

## Do People Really Need a Faster Train in This Information Era?

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### ABSTRACT

This paper presents a study on travel behaviour of rail passengers and their attitude to train services in information era. Data for this study were collected from Focus Group Discussion, questionnaire and interview. Several factors were examined to learn how people experience their train journey such as reliability, waiting time, ticket price and facilities available on train. The study found that train speed is importance for travellers but the facilities on-board is more importance.

**KEYWORDS:** Travel Time Use, Value of Travel Time Saving, Train, Investment.

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### INTRODUCTION

Conventional approach in estimating benefit of an intervention of transportation system is using money value of the travel time reduction which often being called as Value of Travel Time Savings or VTTS [17]. Time saving is considered as benefit because travel time was assumed as a non-productive time so that reduction of travel time enable travellers to convert the wasted time to a more productive time [6]. The reduction of travel time can be achieved through application of a new technology such as a faster train, or build a new route to reduce the distance.

However, in the information era where access to mobile technology such as smartphone, computer tablet and laptop is wide spread, travel time can be used for work as well as leisure [12]. The use of VTTS as the most benefit of transport intervention was based on weak foundation. Travel time will never be a wasted time as various activities can be carried out whilst travelling.

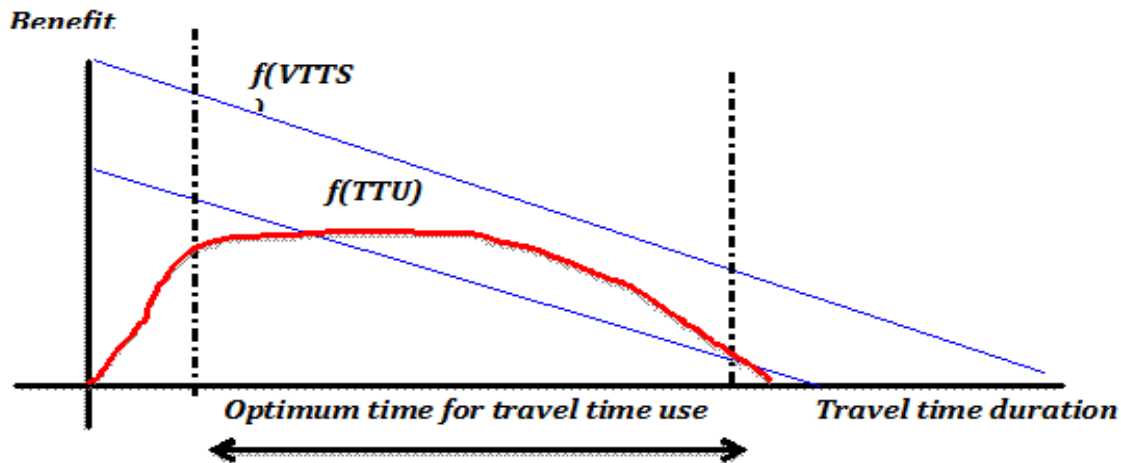
As reduction of travel time will reduce the opportunity to carry out productive activities whilst travelling, it is interesting to learn the preferences of travellers if they can choose. This paper examined whether reduction of travel time is more importance for users than obtaining opportunity to engage in more productive and enjoyable activities. Literature review will be presented in section 2 followed by methodology in section 3. Data presentation and analysis will be presented in section 4 and finally a conclusion will be presented in section 5.

### LITERATURE REVIEW

The use of value of travel time saving as the most benefit of transport investment for users has been applied for decades. The first concept of the value of time was introduced by [2]. Since than many studies refined the concept such as [4, 9, 14, 16]. Recent research on the value of time has been studied by [1, 3, 8, 17].

In the era where information and communication technology not yet available, activities that can be carried out on-board of train was limited to non-electronic activities such as reading printed document, talking to other passengers. However in the information era, various activities involving people who are not travelling at the time can be carried out such as teleconference, discussion on phone, and sharing document. Evident have been published in [10, 11, 18]. Those evident raise critics on the VTTS theory as it assumes that travel time is a wasted time. In [13] named the VTTS as a myth. Furthermore, in [12] called a review on how to estimate transport the investment benefit because the use of VTTS might not reflect the reality.

In [19] developed a new framework in estimating the benefit of an investment in transport where the reduction of travel time and the use of travel time for a productive and enjoyable activities are incorporated in a model as shown in Figure 1.



**Figure 1: Total benefit of transport investment as a combination of travel time use and travel time saving [19]**

The problem is: to be able to engage in a productive activity, a minimum duration of the trip should be considered. When the intervention reduced travel time significantly and the journey time now is lower than the minimum duration needed to engage in the productive and enjoyable activities, no chance to use the travel time productively. At this point, obtaining a benefit from travel time reduction is risky of losing the opportunity to engage in productive activities.

In the modelling process, firstly, in [19] stated that the opportunity to use travel time productively is considered as one of benefit of transport investment for user. Secondly, as long journey is tiring and individual tends to reduce their journey duration to their travel time budget, the saving time, which is estimated using VTTS, is also considered as transport investment benefit for users. However, the reduction of travel time might reduce the opportunity to engage in a more productive activity whilst travelling, especially when the current travel time (after reduction) is less than optimum time for productive activities. Total user benefit from investment would maximum when the reduction of travel time is large enough but individual still have enough time to engage in productive activities at optimum time.

The consequences of the model are investment would reach its optimum benefit for user when the reduction of travel time is large enough but it does not reduce the optimum time to engage in productive activities during the journey. When the reduction of travel time reduces the opportunity of travel time use, investment should be carefully considered to obtain the most benefit for users. At a particular point, the saving time should be prioritised than time use, however there would be a point where investment should be aimed to increase the opportunity to engage in productive activities.

In order to develop the model, a focus group discussion has been conducted followed by distributing questionnaire to rail passengers and interviewing authority staffs. This presented paper is an updated version of [19, 20] with addition some samples in order to increase its representativeness.

## METHODOLOGY

Data for this paper was collected from two wave questionnaire surveys that were carried out on commuter rail services in Padang.

The first wave was carried out in 2014 receiving 280 responses and has been reported in [20]. The questionnaire was designed based on deep interview to some transport experts an Andalas University.

In order to improve the questionnaire, in 2015, three focus group discussions were conducted, involving business travellers, general travellers as well as commuter travellers. The first was group of general travellers who have not been using train; whilst second was group of business travellers who have not been using train as well; and the third was group of train users who have been using train abroad as well as in Indonesia. The first two focus group discussions were carried out in Padang and the third group was carried out in Yogyakarta. The topic of discussion in the focus groups were limited to 1) the importance factors considered when booking a ticket; 2) whether they has/will engage in productive activities whilst travelling and; did they find any barrier/difficulty when attempting to carried out activities on-board. The discussion result supported our previous deep interview finding and therefore no need to change the questionnaire.

The second wave was carried out in 2015 with 254 responses. In total, 534 data will be analysed together and reported in this paper. No comparison will be made, as the gap between those waves is considered too short to be able to obtain clear differences. The questionnaire was designed based on the focus group discussion.

Finally, six persons in three various institutions were interviewed to understand their institutions policy regarding travel time use and travel time saving.

As some data are qualitative and the other is quantitative, both qualitative and quantitative data analysis methods were used in this analysis.

## **DATA ANALYSIS**

### **Focus Group Discussion**

Data from focus group discussions were analysed together in order to obtain a broad opinions on the travel time use. The participants were in the age range of between 30 to 45 years old. The first group consisted of nine participants which were entirely working as government official staffs at public work services and have no experience travelling by train. The second group consisted of nine participants with various occupations such as a medical doctor, a lecturer, a government officer, three students, a private officer and a housewife, some of which have been experiencing travelling by train. The third group consisted of nine participants which were entirely lecturers at Muhammadiyah University of Yogyakarta and have enough experience in travelling by train either in Indonesia and abroad.

There were several factors mentioned by participants when they were asked to list importance issues considered when booking a ticket such as higher safety record; affordable ticket price; availability of on-board facilities such as electric socket for recharging gadget and internet connection signal; reliability of the train services; the beauty of view outside the window; a large and convenience sitting space; friendliness staffs and; shorter journey duration so that they will arrive at their destination quickly. However, no ranking or rating was made for the list and no differences between the groups.

There were two groups of interesting factors mentioning by participants which were relevant to our interest. Firstly, Issues to increase the opportunity to engage in activities whilst travelling which were represented by the need of availability of on-board facilities and a large and convenience sitting space; and secondly the wish to experience a shorter travel time to arrive at destination as quick as possible. These evidence is strengthen our presumption that passenger wanted to experience a fast and pleasurable vehicle where they could engage in various activities whilst travelling.

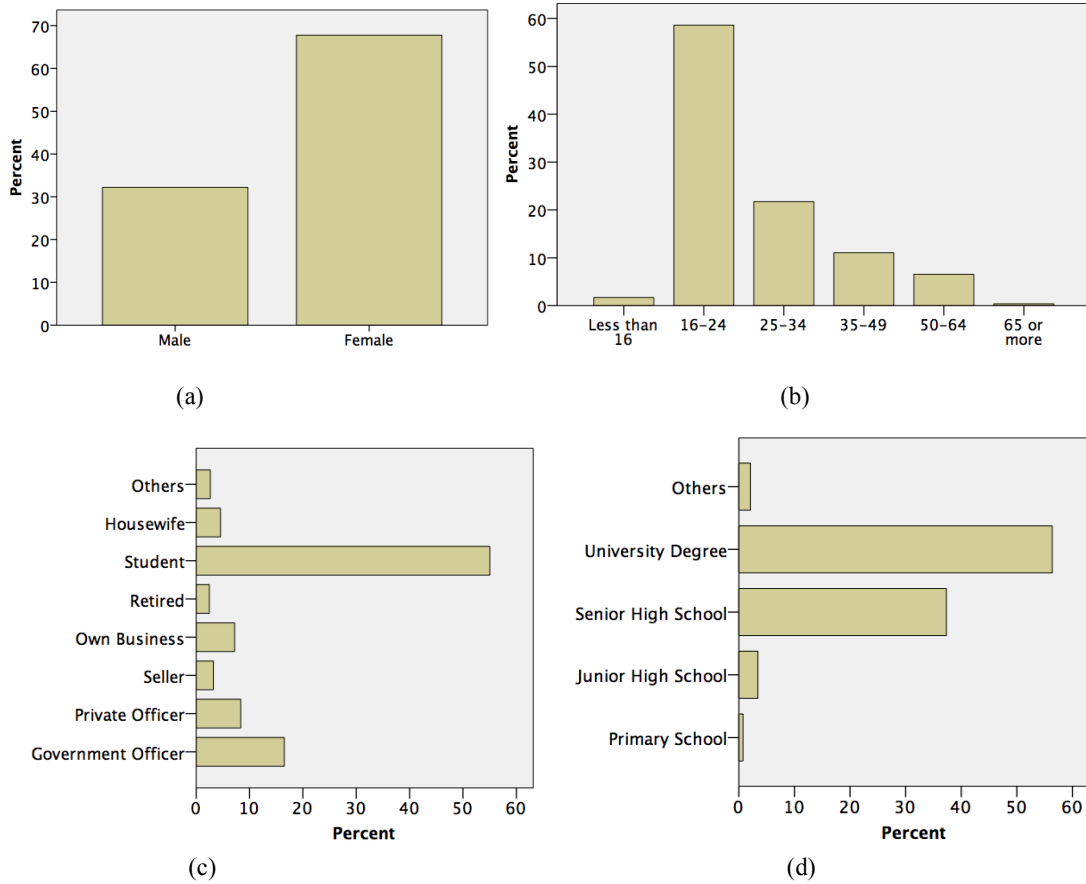
When participants were asked about whether they would engage in productive and enjoyable activities if they travel on train, those who have never been travelling by train denied and said that they would fall a sleep as soon as they get a sitting space. This response is normal because they have no experience in travelling on train. In contrast, those who have experienced in travelling on train said that they would engage in activities to compensate the travel boredom. Only the group of lecturer who have experienced in travelling on train abroad who said they would love to travel on train because they have an opportunity to finish a research report, making a preparation of presentation or commenting on students' works. Government and authority should take attention to this finding when attempting to improve transportation services. For example, if government want to encourage more people to use train rather than private car, the facility on-board of train should be improve and spread the information to potential users that they could engage in various productive and enjoyable activities when they ride a train.

Regarding the barrier or difficulties faced by travellers to engage in productive and enjoyable activities on-board, most of participant said that the vibration resulted from non-smooth lane disturbing them from working and make them suffer from travel illness.

## **QUESTIONNAIRE DATA**

### **Profile of Respondents**

As much as 534 data were collected from two waves questionnaire survey on-board of commuter rail services in Padang, reflecting 50% daily train passengers between Padang-Pariaman or 0.07% of total population of Padang City. The profile of respondents is presented in Figure 2.

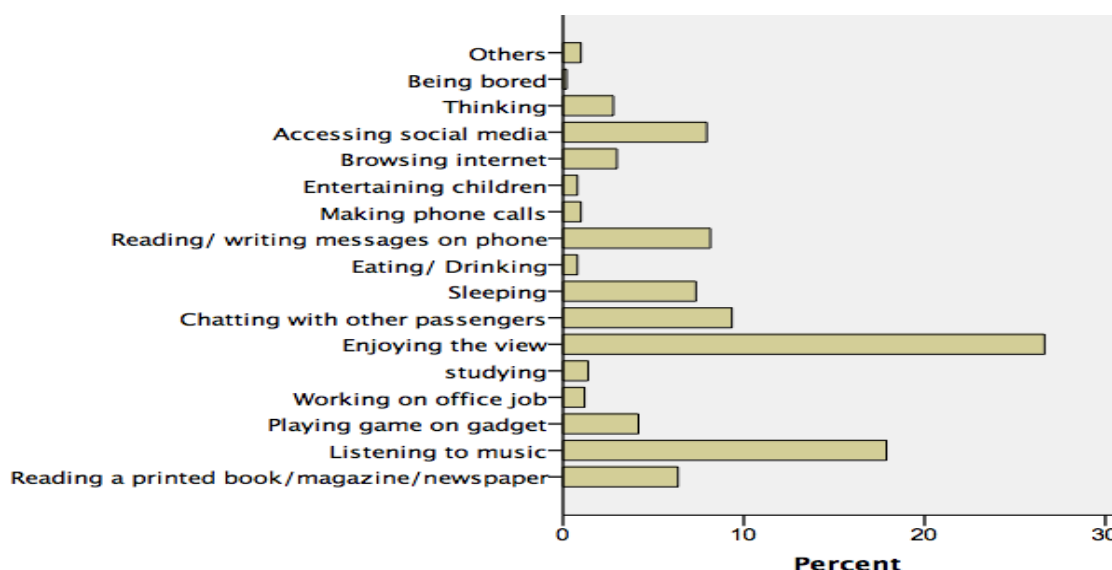


**Figure 2: Respondents' distribution. a) by gender, b) by age, c) by employment status and d) by education**

As shown in Figure 2, respondents are mainly female university students at age range of 16-24 years old. This figure is similar to other study or media exposes such as [5, 7, 15] where the largest proportion of the passengers were students at the age range of 16 to 24.

**Main Activity Whilst Travelling**

As information and communication technologies are continuously advanced, it is possible for passengers to engage in various activities or so called multitasking activities. However, it is the main activity that attracts traveller attention because travellers will focus on the main activities rather than supporting activities. For example, reading a book whilst listening to music, the main activity is reading a book and at the background, the sound of music makes reading more enjoyable and relaxing. This study found that main activity of respondents was enjoying the view outside the window followed by listening to music and chatting with other passengers as shown in Figure 5.



**Figure 3: Main activity of respondents**

This figure is not similar with other studies in UK where reading a book is the main activity of most passengers. The percentage of respondents in this study who spent travel time reading is less than 10%. This might be because of the vibration made by the non-smooth path as reported in the focus group discussion. Figure 3 also shows that a few activities involving gadget were evidence such as listening to music, accessing social media, and reading and writing messages. However, without additional information, it is difficult to say those activities are productive or not.

**Respondents Opinion on Statements Related to Train Services**

In this part, respondents were asked to rate their agreement with the statement in a 7 points scale where the largest rating reflecting respondents absolutely agree and the lowest rating reflecting absolutely disagree. Table 1 shows the mean and standard deviation of respondents’ responses.

**Table 1: Respondents’ rating of agreement with the statement**

Statements	Mean	Std. Deviation
I have opportunity to work on train	4.02	2.193
My work is more productive on-board than in the office	3.26	2.072
I feel travel time is shorter than actual	5.11	1.972
Slower train is acceptable as long as Wi-Fi is available on-board	3.21	2.250
A would pay more as long as Wi-Fi available on-board	3.40	2.191
I need a faster train than this one	5.57	1.811
My travel time is un-productive	2.68	2.042
This train service is excellent	5.58	1.462
This trip is enjoyable	5.73	1.454
I want a better train service	6.15	1.438
Travel time is more enjoyable when engaging in electronic devices	5.98	1.498
Listening to music does help reducing boredom	6.19	1.428
I cannot read on the moving vehicle	3.48	2.208
I am worried of robber when using gadget on train	2.98	1.977
There is no enough space to work on train	3.77	2.190
I feel staked by criminals	4.25	2.275
Travel time is shorter when working on laptop	3.66	2.085
I use my travel time brooding	3.46	2.133
Without gadget, train trip feels like a prison	3.64	2.331
I am worried being bullied when working on train	3.46	2.266

Table 1 shows an anomaly in the responses. Respondents rated highly on the statement that the train service is excellent but they also put a high rating on the statement that they want a better train service. This finding suggested that the satisfaction will never be achieved as people tends to obtain a better service than what they obtained already. Table 1 also shows that the use of electronic devices and listening to music do help reducing travel boredom. However, travellers also need a quicker train. More neutral ratings were aimed to some negative

statement related to crime and safety issues suggesting that those issues were real but not so frightening. In order to investigate whether those rating are related to travellers' main activities, further analysis was conducted.

### Effect of Main Activity to the Level of Agreement

Table 2 shows the level of agreement of respondents based on their main activity. In the table, only top three main activities were examined. Without applying any statistical test, it is easy to see that there was no difference of the rating among the groups suggesting that passengers' activities did not influence the agreement rating. It was expected that passengers' experience and 'local culture' that influence it most. Local culture is the culture that formed by day-to-day experience locally. In this case, most of respondents might not having any experience travelling by train in a more developed countries where engaging in productive and enjoyable activities are common, so that they cannot imagine how to engage in those activities on a moving train.

**Table 2: Rating of agreement to the statement based on main activity  
(only top three main activities were displayed)**

Statement	Main Activity		
	Listening to music	Enjoying the view	Chatting with others
I have opportunity to work on train.	3.99	4.13	4.46
My work is more productive on-board than in the office.	3.05	3.35	3.43
I feel travel time is shorter than actual.	5.24	5.03	5.07
Slower train is acceptable as long as Wi-Fi is available on-board.	3.41	3.09	3.07
A would pay more as long as Wi-Fi available on-board.	3.38	3.49	3.02
I need a faster train than this one.	5.27	5.89	6
My travel time is un-productive.	2.66	2.56	2.73
This train service is excellent.	5.39	5.79	5.78
This trip is enjoyable.	5.49	6.04	6
I want a better train service.	5.99	6.28	6.24
Travel time is more enjoyable when engaging in electronic devices.	5.91	6.02	6.3
Listening to music does help reducing boredom.	6.39	6.26	6
I cannot read on the moving vehicle.	2.94	3.34	4.82
I am worried of robber when using gadget on train.	2.74	3.06	3.07
There is no enough space to work on train.	3.84	3.97	3.46
I feel staked by criminals.	4.69	4.4	4.26
Travel time is shorter when working on laptop.	3.83	3.49	3.35
I use my travel time brooding.	3.16	3.85	3.54
Without gadget, train trip feels like a prison.	3.79	3.18	3.28
I am worried being bullied when working on train.	3.47	3.34	3.87

Back to the title of this study, whether people need a quicker train or not, it is doubtless that people in Padang need a more quicker train.

### Officers Interviews

Six officers from three authority institutions (i.e. department of transportation, communication and information, development planning agency and PT. Kereta Api Indonesia as provider) were interviewed were carried out in order to understand government policy regarding travel time use and travel time saving. In line with the evidence found in this study, the officers said that the priority of train service development in West Sumatera was to increase capacity and access, therefore less attention has been paid to increase the opportunity to engage in productive and enjoyable activities. At this time, there is plan to replace the existing train to a quicker system.

## CONCLUSION

Answering the provocative question in the title of this paper, it is evidence that people need a quicker trip, but the existing train services were rated as excellent which is mean that traveller were satisfied with current service but still not comfortable to travel at current duration. This might be because of lack of facilities that support the opportunity to engage in a more enjoyable and productive activities. The wide spread ownership of mobile technologies seems to have no effect on the behaviour of travellers because most of them were engaged in activities not require those technologies. However, it should be noted that the object of this study was a commuter train with travel time about 2 hours. Different result might be found in a longer train journey.

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