RELATIONSHIP BETWEEN GENDER AND TRAVEL BEHAVIOR IN MAKING USE OF PUBLIC TRANSPORT IN INDONESIAN CITIES: IS THERE ANY DIFFERENCE AMONG CITIES?

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ABSTRACT

In order to guarantee the success of the provision of public transport, it is imperative to have a deep knowledge regarding the consumer. One of the most important aspects of the consumer is gender. Gender is believed to have a significant role in influencing the decision in making use of public transport, as well as building a different pattern of travelling. This article aims to investigate the relationship between gender and travel behaviour of the user in using public transport in Indonesian cities, i.e. Jakarta, Bandung, and Yogyakarta. The results show that there is significant different of travel behaviour between male and female in making use of public transport. Trip purpose and number of owned driving licence appear as two behaviours that significantly different for male and female in these three cities. Not just travel behaviour, but the perceptions and negative experiences are also different between male and female in these cities.

Keywords: Travel Behavior, Gender, Public Transport

INTRODUCTION

Changing society has a major influence on transportation in the last decade. One particular factor that requires special attention is population characteristics (Meyer & Miller, 2001). A common and global trend shows a development in the role and position of female in the society. Female seems to receive a better appreciation by the community and female tends to give a real contribution. In fact, in some part of the world, gender is still a big problem. A

very traditional culture provides very small attention and appreciation to females, which thus leave a highly significant impact on their mobility and accessibility. Females tend to have longer trips and carry heavier belonging when using modes of transportation.

Gender is believed to have a significant role in influencing the decision in making use of public transport, as well as building a different pattern of traveling. The influence of gender is argued to differentiate such behaviors and attitudes of the user of public transport. It motivates to investigate the relation of gender with the practice of people activity in making use of mode of transport. The increasing importance of women as travelers has implications for the ways that transport policy must be reviewed in an era in which sustainability has become a key issue (Root et al., 2002). They also explained that at one level, there is the issue of gender equity with respect to how transportation strategies are devised. In addition, however, appreciation of the particular nature of women's travel behavior, and their designed behavior, may actually facilitate an easier path to sustainable development.

Moreover, studies show that public transport users in Indonesia are more likely to pay attention to the fulfillment of their mobility needs rather than to the perceived level of service quality. This attitude may be one of the most crucial differences of public transport users' behavior in developing countries than in developed countries. Given that each individual has their own perceptions, preferences, and attachment to each mode which continuously changes overtime, as well as traditional and cultural background, it is necessary to explore how these public transport users' travel behaviors and choices are influenced by their specific characteristics, i.e. gender.

This article aims to investigate the relationship between gender and travel behaviour of the user in making use of public transport in Indonesian cities. Understanding these differences could be valuable in designing strategies aiming at promoting public transport for various segments of population.

The data for this study employed a questionnaire survey that conducted among public transport users in three Indonesian metropolitan cities in 2008, i.e. Jakarta, Bandung, and Yogyakarta. This survey was conducted to explore individual preferences, past experiences, and attitudes toward various public transport services. 1,491 respondents were gathered in this survey, i.e. 499, 494, and 498 respondents from Jakarta, Bandung, and Yogyakarta, respectively. Other results of investigation using these dataset can also be found in Joewono et al. (2009a), Joewono et al. (2009b), Susilo et al. (2009), and Tarigan et al. (2010).

This article firstly provides an introduction. This is consequently followed by a brief discussion regarding gender and public transport in section two. Section three provides data collection, which explains the way the data was collected as well as the characteristics of the gathered respondent. Data analysis regarding travel behaviours, perceptions, and negative experiences, including discussion is provided in section four. The last section concludes this study.

PUBLIC TRANSPORT AND GENDER

The adjective "livable" for a city connotes a desirable quality of life for its citizens – including social activities, attractive public places, provision of a certain level of privacy, as well as sense of community (Vuchic, 1999). Three major sets of objectives of achieving a livable city can be defined as characteristics of such a city, i.e. human-oriented and environmentally friendly, economically viable and efficient, and socially sound (Vuchic, 1999). Social aspect in the city relates with the accessibility and impact to each segment of community. It refers to the equity and social justice issue. Deka (2004) explains that the concerns about social and environmental justice in urban transportation pertain to the poor and minorities. In the other part of the globe, the social justice in urban and rural transportation gives an impact to female, senior citizen, handicapped, as well as children. This fact shows the importance and strategic aspect of socially sound transportation planning.

Furthermore, research shows that past events perceived by customers are important factor to predict future events (e.g. Medin and Edelson, 1988; Weber et al. 1993). In the context of human behaviour and psychology, negatives experiences or dissatisfaction perceived by users, including in the case of public transport services (e.g. delay or no free seats) are the main concern to judge future demands since one may consider losses greater than perceiving gains of equal amount (Kahneman and Tversky, 1979). A theoretical and empirical analysis of user satisfaction with public transport services were conducted by Friman et al., 1998; Friman et al., 2001; Friman and Gärling, 2001; and Friman, 2004.

User experiences have two manifestations, namely positive and negative experiences. The type of negative experiences that influence satisfaction may vary across each individual user. Proussaloglou and Koppelman (1989) analysed issues concerning the link between public transport service performance and customer satisfaction, looking at individual travellers, and relating operating measures with customer satisfaction. Beirão and Cabral (2009) showed that women and non-users of public transport seem to be more dissatisfied with service quality attributes than men counterpart. Priority areas of improvement found in their study are on aspects such as transit cost, waiting time, on-time performance, and frequency.

Understanding experiences and behaviours perceived among different gender when using public transport is important because previous studies have indicated women's travel patterns are different from men's, particularly related to travel distance, travel mode, and travel purpose. Root et al. (2002) underlines it by explaining that women use transportation differently than men do. For instance, women tend to make more non-work trips with a shorter travel distance than men's (Beirão and Cabral, 2007). In the case of work trips, women are likely to have shorter travel to work than men (Hjorthol, 2000). They also seem to have different attitudes on auto use than men counterpart. Women tend to have less car trips than men (Polk, 2004). An empirical study has shown further that they were anxious to get out of their cars because driving was very stressful (Beirão and Cabral, 2007). It is interesting also to note that women are usually more concerned about the environment than men (Polk, 2003; Matthies, et al. 2002).

Literature provides a wide knowledge regarding this issue, although Root et al. (2002) stated that there is a need to take more notice of gender in transportation, as current knowledge are based upon rather diverse and often fragmented pieces of information. The arguments are often founded on limited empirical evidence, and sometimes they are anecdotal in nature. Moreover, Root et al. (2002) states that there is also a need to better understand the travel behaviour of elderly women, how women's travel behaviour varies by trip purpose or work schedule, together with a need to better understand the psychology of women and how it affects their travel behaviour. Major available knowledge regarding public transport and gender mainly based on data from developed country, while studies using data from developing country are still left behind.

DATA COLLECTION

Two sets of questionnaires were distributed off-board between 1st up to 16th of August 2008, i.e. a revealed-stated preference survey and a person trip diary. The first one is used to explore individual preferences, past experiences, and attitudes toward public transport services. Whilst the person trip diary survey is used to collect the pattern of public transport usage, such as origin-destination locations, trip purposes, trip length, or mode chaining.

The first type of questionnaire consists of 50 questions which are contained in five parts, i.e. respondent characteristics, usage of public transport, negative experiences while using public transport, evaluation of service quality, and loyalty. In the negative experience section, respondents were asked to express the frequency of their experience in deal with negative incidents. Seven types of incident were provided. A number of 1, 2, 3, and 4 were assigned to each frequency, from never at all, rare, sometime, up to very often, respectively.

In the service quality evaluation section, respondents were asked to rate variables or attributes related to service quality based on level of importance and level of satisfaction. For the level of importance, respondents could choose highly important, important, not important, and absolutely not important. Weights of 1, 2, 3 and 4 were assigned respectively to those choices. The same weights of 1, 2, 3 and 4 were also assigned to satisfaction levels of very satisfied, satisfied, not satisfied, and totally not satisfied, respectively.

The data was collected in three major cities in Indonesia, namely Jakarta, Bandung, and Yogyakarta. Jakarta is the capital of and the largest city in Indonesia; with its conurbation, it is populated by more than 23 million people. Bandung is the capital of West Java province and, with its conurbation, it has population around 2.5 million people. Yogyakarta is the capital of Special Region of Yogyakarta province, which is located in the southern part of Central Java and has a population around half million people. These three cities were selected because these cities are considered as a representation of "big", "medium-but-close-to-the-capital", and "medium-and-far-from-the-capital" cities in Indonesia.

Respondent Characteristics

The respondents were limited to the public transport users only. Public transport in this research refers to land based public transport mode. With simple random sampling method at various major public transport interchanges and major activity locations, such as shopping centres, traditional markets, or schools, 1,491 respondents were gathered in this survey (499 respondents from Jakarta, 494 respondents from Bandung, and 498 respondents from Yogyakarta). The questionnaire form and detailed questions can be found at Santosa et al. (2008). The profile of the respondents can be seen at Table 1.

Table 1 - Profile of the Respondents

Respondent Characteristics		Percentage		
		Jakarta	Bandung	Yogyakarta
Gender	Female	55.50	53.60	61.60
	Male	44.50	46.50	38.40
Age	17 years old or younger	9.20	20.20	30.50
	18 – 29 years old	70.10	59.50	48.80
	30 – 39 years old	10.60	8.70	9.00
	40 – 49 years old	8.20	5.50	6.00
	50 – 65 years old	1.80	5.50	4.80
	65 years old or older	0.00	0.60	0.80
Marital status	Single/Divorce	76.90	78.70	78.10
	Married	23.10	20.90	21.90
Education level	Elementary school or below	3.00	3.00	7.00
	Junior High School	8.20	15.40	25.70
	Senior High School	52.70	58.50	47.00
	Diploma	8.60	9.30	5.20
	Undergraduate	25.70	13.60	13.70
	Post-graduate	1.80	0.20	1.40
Employment status	Pupil/Student	49.5	66.6	68.5
	Civil servant / military person	2.2	3.2	6.4
	Full-time worker	35.9	16.6	12.7
	Self employed	9.2	5.7	9.0
	Housewife	2.6	6.9	2.6
	Retirement/non-worker	0.6	1.0	0.8
N		499	494	498

By referring to the comparison of the respondents' profiles from these three observed cities, it can be noticed that there is similar distribution of gender among cities as well as marriage status. Respondent with an age older than thirties is almost similar among cities. Different percentage happens in respondent with an age 17 years old or younger and between 18 up to 29.

It is clear that difference characteristics exist between Jakarta and two other cities. Jakarta has a higher representation, around two times, of full-time workers and higher educated people. On the other side, Bandung and Yogyakarta has larger number of students. These students over-representation in this research is because Yogyakarta and Bandung are well-known for their universities' quality and, compared with the size of the city, these two cities have more universities, colleges, and other education institutions than most cities in Indonesia.

Household Characteristics

The characteristics of the household, where the respondents come from, are provided in Table 2. Respondents who became a part of this study originated from various types of families. Around 20 up to 40% of respondents come from a family with spouses and child. A similar distribution family type can be noticed among these three cities.

Table 2 – Household Characteristics

Household Characteristics		Percentage		
		Jakarta	Bandung	Yogyakarta
Type of Family	Alone	15.30	18.00	16.10
	Husband and wife without child	5.00	2.20	2.80
	Husband and wife with child	21.10	40.50	34.30
	Husband, wife, child, with parents	9.20	10.50	9.40
	Husband, wife, child, and relatives	14.70	13.40	17.70
	Other	34.70	15.40	19.70
Number of car	Not owned	53.70	41.70	77.70
	One unit	31.50	33.40	18.10
	Two units	11.40	17.80	3.80
	Three units or more	3.40	7.10	0.40
Number of motorcycle	Not owned	30.70	30.20	21.70
	One unit	41.90	41.70	36.90
	Two units	19.00	18.60	33.70
	Three units or more	8.40	9.50	7.70
Number of non-motorized	Not owned	47.60	42.70	29.90
	One unit	35.60	36.80	39.00
	Two units	12.90	16.00	20.90
	Three units or more	3.80	4.50	10.20

It is interesting to observe the characteristics of the household in term of owned vehicle. Around 77% of the user in Yogyakarta did not owned car, while the percentage in the city of Jakarta and Bandung is around 50 and 40%, respectively. Jakarta and Bandung have quite similar distribution of owned car, while the user in Yogyakarta seems to have smaller number of car in their household. On the contrary, around 70% of the user in Jakarta and Bandung has one or more unit of motorcycle, while around 80% of the user in Yogyakarta has one or more unit. Similar condition can be found in the number of non-motorized vehicle.

Percentage of respondents in Jakarta, Bandung, and Yogyakarta owning one or more unit are around 50, 55, and 70, respectively.

In term of monthly income, the respondents from Yogyakarta tend to have smaller monthly income rather than two other cities, while Bandung and Jakarta have similar distribution of monthly income. It also explains that the users of public transport in these three cities are people with medium to low segment. Detail description of each group of monthly income is provided in Table 3.

Table 4 explains the distribution of monthly income allocation for transport expenses, in this case for making use of public transport. Around 33% of the users in Yogyakarta spend less than 10%, while 22 and 27% of the users in Jakarta and Bandung spend less than 10% of their montly income for transport. In one hand, users in Jakarta and Bandung have more similarity in the segment of 11 up to 40%, while users in Yogyakarta have smaller percentage. On the other hand, there is similar percentage of user in Jakarta and Yogyakarta who allocate more than 40% of their monthly income, i.e. 9%, while only 5% appears in Bandung.

Table 3 – Distribution of Monthly Income

Monthly income (IDR)	Percentage		
	Jakarta	Bandung	Yogyakarta
500.000 or less	27.10	29.46	58.23
500.001 - 1.000.000	37.85	29.26	24.30
1.000.001 - 2.500.000	27.13	26.85	11.65
2.500.001 - 5.000.000	6.88	10.42	4.82
5.000.001 - 7.500.000	0.40	2.40	0.40
7.500.001 - 10.000.000	0.40	0.80	0.40
10.000.001 - 12.500.000	0.20	0.80	0.20

Table 4 – Distribution of Income Allocation for Transport Expense

Income allocation	Percentage		
	Jakarta	Bandung	Yogyakarta
Less than 10%	22.24	27.73	33.13
11 up to 20%	36.87	34.01	32.13
21 up to 30%	19.04	23.68	13.45
31 up to 40%	12.42	9.31	11.45
More than 41%	9.42	5.26	9.84

DATA ANALYSIS

In this section, analyses using statistical non-parametric are reported. This method is applied as it is suitable to answer the research question. Conover (1999) said that non-parametric methods are perfectly robust for distribution assumptions on the population, because they are equally valid for all distributions. First analysis will explore travel behaviour between

genders in these three cities. Second analysis discusses perceptions regarding the attributes of service quality, based on its level of importance and level of satisfaction. Third analysis investigates the negative experiences in using public transport.

Comparison of Travel Behaviour between Gender

Travel behaviours in this study are explained by several aspects, where its descriptive statistics are explained in Table 5 (for male's respondent) and Table 6 (for female's respondent) from three cities. Based on this data, a further analysis is conducted to investigate whether there is difference between male and female's behaviour. Two tests are applied, i.e. test of independency and Mann-Whitney test. Test of independency wants to find out whether each aspect of travel behaviours is influenced by gender. The Mann-Whitney test is applied to test whether male and female have different behaviour.

Table 5 – Descriptive Statistics of Travel Behaviour of Male

Aspects of Travel Behaviour	Bandung		Jakarta		Yogyakarta	
	M	SD	M	SD	M	SD
Type of public transport used	1.279	1.060	1.986	1.360	1.969	1.297
Trip purpose	2.362	1.577	1.865	1.417	2.340	1.739
Number of usage per day in weekday	2.432	1.031	2.700	1.021	2.115	0.875
Number of usage per week in weekday	3.410	0.945	3.676	0.766	3.597	0.761
Number of usage per day in weekend	2.183	1.148	2.082	1.191	1.927	1.064
Reason for use public transport	2.996	2.227	3.063	2.183	2.895	2.135
Reason for not use public transport	2.197	1.064	2.405	1.075	2.209	1.095
Monthly income	2.140	0.945	2.297	1.230	1.770	0.962
Allocation of income for transport	2.393	1.125	2.423	1.204	2.283	1.237
Number of owned driving licence	2.419	0.760	2.689	1.631	2.508	1.562

Note: M = mean; SD = standard deviation

Table 6 – Descriptive Statistics of Travel Behaviour of Female

Aspects of Travel Behaviour	Bandung		Jakarta		Yogyakarta	
	M	SD	M	SD	M	SD
Type of public transport used	1.328	1.136	1.928	1.550	1.919	1.349
Trip purpose	2.543	1.557	1.928	1.231	2.557	1.672
Number of usage per day in weekday	2.468	1.044	2.670	1.018	1.951	0.817
Number of usage per week in weekday	3.547	0.820	3.685	0.723	3.573	0.861
Number of usage per day in weekend	2.238	1.142	2.295	1.048	1.876	1.099
Reason for use public transport	3.257	2.305	2.744	1.979	3.244	2.458
Reason for not use public transport	1.951	1.052	2.029	0.970	2.287	1.189
Monthly income	2.211	1.012	2.350	1.163	1.606	0.966
Allocation of income for transport	2.226	1.125	2.560	1.249	2.358	1.356
Number of owned driving licence	2.291	0.709	1.484	0.995	1.831	1.364

Note: M = mean; SD = standard deviation

Table 7 provides the result of independency test of the aspects of travel behaviour, where α is as much as 0.05. In the city of Bandung, the result explains that trip purpose and reason for not use public transport are not independent of gender. In the city of Jakarta, there are five aspects of travel behaviours that are independent of gender, namely number of usage per day in weekday, number of usage per week in weekday, reason for use public transport, income allocation, and number of owned driving licence. For Yogyakarta's dataset, trip purpose and reason for use public transport are not independent of gender.

Specifically, analysis shows that the aspect of income allocation to cover cost of public transport usage (see Table 4), has no significance relation with gender. More detail discussion regarding income allocation for making use public transport in these three cities can be found in Setiawan and Joewono (2009).

Table 7 – Result of Test of Independency of Travel Behaviours with Gender

Aspects of Travel Behaviour	Bandung		Jakarta		Yogyakarta	
	χ^2	p-value	χ^2	p-value	χ^2	p-value
Type of public transport used	3.697	0.718	15.672	0.028	7.506	0.277
Trip purpose	39.348	0.000	17.242	0.008	27.302	0.000
Number of usage per day in weekday	.459	0.928	.184	0.980	4.842	0.184
Number of usage per week in weekday	3.254	0.354	4.638	0.200	6.664	0.155
Number of usage per day in weekend	3.263	0.353	26.808	0.000	6.833	0.077
Reason for use public transport	5.523	0.479	7.601	0.269	18.238	0.006
Reason for not use public transport	9.502	0.023	23.021	0.000	4.367	0.224
Income allocation for transport	6.955	0.325	10.571	0.103	8.758	0.188
Number of owned driving licence	3.914	0.418	5.027	0.284	3.249	0.662

In order to know whether male and female has different behaviour or not, Mann-Whitney test is applied. Using α as much as 0.05, it can be found, in the city of Bandung, that trip purpose, reason for not use public transport, and number of owned driving licence are different between male and female. Different finding exists in the city of Jakarta, where female and male have different behaviour in trip purpose, number of usage per day in weekend, reason for not use public transport, and number of owned driving licence. Different findings appear in the city of Yogyakarta. In this city, different behaviours between genders exists in trip purpose, number of usage per day in weekday, and number of owned driving licence. It is important to summarize, where trip purpose and number of owned driving licence appear as two behaviours that significantly different for male and female in these three cities.

Table 8 – Result of Mann-Whitney Test of Travel Behaviours

Aspects of Travel Behaviour	p-value		
	Bandung	Jakarta	Yogyakarta
Type of public transport used	.863	.062	.183
Trip purpose	.005	.017	.001
Number of usage per day in weekday	.732	.755	.031
Number of usage per week in weekday	.123	.695	.630
Number of usage per day in weekend	.611	.015	.528
Reason for use public transport	.189	.240	.390
Reason for not use public transport	.007	.000	.675
Income allocation for transport	.077	.209	.819
Number of owned driving licence	.000	.000	.000

Comparison of Perception regarding Service Quality between Gender

In order to know better the user of public transport in these three cities, besides conducting an exploration regarding trip behaviours, an exploration concerning user perceptions are also completed. In this study, users were asked to express their perceptions regarding level of importance and level of satisfaction of service quality's attribute. Fifteen attributes were provided. Users were asked to rate level of importance using a value of 1 up to 4, to represents highly important up to absolutely not important. A value of 1 up to 4 is assigned to represents very satisfied up to totally not satisfied. Its descriptive statistics based on male and female's perceptions are presented in Table 9 and Table 10, respectively. By observing its mean and standard deviation, one will find out a difference rating between level of importance and level of satisfaction. It can be found in male's perception as well as female's perception.

An analysis using test of independency, as provided in Table 11 and Table 12, shows the influence of gender on user perceptions. The test is conducted using α as much as 0.05. Table 11 explains the result of the influence of gender on the level of importance, while Table 12 explains the test result regarding the influence of gender on the level of satisfaction.

Based on Bandung's dataset, three attributes of service quality based on level of importance are significantly influenced by gender, i.e. comfort in the car, comfort in the stop, and accessibility. In the case of Yogyakarta, more attributes are significantly influenced by gender, i.e. cleanliness in the car, cleanliness in the stop, comfort in the car, staff politeness, and easiness to get the mode. On the contrary, in the city of Jakarta, no attribute of service quality has significant influence of gender when it is rated using its level of importance.

Table 9 - Descriptive Statistics of the Attributes of Service Quality based on Male's Perception

Attributes	Level of Importance						Level of Satisfaction					
	Bandung		Jakarta		Yogyakarta		Bandung		Jakarta		Yogyakarta	
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
Cleanliness in the car	2.830	0.579	1.486	0.569	1.424	0.506	1.179	0.406	2.401	0.664	2.340	0.668
Cleanliness in the stop	1.555	0.524	2.676	0.751	2.581	0.763	2.633	0.741	1.240	0.488	1.183	0.388
Condition of the car	2.996	0.679	1.599	0.614	1.597	0.607	1.314	0.502	2.667	0.860	2.450	0.765
Condition of the stop	1.507	0.582	2.779	0.779	2.613	0.765	2.812	0.704	1.329	0.551	1.419	0.564
Comfort in the car	2.681	0.675	1.523	0.599	1.482	0.679	1.555	0.572	2.716	0.799	2.455	0.716
Comfort in the stop	1.686	0.583	2.640	0.810	2.696	0.828	2.393	0.609	1.658	0.563	1.634	0.545
Route access	2.952	0.616	1.689	0.607	1.670	0.617	1.314	0.535	2.398	0.671	2.351	0.655
Ticket price	1.349	0.513	2.658	0.693	2.602	0.732	2.738	0.744	1.464	0.599	1.361	0.543
Security in the car	2.847	0.693	1.383	0.573	1.419	0.526	1.345	0.512	2.320	0.744	2.319	0.745
Security in the stop	1.581	0.599	2.685	0.801	2.576	0.810	2.921	0.796	1.414	0.546	1.403	0.523
Accessibility	2.900	0.609	1.545	0.606	1.581	0.600	1.638	0.665	2.685	0.755	2.702	0.788
Driver's ability	1.624	0.576	2.706	0.726	2.524	0.760	2.799	0.709	1.667	0.621	1.639	0.624
Time punctuality	2.629	2.006	1.626	0.571	1.597	0.571	1.616	0.563	2.559	0.751	2.414	0.748
Staff politeness and helpfulness	1.672	0.609	2.419	0.693	2.283	0.714	2.380	0.600	1.653	0.588	1.686	0.558
Easiness to get the mode	2.686	0.711	1.712	0.615	1.675	0.561	3.183	1.678	2.439	0.721	2.387	0.654

Note: M = mean; SD = standard deviation

Table 10 - Descriptive Statistics of the Attributes of Service Quality based on Female's Perception

| Attributes | Level of Importance | | | | | | Level of Satisfaction | | | | | |
| | Bandung | | Jakarta | | Yogyakarta | | Bandung | | Jakarta | | Yogyakarta | |
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
Cleanliness in the car	2.740	0.540	1.473	0.507	1.319	0.481	1.121	0.326	2.368	0.644	2.274	0.608
Cleanliness in the stop	1.479	0.530	2.718	0.747	2.648	0.763	2.668	0.693	1.177	0.382	1.117	0.332
Condition of the car	2.947	0.581	1.527	0.555	1.459	0.518	1.234	0.433	2.668	0.863	2.505	0.743
Condition of the stop	1.517	0.571	2.856	0.743	2.661	0.697	2.755	0.660	1.321	0.512	1.332	0.499
Comfort in the car	2.630	0.583	1.462	0.561	1.397	0.559	1.543	0.521	2.787	0.738	2.489	0.688
Comfort in the stop	1.634	0.562	2.708	0.740	2.642	0.755	2.283	0.577	1.562	0.566	1.544	0.524
Route access	2.845	0.605	1.603	0.591	1.590	0.595	1.306	0.501	2.341	0.615	2.404	0.681
Ticket price	1.253	0.435	2.798	0.656	2.541	0.677	2.611	0.660	1.390	0.545	1.254	0.479
Security in the car	2.713	0.640	1.318	0.474	1.280	0.457	1.408	0.550	2.585	0.769	2.436	0.713
Security in the stop	1.419	0.517	2.736	0.789	2.550	0.745	2.830	0.695	1.419	0.530	1.316	0.512
Accessibility	2.849	0.639	1.487	0.569	1.463	0.537	1.581	0.579	2.747	0.738	2.733	0.784
Driver's ability	1.581	0.545	2.775	0.693	2.580	0.688	2.675	0.646	1.646	0.618	1.485	0.574
Time punctuality	2.426	0.587	1.610	0.558	1.505	0.585	1.619	0.517	2.617	0.711	2.482	0.738
Staff politeness and helpfulness	1.626	0.564	2.375	0.662	2.349	0.636	2.332	0.560	1.657	0.540	1.560	0.517
Easiness to get the mode	2.513	0.634	1.744	0.554	1.609	0.563	1.743	1.274	2.415	0.646	2.397	0.640

Note: M = mean; SD = standard deviation

Different result can be obtained when the analysis is conducted using the rating of level of satisfaction. Analysis using Bandung's dataset shows that cleanliness in the stop, comfort in the car, fare price and payment, driver's ability, time punctuality, and staff politeness are attributes that significantly influenced by gender. Based on Jakarta's dataset, only one attribute, i.e. driver's ability, is significantly influenced by gender at 5% level of significance. Interestingly, there is no attribute of service quality in the city of Yogyakarta that significantly influenced by gender.

Table 11 – Test of Independency of Level of Importance of Service Quality with Gender

Aspects of Service Quality	Bandung		Jakarta		Yogyakarta	
	χ^2	p-value	χ^2	p-value	χ^2	p-value
Cleanliness in the car	6.829	0.078	3.275	0.351	5.995	0.050
Cleanliness in the stop	4.674	0.197	3.234	0.357	9.024	0.029
Condition of the car	.311	0.856	2.175	0.537	6.281	0.099
Condition of the stop	1.289	0.525	2.638	0.451	3.356	0.340
Comfort in the car	7.365	0.025	4.225	0.238	9.862	0.007
Comfort in the stop	11.383	0.010	2.059	0.560	6.247	0.100
Route access	1.684	0.641	1.393	0.707	4.806	0.187
Fare price and payment	2.196	0.533	3.817	0.431	2.878	0.411
Security in the car	4.132	0.127	2.882	0.237	5.745	0.057
Security in the stop	4.103	0.251	2.955	0.399	3.994	0.262
Accessibility	12.152	0.007	4.934	0.177	4.244	0.236
Driver's ability	1.261	0.738	2.801	0.423	5.475	0.065
Time punctuality	1.804	0.406	1.447	0.695	5.275	0.153
Staff politeness and helpfulness	4.913	0.178	.267	0.966	8.446	0.038
Easiness to get the mode	3.538	0.170	2.353	0.502	8.069	0.045

Table 12 – Test of Independency of Level of Satisfaction of Service Quality with Gender

Aspects of Service Quality	Bandung		Jakarta		Yogyakarta	
	χ^2	p-value	χ^2	p-value	χ^2	p-value
Cleanliness in the car	5.572	0.134	1.852	0.604	2.388	0.496
Cleanliness in the stop	9.584	0.022	2.305	0.512	6.141	0.105
Condition of the car	7.292	0.063	3.329	0.344	3.299	0.348
Condition of the stop	4.272	0.234	6.025	0.110	3.013	0.390
Comfort in the car	9.979	0.019	1.921	0.589	2.347	0.504
Comfort in the stop	1.161	0.762	2.353	0.502	4.035	0.258
Route access	8.263	0.082	.842	0.839	7.589	0.055
Fare price and payment	9.058	0.029	3.064	0.382	2.303	0.512
Security in the car	2.152	0.542	1.510	0.680	5.539	0.136
Security in the stop	2.198	0.532	3.157	0.368	4.623	0.202
Accessibility	4.624	0.201	2.457	0.483	5.736	0.125
Driver's ability	10.368	0.016	14.838	0.002	5.032	0.169
Time punctuality	11.791	0.008	.898	0.826	.209	0.976
Staff politeness and helpfulness	9.163	0.027	2.001	0.572	4.056	0.255
Easiness to get the mode	2.981	0.395	3.379	0.337	.200	0.978

Further exploration is employed by applying Mann-Whitney test, where level of significance as much as 0.05 is used. The results are provided in Table 13, which covers analysis on the rating based on level of importance and level of satisfaction. In the level of importance using Bandung's dataset, the attributes of comfort in the car and comfort in the stop are significantly rated as different by male and female. In the city of Jakarta, only the attribute of accessibility is significantly rated as different. Based on Yogyakarta's dataset, there is more number of attributes that have significant different rating between male and female. The attributes are cleanliness in the car, cleanliness in the stop, comfort in the car, comfort in the stop, security in the car, driver's ability, time punctuality, staff politeness and helpfulness, and easiness to get the mode.

Moreover, based on rating on level of satisfaction, in the city of Bandung, the attributes of condition of the stop, comfort in the car, fare price and payment, and accessibility, have significant different rating between male and female. Using Jakarta's dataset, the attributes are condition of the stop and driver's ability. For Yogyakarta's situation, all attributes are rated as similar by male and female.

Table 13 – Result of Mann-Whitney Test of the Attributes of Service Quality

Aspects of Service Quality	p-value					
	Level of Importance			Level of Satisfaction		
	Bdg	Jkt	Ygy	Bdg	Jkt	Ygy
Cleanliness in the car	.448	.947	.017	.066	.419	.262
Cleanliness in the stop	.096	.257	.019	.387	.347	.318
Condition of the car	.778	.296	.329	.366	.403	.451
Condition of the stop	.354	.112	.162	.047	.018	.463
Comfort in the car	.042	.327	.003	.049	.577	.791
Comfort in the stop	.003	.330	.039	.385	.365	.347
Route access	.474	.804	.055	.264	.498	.265
Fare price and payment	.497	.354	.187	.008	.417	.299
Security in the car	.110	.164	.032	.519	.878	.260
Security in the stop	.070	.965	.104	.345	.291	.390
Accessibility	.972	.047	.085	.044	.377	.229
Driver's ability	.986	.192	.019	.098	.000	.072
Time punctuality	.221	.846	.040	.189	.359	.656
Staff politeness and helpfulness	.543	.711	.007	.084	.428	.202
Easiness to get the mode	.785	.760	.020	.536	.812	.830

Note: Bdg = Bandung; Jkt = Jakarta; Ygy = Yogyakarta

Comparison of Negative Experience between Gender

This study also investigates the negative experience of the user of public transport in Bandung, Jakarta, and Yogyakarta. Users are requested to state their frequency in experiencing negative incidents when using public transport. The rating is from never at all

(1) up to very often (4). Descriptive statistics are presented in Table 14 and Table 15 for male and female, respectively. By comparing the mean's value, data explains most of negative incidents are experienced as sometimes. Some incidents are experienced as more frequent, e.g. waiting and lost of belonging. Just by comparing side by side, it seems there is similar experience between male and female. Thus, analysis using test of independency and Mann-Whitney test are employed to gather more robust findings.

Table 14 - Descriptive Statistics of Negative Experience of Male

Type of Negative Experience	Bandung		Jakarta		Yogyakarta	
	M	SD	M	SD	M	SD
Waiting	2.533	0.769	2.608	0.708	2.602	0.876
Late	1.314	0.493	2.385	0.668	2.314	0.818
Accident	1.310	0.482	1.293	0.494	1.194	0.409
Lost of belonging (e.g. picked pocket)	2.070	0.819	1.432	0.548	1.262	0.475
Fare payment (e.g. amount)	1.803	0.79	1.829	0.684	1.707	0.647
Information (e.g. sign)	1.869	0.622	1.877	0.739	1.681	0.702
Need help in difficulty	1.520	0.543	1.932	0.673	1.597	0.649

Note: M = mean; SD = standard deviation

Table 15 - Descriptive Statistics of Negative Experience of Female

Type of Negative Experience	Bandung		Jakarta		Yogyakarta	
	M	SD	M	SD	M	SD
Waiting	2.336	0.699	2.61	0.727	2.642	0.814
Late	1.245	0.496	2.368	0.718	2.166	0.801
Accident	1.358	0.511	1.238	0.475	1.156	0.381
Lost of belonging (e.g. picked pocket)	1.902	0.700	1.394	0.552	1.248	0.496
Fare payment (e.g. amount)	1.645	0.676	1.841	0.705	1.625	0.652
Information (e.g. sign)	1.853	0.575	1.830	0.706	1.642	0.663
Need help in difficulty	1.479	0.523	1.783	0.640	1.521	0.568

Note: M = mean; SD = standard deviation

Result of the test of independency is appears in Table 16, while result of Mann-Whitney test are available in Table 17. In the city of Bandung, five out of seven incidents are significantly influenced by gender, except lost of belonging and need for help. For Jakarta's dataset, only one incident has significant influence by gender. Its p-value is as much as 0.056, which is slightly higher than 0.05. A contrast situation appears in Yogyakarta, where all incidents are not significantly influenced by gender.

As a way of confirmation, Mann-Whitney result is provided with level of significance as much 0.05. With this level of significance, types of negative experience that are experienced differently by male and female in the city of Bandung are lost of belonging and need for help. An incident of need for help is experienced differently by male and female in Jakarta. An experience of late is experienced as different by male and female in Yogyakarta with p-value as much as 0.055.

Table 16 – Test of Independency of Negative Experiences with Gender

Type of Negative Experience	Bandung		Jakarta		Yogyakarta	
	χ^2	p-value	χ^2	p-value	χ^2	p-value
Waiting	6.627	0.085	1.077	0.898	2.328	0.507
Late	13.234	0.004	1.864	0.601	4.350	0.226
Accident	7.382	0.061	3.396	0.334	1.426	0.490
Lost of belonging (e.g. picked pocket)	1.234	0.540	1.807	0.613	2.754	0.431
Fare payment (e.g. amount)	8.697	0.034	1.671	0.643	2.528	0.470
Information (e.g. sign)	7.748	0.052	3.604	0.308	1.741	0.628
Need help in difficulty	1.753	0.625	7.577	0.056	5.349[a]	0.148

Table 17 – Result of Mann-Whitney Test of Negative Experiences

Type of Negative Experience	p-value		
	Bandung	Jakarta	Yogyakarta
Waiting	.094	.917	.595
Late	.002	.785	.055
Accident	.046	.143	.264
Lost of belonging (e.g. picked pocket)	.303	.361	.545
Fare payment (e.g. amount)	.028	.951	.127
Information (e.g. sign)	.037	.584	.620
Need help in difficulty	.842	.015	.308

Discussions

This study investigates three aspect of user experience in making use of public transport, i.e. travel behaviour, negative experience, and perception regarding service quality. It has an aim to find out the relationship between gender and travel behavior of the user in making use of public transport in three Indonesian cities, i.e. Bandung, Jakarta, and Yogyakarta.

The motive of this study is the fact that in Indonesia, there is strong culture influence on daily life. It can be believed that local culture also strongly influences the way the community makes up their transport. Not just influences the way people travel, but also influence the way people perceives some kind of image regarding the service of transport.

Although Indonesia, as developing country, have many metropolitan area as well as urbanized area, but strong influence of culture still have an impact on the way the community treats the female, in various degree. Selection of these three cities, as a representative of other cities in Indonesia, also has a motivation to show different cultural background. Jakarta, as the capital city of Indonesia, can be classified as metropolitan. As an urbanized area from all corner of Indonesia, this city experiences a mix of culture. Even though, the rhythm of activity in this city is similar with other metropolitan around the globe, a significant number of people with low economic capability also exist in this city. It creates a complex mix of cultures, habits, and attitudes, which finally creates a complex behaviour and people perception.

This situation is rather different with the city of Bandung. Since it appearance in almost 200 years ago, the city of Bandung has a different role with Jakarta. While Jakarta has a role as a main city since Dutch colonial's era, Bandung starts its existence as a place of pleasure. Its development is influenced significantly by the development of rail and road. Moreover, the activity of this city is mainly on service and education. It creates a different cultural ambience, where service and education takes as a major activity and attracts many people from so many cities in Indonesia to live and study. Even though, the trend of the development of this city somewhat go to the direction of modern city, but the size and its landscape strongly influences the way people makes their trip. It also shapes the way people, who lives in this city, make a perception regarding the travel and service of public transport.

Yogyakarta, since its beginning, has a very strong cultural ambience. In the most recent time, this city is categorized as cultural city, similar with other cultural city in Kyoto, Paris, or London. As a capital of the Sultanate of Mataram, since more than 300 years ago, its role as a centre of administrative and politic of the Sultanate can still be traced up to today. In its development, this city is well known as a "student city", since so many people from all part of Indonesia come to study in one of the oldest university in Indonesia, as well as to study in so many private and public school and university. This city can be classified as one of the city with the largest number of school and university in Indonesia. Moreover, its uniqueness of city landscape, transportation network, as well as public spaces creates unique behaviour. Not just daily behaviour, but behaviour in making travel and perception of transportation service.

By comparing these three cities, it seems obvious that there is different background that roots from hundred years ago, which seems strongly influence the behaviour and perception of people in these three cities up to today. This situation imposes a question whether transportation services, i.e. public transport service, in this cities is experienced and perceived as different. A simple consequences is when there is different behaviour and perception, thus unique transportation policy should be maintained for each city.

The results of analysis completed in this study support this initial believe. Some aspects of travel behaviour in these three cities are differently experienced by male and female. It is found that trip purpose and number of owned driving licence appear as two behaviours that significantly different for male and female in these three cities. It is easily understandable, as Indonesian's women commonly focus on domestic matter while male focus on out-of-house matter. Although, more number of women in Indonesian cities at present grows to have a professional career, but bigger number of women still focus on domestic activity. Thus, women's trip purposes are mainly in shopping and social activity.

In line with the activity of women, number of women who have driving licence is different with male. There are different types of driving licence for the public, i.e. driving licence for motorcycle, general vehicle, vehicle for goods, and buses or other heavy vehicle. Thus, it is obvious that female mainly have driving licence for motorcycle and general vehicle. It is quite rare for female who have driving licence for bus, heavy vehicle, or vehicle for good. This

situation explains the findings that number of owned driving licence is different between male and female.

Furthermore, this study also investigates user perceptions regarding the attributes of service quality. The attributes of service quality is evaluated using two type of rating, i.e. level of importance and level of satisfaction. Findings show that female and male differently perceived the attributes of service quality. This different perception appears in these three cities. These findings also explain the different perception regarding what attribute is importance and what attribute provides satisfaction.

The service of public transport is quite different among these cities. Jakarta can be said as have the highest variety of public transport. Bandung is dominated by paratransit or jitney, while Yogyakarta is dominated by small bus and paratransit. As a matter of fact, motorcycle grows very rapidly in these three cities. As different situation exists in each city, thus the findings seem as reasonable. Moreover, as cultural background among these cities is also different, thus different perceptions of users seem as also reasonable.

In the aspect of negative experiences, similar findings are obtained. Male and female have different negative experience, while different also exists among cities. As there is different distribution availability of public transportation, it is understandable that type of negative experience is also different. As there is different cultural background among cities, the type of negative experience can also be experienced differently. It is interesting though that there is similar negative experience that appears as significant in Bandung and Jakarta. As these two cities can be categorized as metropolitan, there is a possibility that individualistic characters seems to exist.

It can be summarized that this study explains in detail the relationship between gender and travel behaviour, as well as perceptions regarding service quality, in three cities. Gender seems as have different influence on travel behaviour and user perceptions. It is also interesting to notice that the analysis is able to show the different among cities, where the most possible reason is the different of cultural ambience and transportation characteristics in each city.

A policy implication based on this result of study is the importance of equity in providing transportation infrastructure and service. Equity should be interpreted as not limited to economic segment only, but also to the minority group of community, e.g. female, children, senior citizens, and people with different ability. This study provides a rich knowledge to support any effort to improve the equity of people in making use transportation facilities and services. As a focus of this study is the user of public transport, an increase attention to female can be believed as a way to maintain the current user, while it also provides a positive attraction for current non-user.

CONCLUSIONS

This piece of study reports the relationship between gender and travel behaviour, as well as user perceptions regarding service quality in three cities in Indonesia. These cities are selected as a representative to other city with similar situation and cultural background in Indonesia.

The analysis shows that there is significant different between male and female's travel behaviour, where it exists in each city. There is variety of aspects of travel behaviour which have significant difference between male and female among cities. It is found that trip purpose and number of owned driving licence appear as two behaviours that significantly different for male and female in these three cities.

Besides travel behaviour, this study also explores user perceptions regarding the attributes of service quality according to level importance and level of satisfaction. This study notices that something rated as importance does not rated as the same by user in other cities. Thus, this study also shows that something rated as importance does not rated as an attribute of service quality that provides satisfaction. Moreover, there are different perceptions between male and female.

Negative experience is the last aspect that is explored in this study. Each city has different type of negative experience, while different also exists between male and female. This finding appears in each city, which expresses a different among city.

Based on these findings, it can be concluded that a unique approach for each city, as well as more attention to female, is an imperative. It is useful to provide more suitable services for this group of community. Benefit can be gained from this, as female can be hoped as a loyal user. As cultural background in Indonesia still have a significant influence, thus female seems as a group that still needs an attention, i.e. provision of more suitable services, even in the next decade. This situation puts female in a situation as a captive user of public transport. Thus, it can be interpreted as secure user, as well as captive demand. This opportunity should be approached by improving the service. More study regarding female's activity and more detail exploration regarding the characteristics of female's travel behaviour seems as potential. This kind of study will complete the knowledge gathered by this reported study.

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