



Factor Affecting Customer Preference to Use Shuttle Bus over High-Speed Train in Indonesia

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ABSTRACT: This paper investigates the factors affecting customer preference to choose a shuttle bus over a high-speed train (Whoosh) in Indonesia. The study is based on the theory of planned behavior and focuses on customer satisfaction, which is a primary determinant in the selection of public transport. The research collected data through interviews and surveys. The survey gathered information from 105 frequent travelers who choose shuttle bus as their main transportation mode and have experienced using high-speed trains. The findings showed that the factors affecting people to choose shuttle bus over high-speed train are availability, accessibility, duration, and comfort. The study provides insights into understanding customer preferences and helps build efficient strategies based on internal strengths and profitable opportunities.

KEYWORDS: Behavior Intention, High-speed train, Intercity Transportation, Shuttle Bus, Multilinear Regression.

INTRODUCTION

Launched in 2023, the newly developed high-speed train (HST) named "Whoosh" will provide more travel options for the people of Jakarta and Bandung between the two cities. While this is good for the people of Jakarta and Bandung, it is a challenge to the already existing shuttle bus because it will have the competition to the faster transportation choice. Whoosh is a high-speed railway line that is the first of its kind in Southeast Asia, especially in Indonesia. Whoosh's development is included in the National Strategic Development program by the government. The line will connect the capital city of Jakarta with the city of Bandung, which is located about 140 kilometers away. Whoosh will have a top speed of 350 kilometers per hour.

The HST Project holds significant importance for Indonesia due to its potential to accelerate infrastructure development, enhance economic growth (Salim & Negara, 2016), expand market access for businesses in Jakarta, Karawang, and Bandung in the long run, contribute to a 0.4% increase in Indonesia's real GDP during the construction phase, and generate over 40,000 jobs in the country (Nath & Raganata, 2020). The HST Jakarta-Bandung will be a major transportation improvement for the people of Indonesia. The current travel time between Jakarta and Bandung by car or bus is about 3 hours. The HST will cut this travel time to just 50 minutes. This will make it much easier for people to travel between the two cities for business, leisure, or education. As of March 2024, HST only operates between 06:40 and 20:30, while shuttle buses operate 24 hours a day. While there are hundreds of shuttle bus pick-up locations throughout the city, HST only has three operational stations. The promotion of HST, as per February 2024, did not attract all shuttle bus passengers. Some travelers still use shuttle buses instead of HST. This study is about understanding the factors that influence customer preference to use shuttle buses over HST in Indonesia.

LITERATURE REVIEW AND HYPOTHESES

According to the theory of planned behavior, an individual's fundamental beliefs about a specific behavior shape their attitude towards that behavior. Customer satisfaction is a primary determinant in the selection of public transport (Sumaedi et al., 2016). Customer satisfaction is commonly understood as a measure of a customer's positive or negative feelings based on their evaluation of how well a goods or services provider performs compared to their expectations (Sumaedi et al., 2014a; Zeithaml et al., 2008; Kotler and Keller, 2011). If the evaluation indicates that the total performance meets or exceeds expectations, the individual will be content, and vice versa (Ojo, 2010; Oliver, 1980; Sumaedi et al., 2014a). While satisfaction may lead to the use of public transportation (Sumaedi et al., 2016), it is still unknown if it specifically impacts the use intention of shuttle buses over Whoosh.



Table 1. Factor influencing transportation choice

Variable	Item	Indicator	Source
Characteristic of the transportation mode	Availability	The availability of departure schedule and seat	Interview, Survey
	Accessibility	The distance between the departure point and the place of destination or vice versa	Interview, Survey
	Comfort	The degree of physical, psychological, and emotional ease and satisfaction experienced when using transportation services	(Mayo & Taboada, 2020) (Shen, Chen, & Pan, 2016) (Madhuwanthi, Marasinghe, Rajapakse, Dharmawansa, & Nomura, 2016)
	Travel Cost	The monetary expense associated with using a particular mode of transportation to travel from one place to another	(Mayo & Taboada, 2020) (Witchayaphong, Pravinyongvuth, Kanitpong, Sano, & Horpibulsuk, 2020) (Shen, Chen, & Pan, 2016) (Madhuwanthi, Marasinghe, Rajapakse, Dharmawansa, & Nomura, 2016)
	Safety	The degree to which travelers are protected from physical harm, injury, or other negative consequences while using transportation services	(Mayo & Taboada, 2020) (Shen, Chen, & Pan, 2016) (Madhuwanthi, Marasinghe, Rajapakse, Dharmawansa, & Nomura, 2016)
	Travel Time	The amount of time it takes to travel from one location to another using a particular mode of transportation	(Witchayaphong, Pravinyongvuth, Kanitpong, Sano, & Horpibulsuk, 2020) (Shen, Chen, & Pan, 2016) (Madhuwanthi, Marasinghe, Rajapakse, Dharmawansa, & Nomura, 2016)

The factors influencing mode of transportation choice will be incorporated as variables in the questionnaire distributed to current shuttle bus customers who are already experiencing Whoosh, addressing their perspectives regarding the shuttle bus and Whoosh. From the factor above, we build a theoretical framework for the behavior and intention of customers to use shuttle buses over Whoosh, as shown in Figure 1. The construct for the model is as follows:

- H1. Price affect behavior intention negatively
- H2. Availability affect behavior intention positively
- H3. Accessibility affect behavior intention positively
- H4. Safety affect behavior intention positively
- H5. Comfort affect behavior intention positively
- H6. Travel duration affect behavior intention positively

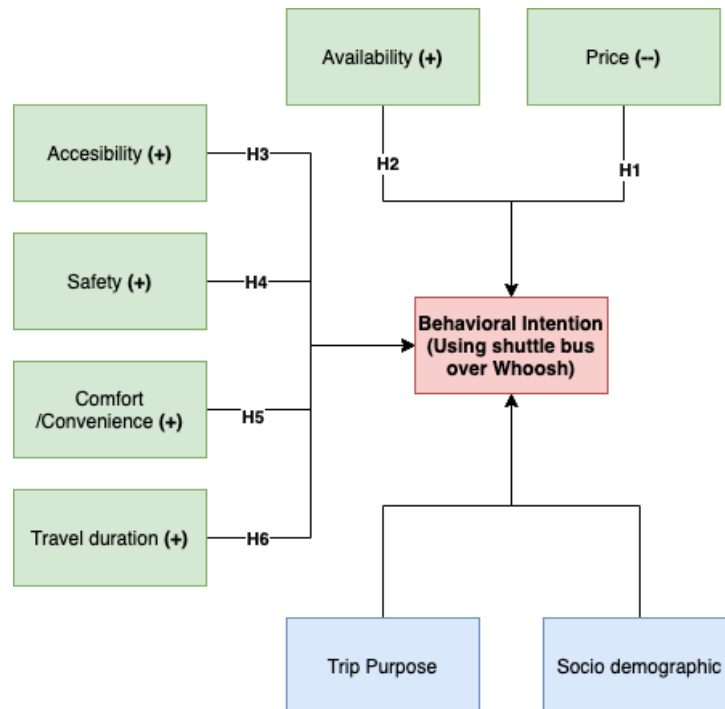


Figure 1. Theoretical Framework

METHODOLOGY

A. Construct validity and Reliability

Factor analysis was performed in order to check the construct validity of research variables. Three criteria were used to evaluate the construct validity: Kaiser Meyer Olkin value ≥ 0.5 ; p-value of Bartlett test of sphericity ≤ 0.05 ; and factor loading value (for each indicator) ≥ 0.5 (Hair et al., 2006; Lai and Chen, 2011; Malhotra, 2007). The results of factor analysis can be seen in Table 2

Table 2. Validity Test

Variables and indicators	KMO	Bartlett's Test of Factor Sphericity (sig.)	loading
<i>Accessibility</i>	0.714	0.000	
Compared to Whoosh, the Jakarta-Bandung shuttle bus has a departure point that is closer to my location			0.807
Compared to Whoosh, the Jakarta-Bandung shuttle bus has a departure point that is more easily accessible from my location			0.833
Compared to Whoosh, the Jakarta-Bandung shuttle bus has an arrival point close to my final destination			0.535
In my opinion, the Jakarta-Bandung shuttle bus meets the departure and arrival points I need			0.531
<i>Availability</i>	0.719	0.000	
When compared to Whoosh, the shuttle bus schedule can meet my travel schedule needs			0.601



I always get a shuttle bus seat for the scheduled departure I need compared to Whoosh			-
I feel like the flexibility of the shuttle bus makes me prefer the shuttle bus over Whoosh			0.597
<i>Comfort</i>	0.750	0.000	
In my opinion, the Jakarta-Bandung shuttle bus has AC that works well			0.549
When I boarded the shuttle bus fleet, the fleet was clean			0.628
I prefer shuttle buses that provide USB chargers			0.866
I found it easy to buy shuttle bus tickets			-
<i>Price</i>	0.736	0.000	
Compared to the total cost of traveling by Whoosh, the total cost of traveling by shuttle bus is more rational			0.722
I feel the shuttle bus prices are more reasonable when compared to Whoosh			0.765
By traveling by shuttle bus, I feel I can save costs			0.847
<i>Duration</i>	0.641	0.000	
When traveling to Jakarta-Bandung, I felt that the total duration of the trip by shuttle bus was quite fast			0.832
The total shuttle bus travel time is according to my travel needs			0.798
In my opinion, the total travel duration from my location to the final destination using the shuttle bus is faster than using Whoosh			0.558
<i>Preference</i>	0.707	0.000	
Shuttle buses are my first choice when traveling between the cities of Jakarta-Bandung			0.527
I will use the shuttle bus on my next trip			0.622
I would recommend others use the shuttle bus rather than Whoosh			0.546
<i>Safety</i>	0.805	0.000	
Shuttle bus drivers drive according to the speed limit			0.725
Seat belts on shuttle buses can be used			0.759
I felt safe leaving my luggage in the shuttle bus trunk			0.503
I feel the driver pays attention to the safety of passengers during the trip			0.839

The reliability of the variables was assessed based on the value of Cronbach α coefficient. Table 2 shows the coefficient of each variable. Based on Table 3, the Cronbach α coefficients range from 0.719 to 0.877. The values exceeds the recommended cut off value of 0.6, which means the reliability of each variables was confirmed (Hair et al., 2006; Lai and Chen, 2011; Malhotra, 2007; Sekaran and Bougie, 2010).



Table 3. Reliability Result

Variables	Cronbach's Alpha
Accessibility	0.830
Availability	0.849
Comfort	0.773
Duration	0.719
Preference	0.824
Price	0.877
Safety	0.853

B. Sampling

The intended population of this study is frequent traveller (at least once every 3 months) that already experiencing Whoosh but choose shuttle bus as their main transportation mode to go between Jakarta and Bandung. The data collection was performed using survey with the help of survey agency. The sample of this research is 105 people with the detail as shown in the Table 4 below.

Table 4. Descriptive analysis

Variable	Category	Sample	(%)
<i>Age</i>	18-24	26	24.8%
	25-30	30	28.6%
	31-35	21	20.0%
	36-40	13	12.4%
	41-45	12	11.4%
	46-50	2	1.9%
	51-55	1	1.0%
<i>Domicile</i>	Banten	20	19.0%
	DKI Jakarta	44	41.9%
	Jawa Barat	41	39.0%
<i>Gender</i>	Male	39	37.1%
	Female	66	62.9%
<i>Job Status</i>	Bekerja paruh waktu (part-time)	8	7.6%
	Bekerja penuh waktu (full-time), status kontrak	25	23.8%
	Bekerja penuh waktu (full-time), status permanen	43	41.0%
	Mahasiswa aktif	10	9.5%
	Pelajar SMA/SMK sederajat	1	1.0%



	Pemilik usaha/Wiraswasta	13	12.4%
	Tidak bekerja (sedang mencari pekerjaan)	5	4.8%
<i>Travel Frequency</i>	More than once a week	9	8.6%
	once a week	21	20.0%
	once a month	41	39.0%
	once every 2 months	24	22.9%
	once every 3 months	10	9.5%
	How many time using Whoosh	1	49
2		25	23.8%
3		16	15.2%
>3		15	14.3%
<i>Education</i>	S2	9	8.6%
	S1	69	65.7%
	SMA	26	24.8%
	SMP	1	1.0%
<i>Travel Budget</i>	Less than 500 rb	57	54.3%
	500 rb - 1 jt	29	27.6%
	1 jt - 1.5 jt	7	6.7%
	1.5 jt - 2 jt	6	5.7%
	More than 2 jt	6	5.7%

C. Data analysis

The data analysis was done using pearson correlation and multiple regressions with the support of IBM SPSS.

RESULT AND DISCUSSION

A. Result

To analyze the correlation between variables, the researcher employed pearson correlation test. The result for pearson correlation among variable are shown in Table 5.

Table 5. Pearson Correlation Result

Correlations		Duration	Accessibility	Availability	Price	Safety	Comfort	Preference
Duration	Pearson Correlation	--						
Accessibility	Pearson Correlation	.383**	--					
	Sig. (2-tailed)	0						



Availability	Pearson Correlation	.403**	.740**	--				
	Sig. (2-tailed)	0	0					
Price	Pearson Correlation	.305**	.625**	.679**	--			
	Sig. (2-tailed)	0.002	0	0				
Safety	Pearson Correlation	.567**	.595**	.573**	.531**	--		
	Sig. (2-tailed)	0	0	0	0			
Comfort	Pearson Correlation	.473**	.537**	.556**	.550**	.699**	--	
	Sig. (2-tailed)	0	0	0	0	0		
Preference	Pearson Correlation	.572**	.665**	.677**	.589**	.658**	.642**	--
	Sig. (2-tailed)	0	0	0	0	0	0	

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

The analysis shows that duration, accessibility, availability, price, safety, and comfort have strong correlation with preference (person correlation > 0.5).

To analyze the hypothesis, the researcher employed the multiple linear regression analysis at 95% confidence interval. The analysis showed a good model fit: $F(6, 98)=30.492$, $P < 0.001$, Adj R-square = 0.630 and R-square = 0.651.

Table 6. Multiple Linear Regression Model Summary

Model	R	R Square	Adjusted Square	R Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	0.807	0.651	0.630	1.37217	0.651	30.492	6	98	0

^a Predictors: (Constant), Budget, Accessibility, Frequency, Purpose, Duration, Comfort, Price, Safety, Availability

The analysis shows that availability had positive affect on customer intention to use shuttle bus over Whoosh ($\beta=0.207$, p -value=0.041). The analysis shows that comfort had positive affect on customer intention to use shuttle bus over Whoosh($\beta=0.177$, p -value=0.049). The analysis shows that duration had positive affect on customer intention to use shuttle bus over Whoosh($\beta=0.235$, p -value=0.002). The analysis shows that accessibility had positive affect on customer intention to use shuttle bus over Whoosh($\beta=0.2$, p -value=0.038). Here is the result for our hypothesis:

- H1. Price affect behavior intention negatively (rejected)
- H2. Availability affect behavior intention positively (accepted)
- H3. Accessibility affect behavior intention positively (accepted)
- H4. Safety affect behavior intention positively (rejected)
- H5. Comfort affect behavior intention positively (accepted)
- H6. Travel duration affect behavior intention positively (accepted)



Table 7. Multiple Regression Result

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	-0.838	1.081		-0.776	0.44	-2.982	1.306		
	Availability	0.295	0.142	0.207	2.074	0.041	0.013	0.577	0.358	2.79
	Comfort	0.225	0.113	0.177	1.994	0.049	0.001	0.45	0.452	2.211
	Duration	0.213	0.067	0.235	3.193	0.002	0.081	0.345	0.657	1.522
	Accessibility	0.153	0.073	0.2	2.102	0.038	0.009	0.298	0.393	2.542
	Price	0.094	0.086	0.095	1.089	0.279	-0.077	0.265	0.472	2.121
	Safety	0.084	0.071	0.114	1.185	0.239	-0.057	0.225	0.387	2.582

a Dependent Variable: Preference

B. Managerial implications

The managerial implications of these findings are that shuttle bus companies should focus on the availability of seats and departure times, accessibility to the pick-up and drop-off points, the overall travel duration, and comfort of their service to attract more customers and maintain their market share. The factors that provide a competitive advantage for shuttle buses are the availability of departure times and the accessibility of their pick-up and drop-off points to the population.

CONCLUSION

This research has tried to test the factors that influence the intention to use a shuttle bus over Whoosh. Based on the data analysis, this research found that the strongest and most positive factors are accessibility, availability, comfort, and duration. Even though this research has generated interesting findings, we have addressed some limitations. First, we use an external survey agency; thus, the respondent is only people that have already been approached by the agency, and we do the survey based on the economic benefit that they receive. Second, this study only received 105 respondents, compared to the original target of 200. Although the number of respondents is enough for data analysis, the error is around 10%. More research with a higher number of respondents is needed to lower the error. Third, this study uses six variables as predictors. The R2 is at 65 percent. Price and safety have a strong correlation with preference, but there is no direct causation for preference. Hence, we predict that there are still other variables that affect behavior and intention. Based on the limitations, we recommend increasing the number of respondents and including other variables in future research.

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