Yosritzal Y, Adjia BM, Dissanayake D.

Indonesian experience on travel time use on-board of commuter rail services.

***Transportation Research Procedia* 2017, 25, 2709–2720.**

Available online at www.sciencedirect.com

ScienceDirect

Transportation Research Procedia 25 (2017) 2705–2716

Transportation Research Procedia

www.elsevier.com/locate/procedia

World Conference on Transport Research - WCTR 2016 Shanghai. 10-15 July 2016

Indonesian experience on travel time use on-board of commuter rail services

Yosritzal[a]*, Bayu Martanto Adji[a], Dilum Dissanayake[b]

[a]*Transportation Research Groups, Civil Engineering Dept., University of Andalas, Kampus Limau Manis, Padang – 250000, Indonesia.*
[b]*Transport Operations Research Group (TORG), School of Civil Engineering & Geosciences, Newcastle University, Newcastle – NE1 7RU, United Kingdom.*

Abstract

This study investigates the travel time use of rail passengers with attention to commuter rail services between Padang and Pariaman, West Sumatera, Indonesia. An importance and satisfaction analysis was carried out to explore the opinion of passengers about the performance of attributes related to travel time use. The study found that passengers tend to use travel time mainly for enjoying the view and listening to music compared to reading, which is the most reported activity that travellers' perform while travelling in some developed countries. The advantage of gaining opportunity to conduct a more productive and enjoyable activity while travelling on the train for commuter journeys is found to be less important to the passengers compared to other attributes such as ticket price, reliability, seat guarantee and waiting room.

Peer-review under responsibility of WORLD CONFERENCE ON TRANSPORT RESEARCH SOCIETY.

Keywords: travel time use, commuter rail services, importance-satisfaction analysis, activities whilst travelling, information-communication technologies

* Corresponding author. Tel.: +628111234560; fax: +6275172664.
E-mail address: yosritzal@gmail.com

2352-1465
Peer-review under responsibility of WORLD CONFERENCE ON TRANSPORT RESEARCH SOCIETY.
10.1016/j.trpro.2017.05.205

1. Introduction

In traditional transportation studies, travel time was considered as a derived demand where people travelling in order to satisfy their need at the destination (Ortuzar and Willumsen [1]). Recent studies revealed some evidence that travel time was not entirely wasted especially for train passengers who engaging in productive and enjoyable activities whilst travelling such as reading a book, chatting with other passengers and working on computer for their job (Lyons et al. [2]; Ettema and Verschuren [3]; Yosritzal et al. [4]; and Lyons et al. [5]). Studies on the effect of travel time use to many factors such as value of time, perception of time and attitude of travellers, have been at the top priority in several developed countries over the past decade, however, the topic is still under researched in developing countries.

This paper presents one of the first travel time use studies in developing countries, especially in Indonesia. Indonesia has been named as number fourteenth of top internet users in the world (the world factbook [6]). This figure promises a great opportunity for more productive use of travel time in Indonesia. It is expected that the attractiveness of rail services would increase because of the higher opportunity to engage in activities involving information, communication and multimedia technologies on-board. Therefore, it is important to carry out the travel time use study in Indonesia. Commuter rail services between Padang and Pariaman, West Sumatera Province of Indonesia was chosen as case study in this research.

The investigation of travel time use was carried out on-board of a commuter rail service travelled between Padang and Pariaman in West Sumatera, Indonesia. The study investigates how passengers spent their travel time, how satisfied they were with the existing facilities and uses the knowledge gained from the research to provide recommendations to the rail authorities there regarding the potential to increase the opportunity to carry out an enjoyable and more productive work whilst travelling. Therefore, this study contributed in providing more evidence on travel time use in developing countries as a complement to those in developed countries. Furthermore, this study also contributed in providing travellers' opinion on the quality of public transport services with respect to the activities conducted whilst travelling.

The state of the art review is presented in Section 2 followed by the description of the commuter rail services between Padang and Pariaman in West Sumatera, Indonesia, as a case study area in Section 3. The methodology of this research is described in Section 4 before presenting the data analysis in Section 5. Finally, discussion and direction for future research are presented in section 6.

2. The State of the Art Review of Travel Time Use Studies

The positive utility of travel time has been recognised by researchers since the concept of value of travel time was introduced by Johnson [7] as one of initial application of the Becker's theory of time [8]. According to Johnson [7] similar to time spent on work, time spent on a work trip also has a utility to allow the possibility that the travelling is desirable. Oort [9] supported Johnson's theory that work trip does have a utility value especially when the time can be used productively or is relatively pleasant, however, in general, people prefer to reduce the time spent in travelling.

Mokhtarian and Salomon [10] suggested that travel time is not fully a derived demand because utility of travel time is not only for activities conducted at the destination that made possible by travelling but also activities conducted during the journey and the travelling itself. Similarly, Lyons and Urry [11] criticised the value of time (VOT) theory that assumed travel time is unproductive time, because in this information age, several activities can be conducted whilst travelling including doing office work on computer, online shopping or enjoying online movies. Metz [12] regarded travel time saving as a 'myth' because individuals have travel time budget (TTB) and the time saved from a travel time would be used for other travel or to travel longer. In Netherland, Ettema and Verschuren [3] conducting a study about the effect of multitasking ability to the VTTS revealed some activities that often performed by travellers on public transport were reading for leisure (80%), reading for work (67%) and window gazing (60%). Moreover, Yosritzal et al. [4] found main activities of rail passengers whilst travelling in the UK were reading a printed book/newspaper/magazine (42%), chatting with other passengers (5%) and enjoying the view (9%). A

quarter of respondents were engaging in various electronic based activities such as working on computer, reading/writing e-mails, text messaging/ making phone calls, and listening to radio/ music. The percentage of those engaging in electronic based activities seems to increase in 2010 data compared to 2004 (Lyons et al. [5]).

3. Description of the Case Study Area

Padang is the largest city in West Sumatera with population about eight hundred thousands in 2014 and Pariaman is a remote city to Padang. Many commuters are travelling every day between Padang and Pariaman. Most of them use public transport for their commuting journeys. Some small size passenger cars are serving as main urban public transport, whilst medium buses serving intercity travel. However low occupied private cars and motorcycles are dominating road traffic contributing to traffic congestion and delays everyday especially during peak hours.

Railway transport had been a key intercity public transport in West Sumatera until 1980's, when the authority decided to stop the railway operation following the occurrence of some fatal accidents. In 2008, local government decided to restart the railway services in a limited route to facilitate commuters from remote areas between Padang and Pariaman. The operation of the commuter rail transport between Padang and Pariaman successfully reduces the use of private car for commuting between the cities. It was estimated that three hundred and sixty five thousand passengers have used the train services during 2013 with a 10% rate of increase per-year. Following the success of the re-opening of the railway transport service, some additional routes are expected to be re-opened to support the Sumatera Railway Transport Master Plan.

At the time of this study being carried out, there are two trains serving Padang-Pariaman corridor namely "Sibinuang", operating at the working day, and "Dang Tuanku", at the weekend. One-way ticket price for Sibinuang is flat fare for only Rp 2,500 (£0.125) per-person regardless their journey distance. This price is subsidised by the government and only about a quarter of the price of bus ticket for the same corridor. Discounted ticket options are also available for students. Unsubsidised ticket price is applied for the weekend train, because the last station in Pariaman is Gondaria Beach, one of the famous tourism attractions in West Sumatera. The trains are air-conditioned and they have electric sockets to improve the travel environment. Average travel time between the selected cities here is about 2 hours with train speed varies between 20 to 60 km/hour.

4. Methodology

Data for this study was collected by distributing a self-completion questionnaire on-board of Sibinuang and Dang Tuanku trains in July 2014. The questionnaire design was preceded by a focus group discussion to explore any issues before finalising the survey documents. Respondents were asked to express their perception in 7 points of likert-scale. As much as 300 data were collected however about 6% were uncompleted therefore excluded from further analyses. These samples are reflecting 25% of daily average commuters between Padang and Pariaman or 0.035% of the population of Padang City.

Descriptive analysis was carried out to investigate the samples' characteristics and their activities whilst travelling. An evaluation on the performance of attributes of rail services was then performed using Importance-Satisfaction Analysis (ISA). The ISA has been previously applied in public transport research such as in Yahya and Bell [18]. Based on the analysis, some recommendations were drawn to share with the train operators and local government to improve the performance of the train, to attract more passengers and to reduce road traffic volume between the cities.

5. Data Analysis

5.1. Respondents Profile

Characteristics of respondents and trips in this study are presented in Table 1. The characteristics found in this study were similar to other studies or media exposes such as Fikra [13], Febrianti [14] and Rezkisari [15] where the largest proportion of the passengers were students at the age range of 16 to 24.

Table 1. Respondents and Trips Characteristics

Characteristics	Male	Female	Characteristics	Male	Female
Employment			***Education***		
Employed	26	50	Primary School	0	2
Self-employed	22	10	Junior High School	3	5
Retired	5	7	Senior High School	39	37
In full time education	51	81	University	63	126
Looking after home	0	14	Other	1	3
Other	1	9			
Total	105	171	Total	106	173
Age			***Journey Purpose***		
Less than 16	1	1	Business	6	5
16 – 24	54	94	Commuting	26	56
25 – 34	24	43	Shopping	1	1
35 – 49	15	18	Personal Business	21	39
50 – 64	10	18	Visiting family/ friend	5	9
More than 65	2	0	Recreation	36	30
			Other	5	23
Total	106	174	Total	100	163

As shown in Table 1, the proportion of female respondents was higher than males. In terms of employment status, students in a full time education were more represented in this study followed by employed and self-employed respondents for both male and female categories. The education of respondents was at university level or at senior high school. In terms of age, respondents with age between 16-24 and 25-34 year old were more represented than other age groups.

5.2. Passengers Activities Whilst Travelling

List of activities on what respondents engaged in and the main activity of respondents were recorded and presented in Table 2.

This study found that enjoying the view outside the window, listening to music and chatting with other passengers were the most frequently reported main activities of respondents. The finding is slightly different compared to other studies in developed countries such as Lyons et al. [2]; Lyons et al. [5]; Ettema and Verschuren [3], and Yosritzal et al. [4], where main activity of respondents was reading a book. The difference might not simply reflect the differences in culture of developed and developing countries, but might also influence by level of service of the train and respondents characteristics. The focus group discussion conducted earlier before main data collection revealed

that some people have difficulties to read on the move (Yosritzal et al. [16]). The difficulty might be escalated by the sway resulted from moving coaches on track. A more detail discussion will be presented in section 5.5.

Table 2. Activities of Respondents Whilst Travelling

Activities		Gender		Total (%)
		Male (%)	Female (%)	
Electronic Based Activities (EB)				
1	Reading/ writing/ sending 'SMS'	5.1	9.5	7.8
2	Making a phone call	0	0	0.0
3	Browsing internet	4.0	1.2	2.2
4	Accessing social media	3.0	5.3	4.5
5	Listening to music	16.2	18.3	17.5
6	Watching Video	0	0	0.0
7	Playing games in gadget	6.1	2.4	3.7
Non Electronic Based Activities (NEB)				
8	Working on office job	2.0	2.4	2.2
9	Talking to other passengers	7.1*	18.9*	14.6
10	Eating/ drinking	0.0	1.2	0.7
11	Entertaining children	1.0	0.6	0.7
12	Studying	2.0	1.2	1.5
13	Reading a book/ magazine/ newspaper	7.1	4.1	5.2
Personal Engagement Activities (PE)				
14	Enjoying the view	30.3	25.4	27.2
15	Sleeping/ snoring	7.1	5.3	6.0
16	Thinking	8.1*	1.2*	3.7
17	Being bored	0.0	0.6	0.4
18	Other	1.0	2.4	1.9
	Total			100%
Pearson chi-square				0.04

*Significantly different at 5% level of significance between male and female

Similar to the findings of previous studies such as Lyons et al. [2] and Yosritzal et al. [4], the proportion of travellers spent most of their time being bored was very low suggesting that passengers tend to spend their time in more enjoyable and productive activities. The activities involving the use of technology such as listening to music, reading/ writing/ sending short message and accessing social media were carried out by one third of respondents. However, some productive activities such as working on office job, studying and reading were carried out by less than 10% of respondents suggesting the existence of barrier in conducting those activities. It is also interesting to find that only less than 1% passengers were eating/ drinking on train although it is allowed. On of the explanation for this has been that Indonesian used to have breakfast at home before travelling.

The Pearson Chi-square Test shows that the proportions of main activities between male and female were significantly different at 5% but not at 1% level of significant. There were two activities that differ significantly where female were more attracted to engage in talking with other passengers whilst male to spend their time for thinking.

In terms of employment status, students were more likely to engage in listening to music or texting whilst employed traveller, in enjoying the view outside the window or chatting with other passengers as shown in Table 3. In terms of the purpose of the journey, commuters were more likely to engage in various activities whilst business travellers engaged in enjoying the view outside the window as shown in Table 4. It was expected that the commuters who passed the route routinely at least two times a day perceive the attractiveness of the view was lesser. Those who

travelled for personal business and recreation were mainly engaged in enjoying the view, listening to music or chatting with other passengers.

Table 3. Main activity by employment status (only > 1% cells were shown)

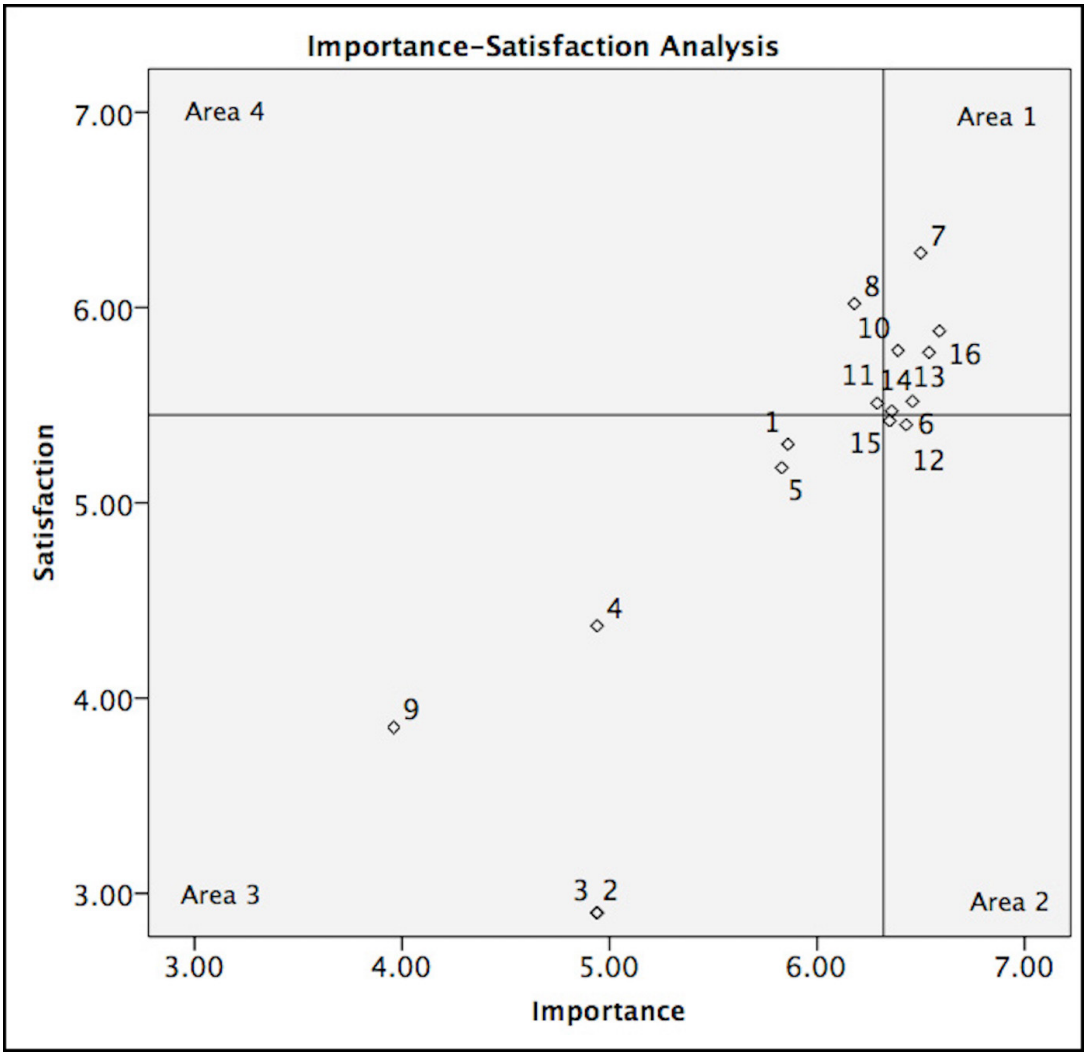
Main Activity	Employment status			
	Employed	Self employed	In full time education	Looking after home
Reading a book/ magazine/ news	-	-	2%	-
Listening to music	3%	-	12%	-
Playing on gadget	2%	-	2%	-
Working on office job	2%	-	-	-
Enjoying the view	6%	3%	-	3%
Chatting with other passengers	5%	-	5%	-
Texting	-	-	7%	-
Accessing social media	-	-	2%	-

Table 4. Main activity by journey purpose (only > 1% cells were shown)

Main Activity	Journey Purpose			
	Business	Commuting	Personal Business	Recreation
Reading a book/ magazine/ newspaper	-	2%	-	-
Listening to music	-	5%	7%	3%
Working on office job	-	2%	-	-
Enjoying the view	2%	5%	6%	10%
Chatting with other passengers	-	7%	2%	4%
Sleeping	-	4%	-	-
Texting	-	-	-	-
Thinking	-	2%	-	-

5.3. Importance and Satisfaction Analysis (ISA)

An ISA was carried out in order to explore how respondents assess "importance" and "satisfaction" of the performance of train service attributes. In this assessment, along with standard attributes, some attributes related to the use of travel time were examined such as the availability of Wi-Fi on-board and at stations, and also the availability of the electric socket on-board. In total, there were sixteen attributes examined in this study and respondents were asked to rate their opinion on the attributes in 7 point of Likert-scale. In the ISA, the mean of how importance (represented as *Importance*) and satisfaction (represented as *Satisfaction*) of the performance of each attribute were plotted into a four quadrant graph (Martilla and James [17]). Firstly, the centrelines was crossed at the middle scale value (4.00), however, as most of respondents put higher rating on most of the attributes either in terms of *Importance* and *Satisfaction*, the median of the means was used. The use of median of the means of attributes as the centrelines showing relative comparisons among attributes, might be more useful for the train operators when setting up future policies. Therefore, in this analysis the median of the means of *Importance* and *Satisfaction* were used as the centrelines as shown in Figure 1.



Key:

1	Availability of real time information at station	9	Availability of catering
2	Availability of free Wi-Fi on board	10	Reliability
3	Availability of free Wi-Fi at station	11	Accessibility of the station
4	Train frequency	12	Comfortableness of waiting room
5	Safety in using gadget	13	Easy to book a ticket
6	Guarantee to have a seat	14	Large seating space
7	Affordable ticket price	15	Arrive at destination quickly
8	Availability of electric socket on-board	16	Cleanliness of the coaches

Figure 1. Importance-Satisfaction Analysis (ISA)

Based on the distribution of the attributes in each area, a recommendation can be made as shown in Table 5.

Table 5. Recommendation for items in each quadrant

Area*		Items	*Importance*	*Satisfaction*	Recommendation
1	11	Accessibility of the station	6.4	5.5	Passengers' satisfaction with these variables is relatively higher than the average suggesting that they met passengers' expectations. Maintaining or slightly increasing attention on the areas will generate significant impact on passengers' satisfaction.
	10	Reliability	6.4	5.8	
	6	Guarantee to have a seat	6.5	5.5	
	7	Affordable ticket price	6.5	6.3	
	13	Easy to book a ticket	6.5	5.8	
	16	Cleanliness of the coaches	6.6	5.9	
2	15	Arrive at destination quickly	6.4	5.4	Passengers' satisfaction with these variables is relatively lower than the average although still slightly higher than the neutrality. As these variables are very important in passengers' opinion, a special attention will be needed on these items.
	12	Comfortableness of waiting room	6.4	5.4	
3	9	Availability of catering	4.0	3.9	Passengers' satisfaction with these variables is relatively lower than the average and/or neutrality; however, compared to other variables these variables are less important in passengers' opinion. Maintaining or slightly increasing attention on the areas will contribute to better impact on passengers' satisfaction.
	2	Availability of free Wi-Fi on board	4.9	2.9	
	3	Availability of free Wi-Fi at station	4.9	2.9	
	4	Train frequency	5.6	4.4	
	5	Safety in using gadget	5.8	5.2	
	1	Availability of real time information at station	5.9	5.3	
4	14	Large seating space	6.3	5.5	These items are less important but are performing better. The train operators may maintain or slightly decrease emphasis on items in this area.
	8	Availability of electric socket on-board	6.2	6.0	

*Read clockwise starting from top right.

Similar to rail passengers in the UK (Yosritzal et al. [4]), attributes such as accessible stations, reliability, seat guarantee, ticket price, convenience of ticket reservations and cleanliness of the coaches were considered as important by the respondents. Most of the respondents were satisfied with those attributes, and therefore, the train operators need to maintain or slightly increase emphasis on these items. Attention should be paid to the attributes in

area 2 (table 5) as the attributes are important for the passengers but the current conditions were relatively less satisfy passengers' expectation compared to some other important variables in Area 1. The attributes in this area are 'to arrive at destination quickly' and 'comfortableness of the waiting room.' Operators should increase emphasis on these items such as improving the speed and reliability, and providing more comfortable waiting rooms at stations.

It is interesting to find that the attributes related to travel time use with respect to the information and communication technology such as the availability of free Wi-Fi either on-board or at stations, safety when using devices, and the availability of electric socket on-board were less important for passengers. This might be because the passengers have their own internet connection through their cellular operators and portable power bank to recharge their devices. However, it was initially reported that the lower rating in *Importance* might be because of the performance of the attributes were higher than the expectation of respondents (Yahya and Bell [18]). Therefore, a more careful assessment on the specific attributes is needed before implementing the recommendation of this study.

5.4. Comparison Importance and Satisfaction Data by Journey Purpose and main Activity

There was an expectation that the journey purpose and the main activity that respondents pursue would influence their perception on the attributes of train services. Therefore, a comparison between disaggregated data by journey purpose and main activity was made to compare both the *Importance* and *Satisfaction* data. Considering number of respondents for each category, only two categories of journey purpose and three categories of main activity were analysed. The comparisons of the data are shown in Table 6 and Table 7. Independent samples Kruskal-Wallis test were conducted to compare both the *Importance* and the *Satisfaction* among the categories. The hypothesis was that there is no different between the distribution of *Importance* or *Satisfaction* among the group at 5% level of significance. The result found that the significant were 0.168 and 0.343 for *Importance* and *Satisfaction,* respectively. This result suggests that the hypothesis should be retained because the distributions were the same.

Table 6. Comparison between Importance (I) and Satisfaction (S) Data by Journey Purpose

No	Item	All		Journey Purpose			
				Commuting		Recreation	
		I	S	I	S	I	S
1	Availability of real time information at station	5.9	5.3	6.0	5.3	5.8	4.9
2	Availability of free Wi-Fi on board	4.9	2.9	5.1	3.1	5.3	3.2
3	Availability of free Wi-Fi at station	4.9	2.9	4.9	3.2	5.4	3.2
4	Train frequency	5.6	4.4	6.0	4.7	4.5	4.3
5	Safety in using gadget	5.8	5.2	5.3	5.6	5.9	4.7
6	Guarantee to have a seat	6.5	5.5	6.7	6.0	6.2	5.3
7	Affordable ticket price	6.5	6.3	7.9	6.4	6.2	5.8
8	Availability of electric socket on-board	6.2	6.0	6.2	6.3	6.1	5.7
9	Availability of catering	4.0	3.9	4.0	3.6	4.3	4.4
10	Reliability	6.4	5.8	6.5	6.0	6.1	5.1
11	Accessibility of the station	6.4	5.5	6.7	5.4	6.2	5.3
12	Comfortableness of waiting room	6.4	5.4	6.7	5.5	6.3	5.3
13	Easy to book a ticket	6.5	5.8	6.7	5.5	6.3	5.7
14	Large seating space	6.3	5.5	6.6	5.5	5.8	5.3
15	Arrive at destination quickly	6.4	5.4	6.8	5.4	5.5	5.1
16	Cleanliness of the coaches	6.6	5.9	6.8	6.1	6.4	5.5

Tabel 7. Comparison between Importance (I) and Satisfaction (S) Data by Main Activity

No.	Item	All		Main Activity					
				Listening to music		Enjoying the view		Chatting	
		I	S	I	S	I	S	I	S
1	Availability of real time information at station	5.9	5.3	5.6	5.2	5.7	5.4	6.5	5.8
2	Availability of free Wi-Fi on board	4.9	2.9	5.5	2.8	4.5	3.0	5.2	3.2
3	Availability of free Wi-Fi at station	4.9	2.9	5.5	3.0	4.4	2.9	5.1	3.1
4	Train frequency	5.6	4.4	5.6	4.3	5.6	4.3	5.5	4.9
5	Safety in using gadget	5.8	5.2	5.8	4.8	5.7	5.2	5.9	5.6
6	Guarantee to have a seat	6.5	5.5	6.2	5.2	6.3	5.3	6.5	5.9
7	Affordable ticket price	6.5	6.3	6.2	6.0	6.4	6.3	6.6	6.5
8	Availability of electric socket on-board	6.2	6.0	6.1	6.0	6.0	5.8	6.3	6.1
9	Availability of catering	4.0	3.9	4.1	3.9	3.8	3.7	4.7	4.2
10	Reliability	6.4	5.8	6.2	5.6	6.3	5.8	6.3	6.1
11	Accessibility of the station	6.4	5.5	6.1	5.4	6.4	5.4	6.1	5.1
12	Comfortableness of waiting room	6.4	5.4	6.2	5.1	6.4	5.2	6.4	5.7
13	Easy to book a ticket	6.5	5.8	6.5	5.7	6.5	5.5	6.5	6.1
14	Large seating space	6.3	5.5	6.3	5.1	6.1	5.4	6.1	5.7
15	Arrive at destination quickly	6.4	5.4	6.3	5.4	6.3	5.6	6.3	5.0
16	Cleanliness of the coaches	6.6	5.9	6.6	6.0	6.6	5.5	6.5	5.9

5.5. Barriers in Conducting Productive Activities Whilst Travelling

Indonesia is among the world largest users of internet and social media (The World Factbook, n.d.), however only a few of respondents used them while commuting. This study also found that the availability of Wi-Fi on-board or at stations were not very important for passengers as discussed in section 5.4. One of the possible reasons for this was the existent of some barriers for conducting productive activities on-board.

Focus Group Discussion that has been conducted prior the data collection activity of this study indicated that some passengers have limitations either physically or psychologically to use electronic devices whilst travelling. Some respondents reported that they found difficulties in reading or writing in a moving coach. Another respondent reported that it was uncomfortable to use an expensive smartphone in the crowd as other passengers are staring at him/her.

In order to explore the barriers in conducting productive activities whilst travelling, some questions were included in this study such as difficulties in reading in a moving vehicle, adequate space for working, unsafe feeling from robbers, short duration of the commuting journey for working, and intimidation from other passengers. The result is shown in Table 8.

Table 8. Exploration on the barrier of productive use of travel time

No.	Statement	Disagree (%)	Neutral (%)	Agree (%)
1	I cannot read on a moving vehicle	45	17	38
2	The available space is not enough for working	46	17	37
3	I fear of robbers when using devices on a crowd	41	14	46
4	Travel time was too short to be able to work on a laptop	46	22	32
5	I fear of being bullied if I work whilst travelling on the train	50	10	40

Table 8 shows that the percentage of respondents that disagree with the statement related to the existent of the barriers were slightly higher than those who agree. However, number of respondents who feel that such barriers were exist cannot be ignored. An attention should be directed to the response on the statement "*I fear of robbers when using devices on a crowd*" where 46% of respondents feel unsafe to use their relatively expensive gadget on train. The operators should be able to guarantee a safe environment for working on laptop or any expensive electronic devices on train to increase the possibility of productive use of travel time.

6. Discussions and Direction for Future Research

This study aims to investigate the activities of rail commuters who use commuter rail services between the cities of Padang and Pariaman Indonesia, and to assess commuters' opinion on the performance of some attributes of rail services using ISA. In terms of activities conducted on-board, there were some similarities and some differences of the findings in this study compared to the studies conducted in the past. This study found that fewer passengers spent their travel time for working on laptop for office job, reading a printed material, or studying compared to the commuters in the UK (Yosritzal et al. [4] and Lyons et al. [2]). Enjoying the view and listening to music were among the most frequently reported activities suggesting that the passengers more likely to spent travel time in a different way to spending time to carry out work-related activities. Train operators or local government could explore avenues along the lines of better customer satisfaction to attract more passengers. Providing a customisable music on-board and improving landscape and environment around the rails track would be of potential benefit for this purpose.

The ISA found that attributes to facilitate commuters to use electronic devices such as providing Wi-Fi and electric sockets were less important for passengers. Even though those attributes were less important for them at this time; it might be changed in the future as the technology consistently moving forward. Furthermore, it is worth noting that there are the less important attributes as revealed by the analysis. The reason behind this may be due to the performance of those attributes is higher than their expectations as stated by Yahya and Bell [18].

Attributes such as waiting room, ticket price, cleanliness, reliability, and seat guarantee were among the most important attributes for passengers. Train operators and local government should pay more attention on those attributes. Some of the attributes have already fulfilled respondents' expectation such as ticket price, cleanliness, reliability, and seat guarantee. The ticket prices of the commuter trains are comparatively cheaper than buses or private cars whilst they provide clean and spacious environment for commuters. The train departs from the original station and arrives at the destination stations on time. However, the waiting rooms as well as the speed of the train were not up to the satisfaction of the commuters as it was revealed by this study and this was recognised as an element for further improvements.

This study found a disparity between to the role of Internet and social media and the activities that commuters pursue whilst travelling. Indonesia is among the world largest users of Internet and social media; however only a small share of commuters used to access their social media network while travelling. An exploration on the barrier in conducting activities involving electronic devices found that a significant number of respondents feel unsafe to use electronic devices while travelling by train due to robbers. Some respondents reported some difficulties in reading in a moving vehicle, not enough space for working on laptop, and felt intimidated by other passengers when using their electronic devices.

In order to increase the patronage and the proportion of passengers using travel time productively, the operators should guarantee a safe and friendly environment for passengers. The safe and friendly environment could be created by placing a CCTV camera in every coach and by increasing the appearance of security guard in the trains and at stations. User satisfaction study should be carried out in a regular basis for a better understanding of passengers' opinion on the services as it will allow better and more improved satisfaction of train travellers.

Further to this study, a more detailed investigation on the barrier of conducting productive use of travel time will be carried out as a continuation of the research initiated here.

Acknowledgements

This research was part of a research funded by University of Andalas, Funding Year 2014, contract number: 037/PL/SPK/PNP/FT-Unand/2014.

References

[1] Ortuzar, J. d. D. and Willumsen, L. G., 2011. *Modelling Transport*. West Sussex, UK: John Wiley & Sons, Ltd.

[2] Lyons, G., Jain, J. and Holley, D., 2007. The use of travel time by rail passengers in Great Britain. *Transportation Research Part A: Policy and Practice*, 41(1), pp. 107-120.

[3] Ettema, D. and Verschuren, L., 2007. The effect of multi-tasking on the value of travel time savings. *Transportation Research Record: Journal of the Transportation Research Board*, (Volume 2010/2007), pp. 19-25.

[4] Yosritzal, Dissanayake, D., and Bell, M., 2011. Is technology influencing the perception of time? Experience of train travellers. *The 44th* 6 January 2012).

[5] Lyons, G.,Jain, J., Susilo, Y.,and Atkins, S., 2013. Comparing rail passengers' travel time use in Great Britain between 2004 and 2010. *Mobilities*, 8:4, 560-579, DOI:10.1080/17450101.2012.743221.

[6] The world factbook (n.d) Country comparison: internet users, retrieved from https://www.cia.gov/library/publications/the-world-factbook/rankorder/2153rank.html#download.

[7] Johnson, M. B., 1966. Travel Time and The Price of Leisure. *Western Economic Journal*, 4:2, p. 135.

[8] Becker, G. S., 1965. A Theory of the Allocation of Time. The Economic Journal, 75(299), p. 24.

[9] Oort, C. J., 1969. The Evaluation of Travelling Time. *Journal of Transport Economics and Policy*, 3, p. 8.

[10] Mokhtarian, P. L. and Salomon, I., 2001. How derived is the demand for travel? Some conceptual and measurement considerations. *Transportation Research Part A: Policy and Practice*, 35(8), pp. 695-719.

[11] Lyons, G. and Urry, J., 2005. Travel time use in the information age. *Transportation Research Part a-Policy and Practice*, 39(2-3), pp. 257-276.

[12] Metz, D., 2008. The Myth of Travel Time Saving. *Transport Reviews*, 28: 3, pp. 321-336.

[13] Fikra, R., 2010. Evaluasi kinerja kereta api Padang-Pariaman berdasarkan penilaian penumpang, Thesis, Universitas Andalas.

[14] Febrianti, F., 2010. Trayek KA Padang-Pariaman Ditingkatkan 4 Kali Sehari. Retrieved October 4, 2014, from http://www.tempo.co/read/news/2010/07/02/179260412/Trayek-KA-Padang-Pariaman-Ditingkatkan-4-Kali-Sehari

[15] Rezkisari, I. (Ed.). (2014, March 13). Yuk, Naik Kereta dari Padang ke Pariaman. Retrieved November 6, 2014, from http://www.republika.co.id/berita/nasional/daerah/14/03/13/n2dsuc-yuk-naik-kereta-dari-padang-ke-pariaman

[16] Yosritzal, Adji, B.M., Andika, R., and Nofrizal, F., 2014. Study of Travel Time Use in Indonesia. *The proceeding of 17th International Symposium of Inter-University Transport Studies Forum*, Jember University, Agustus 23, 2014.

[17] Martilla, J. A. and James, J. C., 1977. Importance-Performance Analysis. *The Journal of Marketing*, 41(1), pp. 77-79.

[18] Yahya, N. and Bell, M. C., 2010. Assessment of service quality and satisfaction from passengers' perspective to inform bus operator decision making. *The 42nd UTSG Annual Conference*. University of Plymouth, January 5-7, 2010.