The Influence of Environment Concern, Norm Description, Service Satisfaction on Behavioral Intention of Suroboyo Bus Passengers in Surabaya

Fitri Novika Widjaja[(✉)], Kevin, and Veny Megawati

University of Surabaya, Surabaya, Indonesia
`fitri@staff.ubaya.ac.id`

Abstract. Surabaya is a densely populated city because it is a business and industrial center with an increasing demand for transportation. Currently, the use of private vehicles is more than public transportation. However, Surabaya has a City Bus service is known as the Suroboyo Bus, an environmentally friendly payment concept by exchanging used plastic bottles. To assess behavioral intentions of using public transportation, this study used an integrative model based on the Theory of Planned Behavior (TPB), service satisfaction, and environmental concern. A total of 150 completed questionnaires were collected from Surabaya residents who had used public transportation in the previous year for this study. The results of this study reveal that behavioral intentions in using the Suroboyo Bus are influenced by perceived behavioral control, subjective norms, and descriptive norms. Through perceived behavioral control and personal norms, environmental concerns indirectly influence behavioral intentions, bolstering the TPB model. This demonstrates the suitability of this TPB-based integrative model, while customer satisfaction is also a key factor in switching from a private vehicle to a public bus system, particularly with the Suroboyo Bus's unique environmentally friendly payment system. Theoretical and policy implications are discussed, as well as research ideas for the future.

Keywords: environment concern · descriptive norms · service satisfaction · behavioral intentions

1   Introduction

Transportation is a vital means of supporting the economic activities of a region. The development of an area or region depends on the development of transportation facilities and infrastructure. All activities in the region require various modes of transportation, including land, rail, air, and sea. Advances in transportation will lead to an increase in the mobility of people, production factors, and processed products that are distributed or marketed.

Surabaya, as a metropolitan city requires the support of an adequate transportation system, especially land transportation, which is the driving force of mobility within the

city. The growth in the number of vehicles in Surabaya does not balance with the availability of road widths, causing congestion. Public transportation is an alternative that is expected to reduce congestion because the increased use of public transportation will reduce the use of private vehicles [1]. In collaboration with the Department of Transportation (Dishub), the Surabaya City Government provides a city bus transportation called the Suroboyo Bus. The public must have the GOBIS (Golek Bis) application to use this Suroboyo Bus. Payment is made by exchanging used bottles in the space provided, and coupons or points will be given for payment instruments. This payment method aims to reduce plastic waste in Surabaya because the Surabaya city government will recycle the plastic bottles from the exchange.

The attitude of the Surabaya people who use the Suroboyo Bus as a means of transportation can be based on the convenience of the bus or on the ease of payment, where the payment method by exchanging used bottles can reduce plastic waste in the environment. According to P.Y. Ng, P.T. Phung [2], attitudes are defined as behaviors and values related to individual beliefs about positive and negative consequences. Furthermore, attitudes towards certain behaviors lead to behavioral intentions, especially in the choice of travel modes [3].

According to Cialdini et al. [4], subjective norms are the individual's expectation that the important people to him think that the individual should make certain choices. Meanwhile, Ajzen and Fishbein [5], stated that perceived behavioral control is a factor outside the will that predicts an individual's perception of the ease or difficulty of carrying out certain actions. According to Doran and Larsen [6], personal norms are defined as self-concepts or principles of internal behavior relating to behavior. Personal norms refer to the internal principles of behavior regarding the behavior.

Cialdini et al. [4] also stated that descriptive norms reflect externally enforced rules that arise from "what significant others do" in a given social context, contrary to personal norms, which refer to internal behavioral principles regarding a behavior. Daziano and Bolduc [7] argued that environmental concern is the antecedent of behavior that supports the environment.

Wang et al. [8] said a person's concern for the environment would determine how that person behaves and has the intention to behave in using the Suroboyo Bus service. Behavioral control perceived by the customer is determined by how much the customer cares about the surrounding environment. A person's concern for the environment can affect the person's subjective norms and personal norms. According to [9], customer satisfaction with the services provided affects the customer's intention to reuse, revisit, or recommend services to be higher.

This study aims to examine the effect of Environmental Concern, Descriptive Norms, and Service Satisfaction on Behavioral Intention of Suroboyo Bus Passengers in Surabaya.

2   Research Method

To perform the research, this study relied on primary data collecting. Primary data was collected by developing a questionnaire and then performing survey activities by handing out organized and simple-to-understand questionnaires to passengers who had
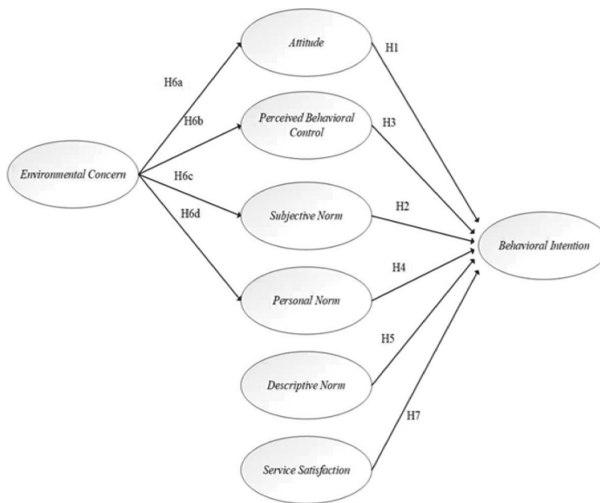
Fig. 1. Research Model

used the Suroboyo bus. The interval level and scale were utilized in this study, which is a measuring level with the same distance and a distinct difference on the scale.

The possible responses for the interval level were sorted using a numerical scale, the 5-point Likert scale, which was determined by evaluating a series of statements using adjectives on a five-level scale. Non-probability sampling with a purposive sampling approach, i.e., sampling based on considerations or judgements about the proper attributes to be sampled. SEM (Structural Equation Models) were employed to process the data, which is a statistical model that attempts to explain the relationship between various variables [10, 11].

According to Fig. 1, the hypotheses to be tested in this study are as follows:

H1: Attitude has a positive effect on Behavioral Intention.
H2: Subjective Norms have a positive effect on Behavioral Intention.
H3: Perceived Behavioral Control has a positive effect on Behavioral Intention.
H4: Personal Norms have a positive effect on Behavioral Intention.
H5: Descriptive Norms have a positive effect on Behavioral Intention.
H6a: Environmental Concern has a positive effect on Attitude.
H6b: Environmental Concern has a positive effect on Perceived Behavioral Control.
H6c: Environmental Concern has a positive effect on Subjective Norms.
H6d: Environmental Concern has a positive effect on Personal Norms.
H7: Service Satisfaction has a positive effect on Behavioral Intention.

3   Results and Discussion

The validity and reliability of the 150 collected data through the distribution of questionnaires were tested. After the data has been verified as authentic and reliable, it is analyzed descriptively. The majority of the respondents were women between the ages of 46 and

Table 1. Descriptive of Respondents

Gender	No of respondents	Percentage
Male	46	30.7%
Female	104	69.3%
Age	No of respondents	Percentage
18–25 years old	27	18.0%
26–35 years old	19	12.7%
35–45 years old	27	18.0%
46–55 years old	40	26.7%
>55 years old	37	24.7%
Education	No of respondents	Percentage
Elementary School	20	13.3%
High School	91	26.0%
Bachelor's degree	39	60.7%
Profession	No of respondents	Percentage
Student	9	6.0%
Employee	109	72.7%
Self-employed	20	13.3%
Housewife	12	8.0%
Reason Use	No of respondents	Percentage
Price	36	24.0%
Comfort	96	64.0%
Service	18	12.0%
Information	No of respondents	Percentage
Friend	67	44.7%
Family	48	32.0%
Others	35	23.3%
frequency in a year	No of respondents	Percentage
1–2 times	2	1.3%
3–6 times	9	6.0%
>6 times	139	92.7%

Source: research data, processed

55, with the most recent education, were in high school, and worked as employees. The reason respondents used the Suroboyo Bus was convenience. The source of information was primarily friends. The frequency of using the Suroboyo bus was more than 6 times a year (see Table 1).

Table 2. Mean and Standard Deviation of Perceived Behavioral Control

No.	Statements	Mean	SD
PBC.1	I have no trouble using the Suroboyo Bus to go to work/school	4.19	0.772
PBC.2	For me, it is very easy to use the Suroboyo Bus instead of a private vehicle to go to school/work	4.27	0.791
PBC.3	For me, using the Suroboyo Bus to school/work is not complicated than a private vehicle	4.28	0.778
	Total	4.24	0.780

Source: Research data, processed

Table 3. Mean and Standard Deviation of Attitude

No.	Statements	Mean	SD
ATT.1	Using the Suroboyo Bus instead of a private vehicle (motorcycle/car) to go to work/school is good	4.46	0.609
ATT.2	Using the Suroboyo Bus instead of a private vehicle (motorcycle/car) to go to office/school is appropriate	4.45	0.562
ATT.3	Using the Suroboyo Bus instead of a private vehicle (motorcycle/car) to go to work/school is correct	4.39	0.590
ATT.4	Using the Suroboyo Bus instead of a private vehicle (motorcycle/car) to go to work/school is profitable	4.55	0.551
ATT.5	Using the Suroboyo Bus instead of a private vehicle (motorcycle/car) to go to office/school is useful	4.60	0.543
	Total	4.49	0.571

Source: Research data, processed

According from Table 2, the Perceived Behavioral Control variable shows that respondents prefer to use the Suroboyo Bus for school or work activities compared to private vehicles.

Respondents feel the benefits of using the Suroboyo Bus for daily activities (see Table 3) and the people closest to them support using the Suroboyo Bus (see Table 4 and Table 5). Respondents also feel that their friends and family also use the Suroboyo Bus every day.

Table 4. Mean and Standard Deviation of Subjective Norm

No.	Statements	Mean	SD
SbN.1	The people closest to me will support me using Suroboyo Bus to travel	3.87	0.902
SbN.2	People closest to me think that I should use the Suroboyo Bus to school/work	3.82	0.883
	Total	3.84	0.892

Source: Research data, processed

Table 5. Mean and Standard Deviation of Descriptive Norm

No.	Statements	Mean	SD
DN.1	Most of my family members use Suroboyo Bus every day	3.57	1.228
DN.2	Most of my colleagues/school friends every day using Suroboyo Bus	3.71	1.189
	Total	3.64	1.208

Source: Research data, processed

Table 6. Mean and Standard Deviation of Personal Norm

No.	Statements	Mean	SD
PN.1	I feel guilty using my private vehicle to go to school/work	2.67	0.473
PN.2	I feel fine using a private vehicle to go to school/work	4.27	0.575
PN.3	I feel personally responsible if there are problems caused by my personal vehicle, when I use it to go to school/work	4.52	0.540
	Total	3.82	0.530

Source: research data, processed

From Table 6 we can conclude that respondents feel responsible if there are problems in using private vehicles, so using public transportation such as Suroboyo Bus can feel better.

Table 7 shows that respondents also think that using private vehicles has an effect on reducing sources of energy or fuel and can cause increased air pollution and increase congestion, especially in Surabaya City.

The Suroboyo Bus service as a whole show that respondents are satisfied and intend to continue using Suroboyo Bus for their daily activities (see Table 8).

Table 9 shows the results of Average Variance Extracted and the Composite Reliability of the variable. Meanwhile Table 10 shows the Goodness-of-Fit Results. According from Table 10, the results of the structural model test show that C min/DF, TLI, CFI and RMSEA results are good fit, while GFI and AGFI give marginal fit results.

Table 7. Mean and Standard Deviation of Environmental Concern

No.	Statements	Mean	SD
EC.1	The use of motorbikes/cars causes serious pollution in the world	4.5	0.574
EC.2	The use of motorbikes/cars is the main cause noise pollution in the world	4.51	0.564
EC.3	The use of motorbikes/the car affects the depletion of energy sources	4.56	0.524
EC.4	In Surabaya, air pollution caused by private vehicles is increasingly serious	4.21	0.900
EC.5	In Surabaya, the use of motorbikes/cars is the main cause of noise pollution	4.14	0.875
EC.6	Traffic jams are a problem in Surabaya	3.29	1.477
EC.7	The difficulty of finding a parking space is a problem di Surabaya	2.73	1.369
EC.8	Surabaya is not safe because of the heavy traffic	2.38	1.349
	Total	3.79	0.954

Source: Research data, processed

Table 8. Mean and Standard Deviation of Service Satisfaction and Behavioral Intention

No.	Service Satisfaction Statements	Mean	SD
SS.1	I am satisfied with the overall Suroboyo Bus service	4.50	0.565
SS.2	I would say that Suroboyo Bus offers a very good service	4.51	0.552
	Total	4.50	0.558
INT.1	I intend to use the Suroboyo Bus to go to school/work for the next two weeks instead of a private vehicle	4.12	0.889
INT.2	I will use the Suroboyo Bus to go to school/work for the next two weeks instead of a private vehicle	4.11	0.871
INT.3	I will continue to use Suroboyo Bus in the future	4.12	0.819
	Total	4.11	0.860

Source: research data, processed

Hypothesis testing (see Table 11) shows that Hypotheses 2, 3, 5, 6d, and 7 proved to have a positive influence among the related variables. While hypotheses 1, 4, 6a, 6b, and 6c are not proven to have a significant relationship. The results of this test indicate that H2 subjective norm has a significant positive effect on behavioral intention. This result is different from P.Y. Ng, P.T. Phung [2], which show no significant relationship. So in the Suroboyo Bus research object, this subjective norm will affect the intention to behave because customers will need the opinions of their closest people to revisit

Table 9. AVE and CR Variables

No	Variables	Construct Reliability	AVE
1.	Perceived Behavioral Control	0.971	0.919
2.	Attitude	0.956	0.815
3.	Subjective Norm	0.987	0.976
4.	Descriptive Norm	0.978	0.957
5.	Personal Norm	0.711	0.554
6.	Environmental Concern	0.950	0.864
7.	Service Satisfaction	0.955	0.914
8.	Behavioral Intention	0.982	0.948

Source: research data, processed

Table 10. Structural Model Goodness-of-Fit Results

No.	Fit Test	Match Criteria	Results	Description
1.	CMIN/DF	≤ 3	1.947	*Good Fit*
2.	GFI	0.8–0.9	0.831	*Marginal Fit*
3.	AGFI	0.8–0.9	0.800	*Marginal Fit*
4.	TLI	≥ 0.9	0.940	*Good Fit*
5.	CFI	≥ 0.9	0.961	*Good Fit*
6.	RMSEA	≤ 0.08	0.080	*Good Fit*

Source: research data, processed

the Suroboyo Bus service. While H3, perceived behavioral control has a significant and positive effect on behavioral intention.

Then H5, the descriptive norm, has a significant and positive effect on behavioral intention. Hypotheses H3 and H5 are supported by the results of P.Y. Ng, P.T. Phung [2]. Descriptive norms reflect externally enforced rules that arise from what other people do significantly in certain social contexts [4]. H6d, environmental concern has a significant and positive effect on personal norm. So that the principle of internal behavior of Suroboyo Bus customers is strongly influenced by concern for the surrounding environment. H7, service satisfaction has a significant and positive effect on behavioral intention.

The processing results can be concluded that the customer's intention to return to using the Suroboyo Bus service will arise if passengers think that they are expected to use the Suroboyo Bus service by their closest people. Thus, it can be seen that there is a positive relationship between subjective norms and behavioral intention. In addition to the expectations of the closest people, the intention to return to using the Suroboyo Bus service also arises due to the passenger's perception that there are many conveniences

Table 11. Summary of Hypothesis Testing Results

Hypothesis	The Relationship between constructs	Estimate Value	Critical Ratio	P-Value
H1 (+)	ATT → INT	−0.134	−1.786	0.074
H2 (+)	SbN → INT	0.334	3.631	***
H3 (+)	PBC → INT	0.338	4.487	***
H4 (+)	PN → INT	−0.362	−1.877	0.060
H5 (+)	DN → INT	0.450	2.863	0.004
H6a (+)	EC → ATT	−0.055	−0.638	0.524
H6b (+)	EC → PBC	−0.314	−3.836	***
H6c (+)	EC → SbN	0.111	1.421	0.155
H6d (+)	EC → PN	0.396	4.451	***
H7 (+)	SS → INT	0.618	7.501	***

Source: research data, processed

to using the Suroboyo Bus without the individual realizing it. The test results also show that perceived behavioral control has a positive influence on behavioral intention. The intention to return to using the Suroboyo Bus service also arises because other people's behavior significantly, especially the closest people who use the Suroboyo Bus, will trigger other passengers also to use it again. In this case, the descriptive norm has a positive effect on behavioral intention. The formation of customer internal behavior also arises because of the behavior that supports the environment.

It is also known that environmental concern has a positive relationship with personal norms. Respondents assessed that the payment system by exchanging used bottles shows support for the environment or using public transportation can reduce congestion and air pollution. Also, the most important thing in building the intention to return to use will arise because of a sense of satisfaction with the existing services. The Suroboyo Bus service can be seen from the aesthetic and clean shape of the bus, or the comfort of the seats on the bus. In this way, service satisfaction has a positive effect on behavioral intention.

4   Conclusion

The test results can be concluded that the customer's intention to return to using the Suroboyo Bus service will arise if passengers think they are expected to use the Suroboyo Bus service by their closest people. Thus, there is a positive relationship between subjective norms and behavioral intention. In addition to the expectations of the closest people, the intention to return to using the Suroboyo Bus service also arises due to the passenger's perception that there are many conveniences to using the Suroboyo Bus without the individual realizing it. Moreover, perceived behavioral control has a positive influence on behavioral intention. The intention to return to using the Suroboyo Bus

service also arises because other people's behavior significantly, especially the closest people who use the Suroboyo Bus, will trigger other passengers to use it again. In this case, the descriptive norm has a positive effect on behavioral intention. The formation of customer internal behavior also arises because of the behavior that supports the environment. It is also known that environmental concern has a positive relationship with personal norms. Also, the most important thing in building the intention to return to use will arise because of a sense of satisfaction with the existing services. In this way, service satisfaction has a positive effect on behavioral intention.

Recommendations from the results of this study are based on the greatest influence: awareness of the environment will make respondents feel better about using public transportation. Hence, the Surabaya city government should be more aggressive in promoting the concept of paying for the Suroboyo Bus and making it easier to exchange used bottles as a means of payment, for example, by multiplying used bottle exchange posts. In addition, comfort and cleanliness in the Suroboyo Bus must also be considered.

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