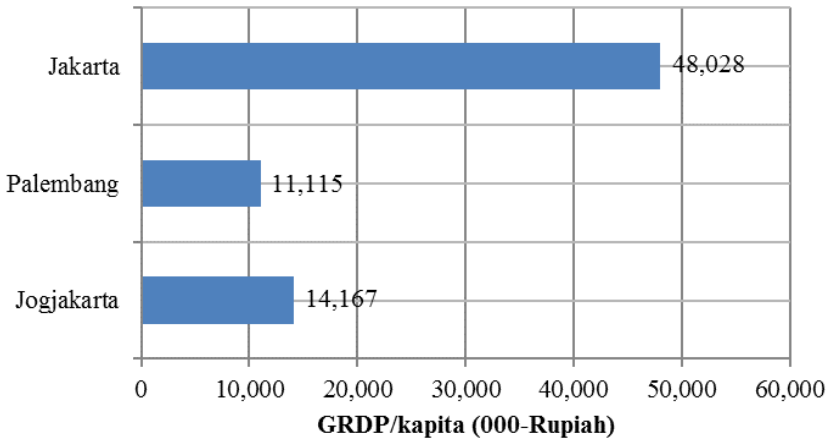

Figure 1 GRDP/capita of selected cities and Jakarta

During the period 2011-2012, the secondary and tertiary sectors combined were the driving force of the economies of the two cities (Figure 2); in Jogjakarta the secondary and tertiary sectors accounted for 31% and 68% of the city's economy, respectively, in Palembang the corresponding contributions for secondary and tertiary were 44% and 55%, respectively. The minimal presence of the primary sector indicates that agriculture is no longer attractive to most urban communities.

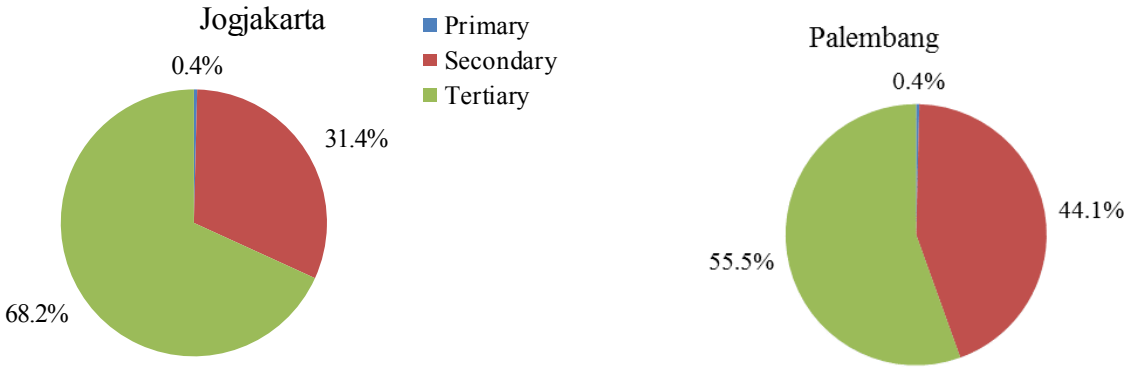

Figure 2 Formation of the two city economies, by sector

Table 2 Socio-economic characteristics of the respondents

No	Characteristics	TransJogja users (n= 242)	TransMusi users (n= 334)
1	Sex	Male (48%); Female (52%)	Male (56%); Female (44%)
2	Marital status	Married (34%); Single (66%)	Married (38%); Single (62%)
3	Age	≤20 (42%); 21─30 (30%); 31─40 (21%); >40 (7%)	≤20 (39%); 21─30 (33%); 31─40 (24%); >40 (4%)
4	Place of living	Municipality area (62%); Outside the municipality (38%)	Municipality area (74%); Outside the municipality (26%)
5	Family members	1 (11%); 2 (16%); ≥3 (73%)	1 (14%); 2 (19%); ≥3 (67%)
6	Job	Student (60%); civil servant (15%); private employee (16%); entrepreneur (6%); other (3%)	Student (51%); civil servant (22%); private employee (20%); entrepreneur (3%); other (4%)
7	Education	Junior high school or lower (16%); Senior high school (48%); Diploma or higher (36%)	Junior high school or lower (15%); Senior high school (56%); Diploma or higher (29%)
8	Income (IDR)	<1 million (41%); 1─2.5 million (39%); 2.5─5 million (12%); >5 million (8%)	<1 million (43%); 1─2.5 million (35%); 2.5─5 million (9%); >5 million (13%)
9	Motorized vehicle ownership	Do not own any motor vehicle (37%); motorcycle (48%); automobile (15%)	Do not own any motor vehicle (29%); motorcycle (52%); automobile (19%)
10	The reason for using Trans buses	Do not own any motor vehicle (35%); prefer to make use of new transit (49%); unable to drive (16%)	Do not own any motor vehicle (28%); prefer to make use of new transit (51%); unable to drive (21%)
11	Reason for travel	School/university (57%); work (27%); recreation (10%); social activity (4%); other (2%)	School/university (48%); work (35%); recreation (8%); social activity (6%); other (3%)
12	Means of reaching bus stop	Walk (78%); park and ride (4%); others (18%)	Walk (81%); park and ride (2%); others (17%)
13	Number of trips using Trans bus per day	One (31%); two (48%); three or more (21%)	One (38%); two (43%); three or more (19%)
14	Overall satisfaction	Very dissatisfied (9%); dissatisfied (18%); neutral (43%); satisfied (21%); very satisfied (9%)	Very dissatisfied (13%); dissatisfied (14%); neutral (39%); satisfied (29%); very satisfied (5%)

3.2. Socio-economic Status of Respondents

Of the 265 questionnaires returned by TransJogja users, only 242 questionnaires could be used for further analysis, while of the 370 questionnaires returned by TransMusi users, only 334 questionnaires could be used in the next stages of the model analysis. The descriptive statistics of the respondents are reported in Table 2. As shown in the table below, more than half of the Trans users in both Jogjakarta and Palembang are students. Other striking characteristics of the respondents is the age of the majority of users, i.e., under 40 years old, and their single status. The potential implication of this is that the perception of students and young users may be the dominant perception among users as a whole.

Furthermore, women accounted for the largest proportion of TransJogja users, while man are the primary users of TransMusi. The fact that almost 40 percent of TransJogja users reside outside of the municipality indicates that approaching half of travel across the region. The corresponding figure for Palembang is 26 percent. These percentages may continue to grow in line with the increasing population size of both cities. In terms of income, about 80 percent of Trans users are from lower-class households, and about 10 percent are from the wealthiest class.

3.3. Model Results

In this paper, path analysis was employed to reveal the relationship among variables. The model was calibrated using the AMOS 22 package from SmallWaters Corporation (Arbuckle & Worthke, 1999). Models of the results for TransJogja and TransMusi users are shown in Table 3 and Figures 3 and 4.

3.4. Discussion

The minimum discrepancy function values in the TransJogja and TransMusi models are 64.055 and 9.555 (Figures 3 and 4), indicating that they are statistically significant according to the chi-square test. The values for GFI, AGFI, NFI, IFI, and CFI for the TransJogja model are 0.957, 0.932, 0.963, 0.991, and 0.991, respectively, close to unity, meaning that the model is a perfect fit. Based on this result, it is clear that the TransJogja model displays a good fitness, since all the parameters obtained imply a good-fit model. On the other hand, the values for GFI, AGFI, NFI, IFI, and CFI for the TransMusi model are 0.993, 0.983, 0.985, 1.009, and 1.000, respectively. Some of the parameter fit values of the TransMusi model exceed one, implying a marginal fit model.

As can be seen in Table 3, only two out of the six determinants of service quality and none of the five determinants of subsidy and fare are significant at the 5 percent level in the TransJogja model, while three of the six determinants of service quality and one of the five determinants of subsidy and fare are significant at the 5 percent level in the TransMusi model. Further, only one of the four determinants of satisfaction is significant at 5 percent in both the TransJogja and TransMusi models. Three of the six determinants of service quality and four of the five determinants of subsidy and fare are significant at the 1 percent level in the TransJogja model, while two of the six determinants of service quality and two of the five determinants of subsidy and fare are significant at the 1 percent level in the TransMusi model. Moreover, two of the four determinants of satisfaction and two of the three determinants of loyalty are significant at the 1 percent level in the TransJogja model, while none of the four determinants of satisfaction and only one of the three determinants of loyalty is significant at the 1 percent level in the TransMusi model. Referring to the standardized regression weights in Table 3, it is clear that all of the latent variables of service quality, subsidy and fare, satisfaction, and loyalty are valid (as shown by values greater than 0.5) in the TransJogja model. In the TransMusi model, meanwhile, a number of the observed latent variables, except for in service quality, had to be removed since their regression weight values were less than 0.5.

According to the level of significance and regression weight, safety and security (0.784/0.834), and customer service and information availability (0.764/0.514) are the two most important attributes for improving the quality of service of the TransJogja and TransMusi models, in addition to the subsidy and fare (0.881) attribute in the TransJogja model alone. In regard to subsidy and fare policy, the distribution of subsidies (0.833), and effect of subsidization (0.708) attributes are the two most likely to capture the attention of local government in the TransJogja model, while the effect of subsidization (0.641) attribute is the one with the highest priority in the TransMusi model that could lead to an increase in the effectiveness of transport subsidies.

Table 3 Standardized factor loading estimates

Latent variables or factors	Observed variables	Structural relationship/Co-relationship	Standardized estimates-Significance level	
			TransJogja	TransMusi
Service quality	Frequency and reliability	Service quality → Satisfaction	0.247**	-0.084**
	Safety and security	Service quality → Loyalty	-0.213**	0.016**
	Customer service & information availability	Service quality → Frequency and reliability	0.652*	0.822*
		Service quality → Safety and security	0.784***	0.834***
		Service quality → Customer service & information availability	0.764***	0.514***
		Service quality ↔ Subsidy and fare	0.881***	-0.091**
Subsidy and fare	Affordability of fare	Subsidy and fare → Satisfaction	0.651***	0.004**
	Effect of subsidization	Subsidy and fare → loyalty	0.930***	0.392***
	Distribution of subsidies	Subsidy and fare → Affordability of fare	0.734*	--
		Subsidy and fare → Effect of subsidization	0.708***	0.641***
		Subsidy and fare → Distribution of subsidies	0.833***	0.954*
Satisfaction	Satisfaction with overall services	Satisfaction → Loyalty	0.226**	0.002**
	Satisfaction with comfort	Satisfaction → Satisfaction with comfort	0.873***	--
	Satisfaction with helpfulness of personnel	Satisfaction → Satisfaction with helpfulness of personnel	0.816***	--
		Satisfaction→ Satisfaction with overall services	0.832*	0.996*
Loyalty	Loyalty to use if service quality is improved	Loyalty → Loyalty to use if service quality is improved	0.799*	0.793*
	Loyalty to use if the service is satisfactory	Loyalty → Loyalty to use if the services is satisfactory	0.695***	0.725***
	Loyalty to use if the fare were affordable	Loyalty → Loyalty to use if the fare were affordable	0.779***	--
Indices of goodness-of-fit parameters				
Chi-square/DF			1.307	0.637
CFI			0.991	1.000
NFI			0.963	0.985
IFI			0.991	1.009
GFI			0.957	0.993
AGFI			0.932	0.983

Note: ***significant at 1%; **significant at 5%; *significant at 10%

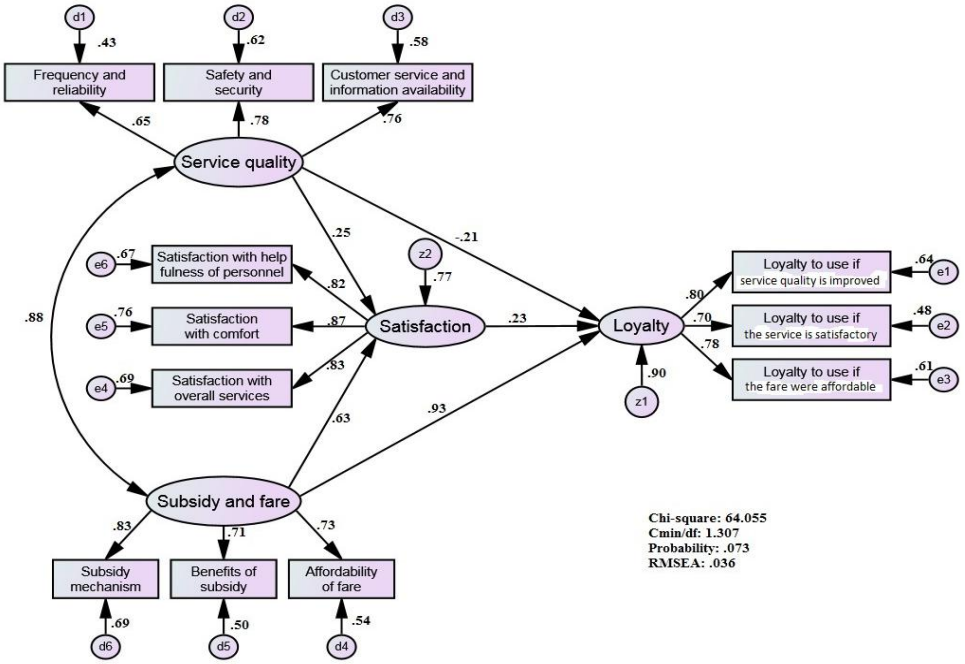

Figure 3 Average speed and percentage share of vehicles at study sections

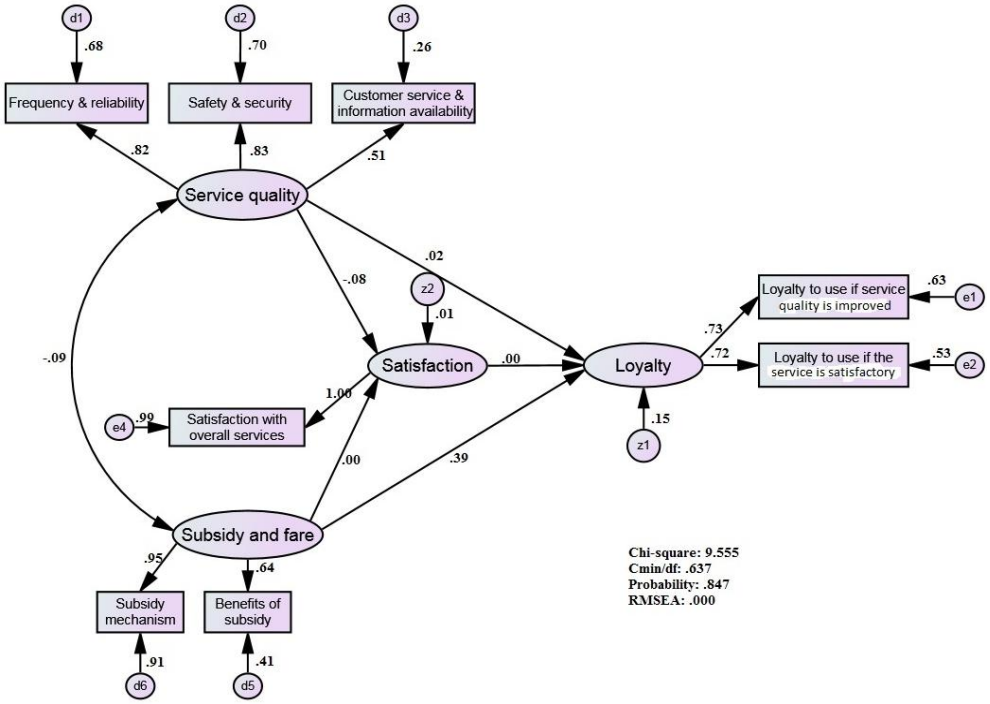

Figure 4 Relationship among variables in the TransMusi model

In terms of satisfaction, the satisfaction with comfort (0.873) and satisfaction with the helpfulness of personnel (0.816) attributes are the two most recommended aspects for the improvement of customer satisfaction in the TransJogja model, in addition to loyalty to use if the fare were affordable (0.779) and loyalty to use if the services is satisfactory (0.695) attributes, which are necessary elements for maintaining customer loyalty. Additionally, the loyalty to use if the service is satisfactory (0.725) attribute is the highest priority element for maintaining customer loyalty in the TransMusi model. As shown in Table 3, the estimated coefficient of satisfaction from service quality is lower than that of satisfaction from subsidy

and fare, in addition to the coefficient of loyalty from satisfaction being lower than that of loyalty from subsidy and fare. These results indicate that the permanent availability of transport subsidies in case study cities is the most important measure for maintaining customer satisfaction and loyalty rather than efforts to improve the quality of service and satisfaction. Since funding for urban bus subsidies comes from a public budget, bus subsidies and the political support they engender play a crucial role in supporting new urban bus services.

There are three hypotheses in the TransJogja model and one hypothesis in the TransMusi model, with all of the regression weights significant at 1 percent. Other hypotheses are less statistically significant (level of significance 5%). The first hypothesis, which positively correlates quality of service with subsidy and fare, is statistically significant, supported by the positive value (TransJogja model). This implies that the higher the quality of service, the greater the amount of subsidy required, and vice versa; the higher the subsidy level, the greater the quality of service that could be provided. This result appears to be both natural and reasonable. The second hypothesis, the positive relationship between subsidy and fare, and loyalty, is also statistically supported (TransJogja and TransMusi models). It stands to reason that the higher the subsidy, the more loyal the users are likely to be. The third hypothesis, the relationship between subsidy and fare, and satisfaction, is also statistically supported (TransJogja model). This implies that a higher subsidy will also increase the satisfaction of TransJogja users. The fourth hypothesis, the relationship between service quality and satisfaction (TransJogja model); the fifth, the relationship between service quality and loyalty (TransMusi model); and the sixth, the relationship between satisfaction and loyalty (TransJogja and TransMusi models) all have positive values but are statistically less significant. These results show that a higher quality of service provided does not directly increase user satisfaction and loyalty, while at the same time an increase in users' satisfaction does not directly increase user loyalty; since both satisfaction and loyalty are influenced by other aspects and the results may therefore not include other potentially valuable information. The seventh hypothesis, the co-relationship between service quality and subsidy and fare (TransMusi model); the eighth, the relationship between service quality and satisfaction (TransMusi model); and the ninth, the relationship between service quality and loyalty (TransJogja model) were also confirmed, albeit with less significant negative values. Additionally, the models show that service quality influences loyalty (-0.213) more strongly than subsidy and fare (-0.091) and also satisfaction (-0.084). The last three hypotheses support the finding that Trans bus users do not perceive loyalty, subsidy and fare, and satisfaction independently.

4. CONCLUSION

Based on the findings from the models, users' level of dependency on the Trans bus system influences their perceptions of loyalty, subsidy and fare, and satisfaction with the mode. In this study, the service quality delivered represents users' dependence on the Trans bus. It is understandable that even with the low quality of service provided and the fact that the distribution of transport subsidies is not well-targeted, users tend to more readily perceive the available service as satisfactory and to show increased loyalty to it, so long as it is able to fulfill their transport needs.

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TRANSIT SYSTEM SERVICE QUALITY OF TOURISM – EDUCATION CITY AND BUSINESS CITY
(Case Study: Transjogya and Transmusi Indonesia)

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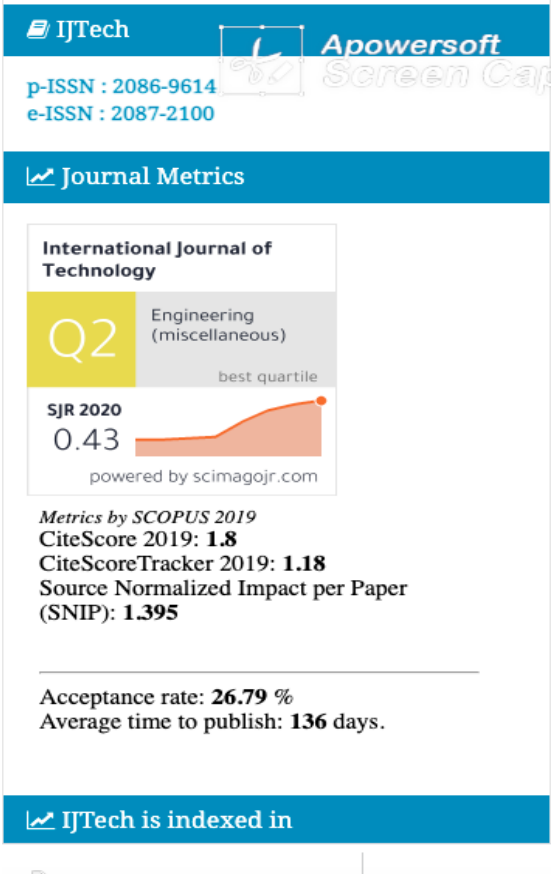

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CURRENT ISSUE :
VOL 12, NO 4 (2021)

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27 Dec 2017

Volume 8, Number 6

Science, Technology and Innovation for Sustainable World

Nyoman Suwartha, Ardiyansyah , Mohammed Ali Berawi , Isti Surjandari, T. Yuri M. Zagloel, Paramita Atmodiwirjo, Yandi Andri Yatmo

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Dec 27, 2017
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Pages : 979-982

Investigation of Subsurface Characteristics by using a Vs30 Parameter and a Combination of the Hvsr and Spac Methods for Microtremor Arrays

Sigit Pramono, Widjojo Prakoso, Astri Rahayu, Ariska Rudyanto, Fajri SukurRahmatullah, sofian Piandatte, Phil Cummins

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Dec 27, 2017
DOI: https://doi.org/10.14716/ijtech.v8i6.682
Pages : 983-992

Comparing Shear-Wave Velocity Determined by MASW with Borehole Measurement at Merapi Sediment in Yogyakarta

Widjojo Prakoso, Astri Rahayu, Imam Sadisun, Agus Muntohar, M Muzli, Ariska Rudyanto

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Dec 28, 2017
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Pages : 993-1000

Mapping of Land Subsidence Induced by Groundwater Extraction in Urban Areas as Basic Data for Sustainability Countermeasures

Lolom Evalita Hutabarat, Tommy Ilyas

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DOI: https://doi.org/10.14716/ijtech.v8i6.754
Pages : 1001-1011

Geotechnical Characteristics of Bantargebang Solid Landfill Waste Using a Laboratory Test on Artificial Waste Samples and a Field Test

Erly Bahsan, G.S. Boedi Andari, Sarah Pramiarsih, Syahrizal A. Latief

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DOI: https://doi.org/10.14716/ijtech.v8i6.737
Pages : 1012-1020

Enhancing Removal Efficiency of Ammonia and Nitrate in Shrimp Farm Wastewater Using Biofloc Technology and Effective Microorganism S4 (EM4)

Nyoman Suwartha, Dian Rahayu Pujiastuti

Publication Date (Online):
Dec 27, 2017
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Pages : 1021-1030

Water Recycling Opportunity in the Business Sectors of Greater Jakarta, Indonesia

Cindy Rianti Priadi, Evelyn Suleeman, Linda Darmajanti, Shanty Novriaty, Nyoman Suwartha, Rina Resnawati, Rahayu Handayani, Gita Lestari Putri, Elzavira Felaza, Tri Tjahjono

Publication Date (Online):
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DOI: https://doi.org/10.14716/ijtech.v8i6.743
Pages : 1031-1039

Fluid–Solid Interaction in the Case Of Piping Erosion: Validation of a SPH-ALE Code

Jessica Sjah, Eric Vincens

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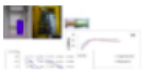

Numerical Evaluation of the Shear Behavior of a Metal Shear Key Used in Joining Precast Concrete Segmental Bridge Girders without Epoxy

Heru Purnomo, Rosi Nursani, Sekar Mentari, Sjahril A. Rahim, Elly Tjahjono

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Dec 27, 2017
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Pages : 1050-1059

Error Estimation for the DKMQ24 Shell Element Using Various Recovery Methods

Irwan Katili, Imam Jauhari Maknun, Elly Tjahjono, Irene Alisjahbana

Publication Date (Online):
Dec 27, 2017
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Pages : 1060-1069

How Kansei Engineering, Kano And QFD can Improve Logistics Services

Markus Hartono, Amelia Santoso, Dina Natalia Prayogo

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Pages : 1070-1081

Development of Eye Fixation Points Prediction Model from Eye Tracking Data using Neural Network

Boy Nurtjahyo Moch., Komarudin Komarudin, Maulana Senjaya Susilo

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Dec 27, 2017
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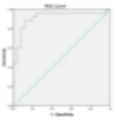
Pages : 1082-1088



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Maya Arlini Puspasari, Hardianto Iridiastadi, Iftikar Zahedi Sutalaksana, Ade Sjafruddin

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Pages : 1089-1096

An Analysis of the Ergonomic Design of the Tactical Commander Console (Tacco) in the Virtual Environment of Medium-Range Twin-Engine Maritime Patrol Aircraft (MPA)

Billy Muhamad Iqbal, Armand Omar Moeis, Renalda Krissalam

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Dec 27, 2017
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Pages : 1097-1107

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Pages : 1108-1116

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Pages : 1108-1116

Enhanced Treatment of Reeds as Natural Materials for Use in Traditional Housing at Wae Rebo Village in Flores

Indri Juwono

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Front-End Planning – The Role Of Project Governance And Its Impact On Scope Change Management

Eric Too, Tiendung Le, Wei Yee Yap

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Dec 27, 2017
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Pages : 1124-1133

Defining Design Parameters for Housing Development in Tropical Climates Using the Near Zero Energy House (nZEH) Concept

Yusuf Latief, Mohammed Ali Berawi, Ario Bintang Koesalamwardi, Leni Sagita, Jade Sjafrecia Petroceany

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Dec 27, 2017
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Pages : 1131-1140

Increasing Added Value for the New City of Walini Through Infrastructure Project Development

Mohammed Ali Berawi, Perdana Miraj, Abdur Rohim Boy Berawi, Revaldo Agdhitya

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Dec 27, 2017
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Pages : 1141-1149

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The Characteristics of Potential Passengers of an Indonesian High-Speed Train (Case Study: Jakarta—Bandung)

Andyka Kusuma, Nuryani Tinumbia, Pujas Leksono

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Dec 27, 2017
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Pages : 1150-1158

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Aleksander Purba, Fumihiko Nakamura, Dwi Herianto, I Wayan Diana, Muhammad Jafri, Chatarina Niken

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691
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