

FACTORS AFFECTING THE BUS-TAKING BEHAVIOR OF STUDENTS OF HANOI UNIVERSITIES

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Abstract

In order to investigate the variables that influence the decision of university students in Hanoi city to choose the bus as their mode of transportation, the researchers conducted a survey with a total of 282 students who were enrolled in universities in Hanoi. The data obtained from the survey was then processed using SMARTPLS software. When it comes to the decision of whether or not to ride the bus, the five elements that were taken into consideration all have an effect on the conduct of the kids. The factor "Perceived Behavioral Control" (HV) has the most influence on the behavior of students making the decision to ride the bus, with an influence of 0.555. The factor "Subjective Norms" (CCQ) is the component that has the second-greatest influence on students' conduct. With a coefficient of 0.148, the two variables "Perceived ease of use" and "Perceived usefulness" have a significant effect on the intermediate factor "Students' attitude toward taking the bus," which in turn influences the behavior of students in terms of their decision to use the bus with a coefficient of 0.147. The study team had various suggestions to make in order to encourage students to use buses as a mode of transportation, which would contribute to the reduction of traffic congestion and the protection of the environment in the city of Hanoi. These recommendations were based on the findings of the analysis.

Keywords: Students, Bus-Taking Behavior, Influencing Factors, Means of Transport.

1. INTRODUCTION

In Vietnam, as of 2020, there are nearly 4.5 million cars and more than 60 million motorbikes, concentrated in big cities. In Hanoi, motorcycles account for 86% of the total vehicles on the road. This requires more efforts to develop a modern, accessible public transportation system and form people's habits of using public transportation, as well as a proper understanding of their needs. Of people in choosing means of transportation. For students studying in Hanoi, most are aiming to use motorbikes as their main means of transportation, to go quickly and avoid being late for appointments, especially during rush hours. Therefore, public transportation such as buses is rarely used, and the real benefits of using buses are not known to many people.

The purpose of this study is to identify the factors that influence university students' choice of buses as a mode of transportation in Hanoi. Using the desk research method, the researchers examined concepts and theoretical bases related to motivation, attitudes, and behavior of using buses. Next, the group conducted a sociological survey by designing a survey on Google Forms and sending it directly to university students in Hanoi in a convenient, random method. The number of ballots collected is 282, including 172 female students (61%) and 110 male students (39%). There are 5 factors (independent variables) that have an influence on students' bus usage behavior, including 3 direct factors and 2 indirect factors. Survey data were processed and verified using the SMART PLS software tool, thereby evaluating the influence of each factor on bus-taking behavior. From the analysis results, the researchers offered some discussions to attract students to use buses as a means of transportation, contributing to reducing traffic congestion and protecting the environment in Hanoi city.

2. THEORETICAL FRAMEWORK, MODEL, AND RESEARCH HYPOTHESIS

2.1. Bus transportation service

Bus transportation services are an important public transportation system in cities and urban areas, providing a convenient, safe, and sustainable method of travel for millions of people. Day. A bus is a fairly large public transport vehicle that transports passengers on fixed routes. This requires the construction of a network of routes and stops designed to serve the mobility needs of the community. Bus routes often connect residential areas, city centers, schools, hospitals, and other public areas, creating an extensive transportation network.

Consumer behavior is the actions, decisions, and thinking of customers when searching, choosing, or using services. The behavior of choosing to use the bus as a means of transportation (bus-taking behavior) is the action and decision of passengers when searching, choosing, or using bus transportation services as a means of transportation. Pine. Passengers' bus-taking behavior is influenced by factors such as attitudes toward the behavior, subjective norms, and behavioral control.

2.2. Some research models on behavioral intentions

2.2.1. Theory of planned behavior (TPB)

From the basic theory of TRA, Ajzen (1991) created the theory of planned behavior by including the component of perceived behavioral control, in addition to the two components of attitude and subjective norm, which would have an effect on the individual's intention to behave in a certain way. The Theory of Planned Behavior (TPB) is a model that explains human behavior based on the intention to perform a specific action. The TPB model posits that a person's intention to perform a behavior is influenced by three main factors including Attitude, Subjective standards, and Perceived behavioral control. These factors interact with each other and together predict a person's intention to perform the behavior, which in turn directly influences the actual behavior. The TPB model helps to better understand the mechanisms of the impact of psychological and social factors on human behavior.

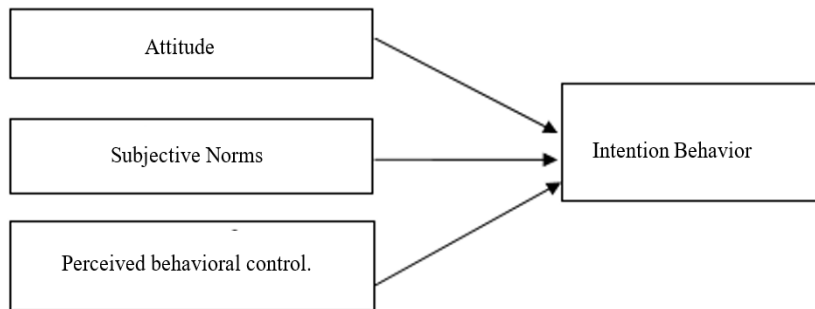


Figure 1: The theoretical model of planned behavior (TPB)

Source: Ajzen (1991)

2.2.2. Technology acceptance model (TAM)

In 1989, Davis performed research and established the Technology Acceptance Model (TAM), which demonstrates the extent to which an individual is enthusiastic to engage with a new technology and wants to make an attempt to utilize it. On the other hand, the desire to utilize technology is what determines whether or not one will use technology.

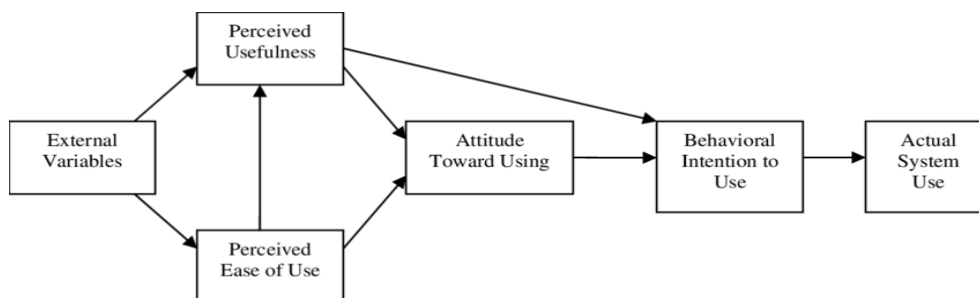


Figure 2: Technology Acceptance Model TAM

Source: David, 1989

The user's attitude toward technology is a significant factor in determining whether or not they want to utilize technology. Attitudes of people who utilize technology are determined by two factors: (1) The perceptions of those who utilize technology on the applicability of technology. (2) The perceptions of those who utilize technology on how simple it is to use the technology.

2.2.3. C-TAM-TPB theoretical model

The C-TAM-TPB (Combined Theory of Planned Behavior) model is an extension of the Theory of Planned Behavior (TPB) and the Theory of Reasoned Action (TRA), which aims to explain human behavior based on social intentions and cognition.

The C-TAM-TPB combined model was introduced by Taylor & Todd, 1995. In this model, Taylor and Todd added two main factors to the TAM model: "subjective norms" and "perceived behavior control." Thus, in the C-TAM-TPB model, there are 3 main factors affecting intention to use, which are: (1) attitude, (2) subjective norm, and (3) perceived behavioral control. In particular, the variable "attitude" is influenced by two variables: "perceived usefulness," "perceived ease of use," and "perceived usefulness," which also affect the intention to use (Yu, Yi, Feng, & Liu, 2018; Ngan & Khoi, 2019).

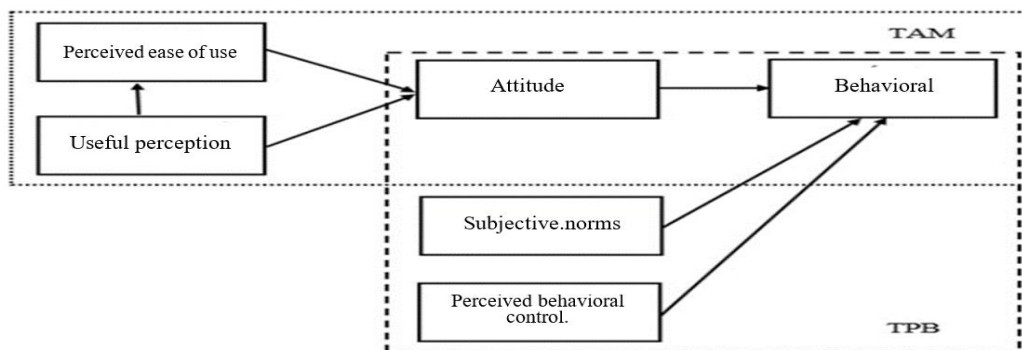


Figure 3: C-TAM-TP model

Source: Taylor & Todd (1995)

- (1) Subjective norm is "an individual's perception of social pressures to perform or not perform a behavior". When individuals are aware of a social expectation, the higher the threshold for a behavior, the more likely the individual is to follow that social expectation and perform the behavior. Research results by Hartwick & Barki (1994) also confirm the relationship between subjective norms and intention to use the system.
- (2) The individual's perception of the simplicity and complexity in conducting the activity (in relation to available essential resources, knowledge, and chances to use technology).
- (3) The consumer's attitude toward performing the behavior. Each individual's attitude is measured by the consumer's personal beliefs and evaluations of that behavior. When there is trust in products and services, consumers tend to promote the intention to use the business's products and services. Consumer attitudes are influenced by consumers' "perceived usefulness" and "perceived ease of use" toward the product.

2.3. Propose a model and research hypothesis

From research and theoretical systems based on the C-TAM-TPB (Combined Theory of Planned Behavior) model, the researchers proposes the following research model:

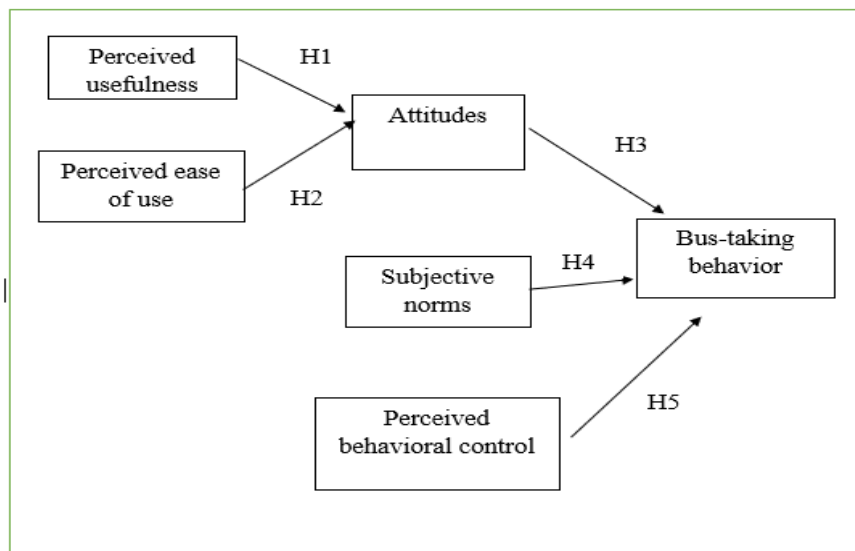


Figure 1: Expected research model

Source: Compiled and proposed by the researchers

Research hypothesis

Hypothesis H1: Perceived usefulness positively influences Hanoi students' attitudes toward using buses as a means of transportation.

Hypothesis H2: Perceived ease of use positively influences Hanoi students' attitudes toward using buses as a means of transportation.

Hypothesis H3: Attitude positively influences the bus-taking behavior of Hanoi students

Hypothesis H4: Subjective norms positively influences Hanoi students' bus-taking behavior

Hypothesis H5: Perceived behavioral control positively influences the bus-taking behavior of Hanoi students

3. RESEARCH METHODS

Based on theory and an overview of research on influencing factors in behavior, this research employs 5 factors (independent variables) including 3 direct impact factors (factor "Students' attitude towards taking the bus"; "Subjective norm"; "Perceived behavioral control") and 2 factors ("Perceived usefulness"; "Perceived ease of use") affect the intermediate factor "Students' attitude toward riding the bus".

The survey was built with a 5-point Likert scale, with:

- 1: Totally disagree
- 2: Disagree
- 3: Neutral
- 4: Agree
- 5: Totally agree

Following the creation of the questionnaire for the survey, the researchers carried out a pilot survey with twenty-one students from Vietnamese universities in Hanoi. According to the preliminary findings of the poll, opinion is consistent with the components that are included into the model.

Because of limitations in both time and resources, the author chose to use a sample approach known as convenience sampling. Both Comrey and Lee (1992) and Trong and Chu (2005) provided criteria that were used to establish the appropriate size of the sample. Considering that there were 28 parameters (observed variables) that required component analysis, it was necessary to have a minimum of 140 observation forms (28 multiplied by 5). Students who were enrolled in universities in the city of Hanoi were the focus of the poll.

To ensure impact stability, the researchers decided to distribute 300 questionnaires, aiming to collect as many observation samples as possible. Respondents accessed the questionnaire online via this link: <https://forms.gle/NEJy65kP7FKnHDGb7>. A total of 282 ballots were collected, serving as the database for analysis.

3.2. Data processing method

A quantitative research methodology was utilized to analyze data collected from a survey conducted among students enrolled in universities situated in Hanoi. The structural regression equation adheres to a standard format:

$$QD = a*HV + b*CCQ + c*TD (d*TU + e*DSD)$$

The SMARTPLS program is utilized for hypothesis testing and assessing the influence of various parameters.

Step 1: Assessing the measurement model

The measurement model undergoes assessment, focusing on the reliability, quality of observed variables, convergence, and discriminant validity.

Evaluating the quality of measured variables (Outer Loadings)

The outer loadings are indicators that measure the strength of the association between the observable variables and the latent variables, which are also referred to as proxy variables. It is possible to compute these outer loadings in SMARTPLS by taking the square root of the absolute value of the R^2 linear regression coefficient. The coefficient in question is a representation of the connection that exists between latent variables and sub-observed

variables. Hair et al. (2016) suggest that outer loadings for observed variables related to quality should be equal to or greater than 0.708. For ease of reference, researchers often approximate this threshold to 0.7 instead of the precise value of 0.708.

- **Assessing the Dependability**

Researchers assess the reliability using two primary indicators in SMARTPLS: Cronbach's Alpha and Composite Reliability (CR).

Composite Reliability (CR) is preferred over Cronbach's Alpha due to its more accurate estimation of reliability. According to Chin (1998), a coefficient of determination (CR) greater than 0.6 is necessary for exploratory research.

Henseler and Sarstedt (2013) recommend a CR criterion of 0.7 for verified research. Other studies also support the suitability of a 0.7 threshold for most situation (Hair et al., 2010; Bagozzi, 1988)

SMARTPLS reliability is demonstrated when Cronbach's Alpha ≥ 0.7 (DeVellis, 2012) and Composite Reliability (CR) ≥ 0.7 (Bagozzi & Yi, 1988).

- **Evaluating Convergence**

The Average Variance Extracted (AVE) is responsible for the convergence evaluation that is performed in SMARTPLS. When the average variance extracted (AVE) of a scale is more than 0.5, according to Hock and Ringle (2010), the scale has reached convergence. When the average variance extracted (AVE) is 0.5, it shows that the latent variable accounts for at least fifty percent of the variability in each sub-observed variable on average. Researchers investigated if the average variance extracted (AVE) is higher than or equal to 0.5 in order to evaluate convergence.

- **Assessing Discriminant Validity**

Discriminant validity examines whether a research variable truly differs from other variables within the model. Sarstedt et al. (2014) propose two criteria for this assessment: cross-loadings and the Fornell and Larcker (1981) measurement.

Cross-loading coefficients serve as an initial method to assess the discriminant validity of observed variables (indicators). The load factor of an observed variable associated with a latent variable should exceed its correlation with cross-load factors in other latent variables.

Fornell and Larcker (1981) suggest that discriminant validity exists when the square root of the AVE for each latent variable exceeds the correlations between latent variables. Additionally, Henseler et al. (2015) demonstrate that their devised HTMT index effectively assesses discriminant validity.

According to Garson (2016), an HTMT index below 1 ensures discriminant validity between two latent variables. Henseler et al. (2015) recommend a score below 0.9 to confirm discriminant validity. Clark & Watson (1995) and Kline (2015) adopt a more stringent threshold of 0.85. SMARTPLS uses a criterion of 0.85 during the review process.

- **Testing Multicollinearity**

Multicollinearity is assessed using a scale known as the Variance Inflation Factor (VIF). When VIF readings equal or exceed 5, it indicates high levels of multicollinearity in the model. Conversely, VIF values below 5 suggest the absence of multicollinearity (Hair et al., 2016).

Step 2: Assessing the Structural Model

- **Assessing influential connections**

- Original Sample: Normalized impact factor of the raw data.
- Sample Mean: The arithmetic mean of the standardized impact factor of all samples obtained via the Bootstrap method.
- Standard Deviation: The measure of the amount of variation or dispersion in the standardized impact factor, based on the original sample.
- T Statistics: The test value t represents the significance of the impact as determined by the student's t -test.
- P Values: The p -value represents the level of significance of the T statistics. The significance level is typically evaluated using comparative thresholds such as 0.05, 0.1, or 0.01”

In order to determine the extent to which the independent variable may be interpreted in relation to the dependent variable, the R^2 coefficient, also known as the R square, is used. In order to complete the evaluation of the R^2 coefficient, we will make use of the results that were produced from the study that was carried out using the PLS method. It is possible to evaluate the prediction accuracy of the model by calculating the R^2 value, which also reflects the degree to which the independent variable is responsible for explaining the variance in the dependent variable. According to Hair, Hult, and others (2017), the coefficient of determination, also known as R^2 , may vary from 0 to 1, with values that are closer to 1 suggesting a greater degree of independent factors offering an explanation for the dependent variable. Furthermore, in order to evaluate the influence of each component, the team determined the exact response threshold within which the average score falls, as well as computed the distance value and the average value for each element. To get the distance value, first subtract the lowest value from the highest value, and then divide the result by the total number of values. This will give you the distance value. This particular instance yields a distance value of 0.8, which can be calculated by first subtracting 1 from 5, and then dividing the resulting number by 5.

Evaluation thresholds determined by the average score value:

- + 1.00 - 1.80: Strongly disagree
- + 1.81 - 2.60: Disagree
- + 2.61 - 3.40: Neutral
- + 3.41 - 4.20: Agree
- + 4.21 - 5.00: Strongly agree

4. RESEARCH RESULTS

4.1. Subjects surveyed

A number of votes were collected from 282 students studying at universities in Hanoi city, with 172 female students (61%), and 110 male students (39%). Due to the random convenience method of the survey, the number of female students who are interested and willing to answer the questionnaire is greater, so there is a difference in the gender of the survey participants.

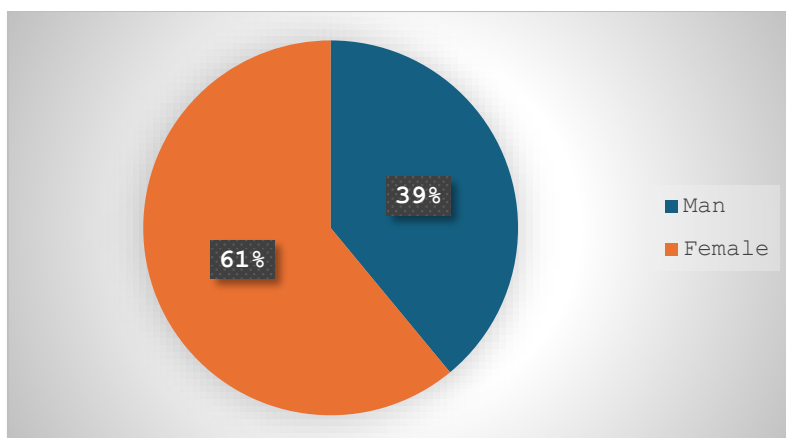


Figure 1: Gender of survey participants

Source: Survey results

Regarding the student's year of study, the researchers focused on students studying at universities in Hanoi. Of the 282 students who responded to the survey, 98 are in their first year (accounting for 34.8%); 87 are second-year students (accounting for 30.9%); 78 are third-year students (accounting for 27.7%); 15 are fourth-year students (accounting for 5.3%); and 4 are students after the fourth year (accounting for 1.4%).

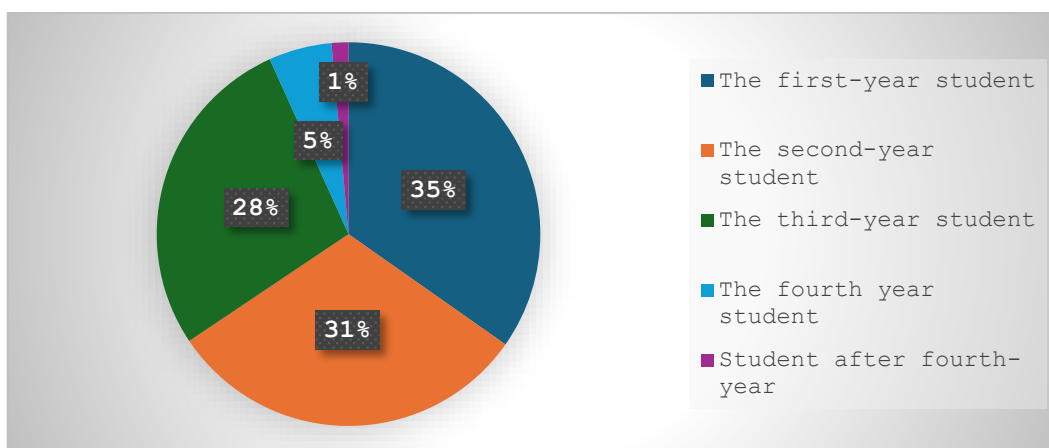


Figure 2: Students' years of study

Source: Survey results

4.2. Inspection results

4.2. The quality of observed variables in the measurement model

4.2.1.1. The quality of observed variables

The observed variables that impacted **Buses that are used as a means of transportation for university students in Hanoi** was assessed through the external loading factor (**outer loadings**), as shown in Table 1.

Table 1: Outer loadings of factors affecting the behavior of choosing to take the bus of university students in Hanoi.

	CCQ	DSD	HU	HV	TD	QD
CCQ1	0.852					
CCQ2	0.814					
CCQ3	0.850					
CCQ4	0.872					
CCQ5	0.847					
DSD1		0.824				
DSD2		0.860				
DSD3		0.888				
DSD4		0.706				
HU1			0.826			
HU2			0.876			
HU3			0.856			
HU4			0.847			
HV1				0.732		
HV2				0.711		
HV3				0.814		
HV4				0.722		
HV5				0.790		
TD1					0.853	
TD2					0.828	
TD3					0.833	
TD4					0.877	
TD5					0.767	
QD1						0.860
QD2						0.882
QD3						0.850
QD4						0.939
QD5						0.911

Source: Testing results of the researchers

Results from Table 1 show the outer loadings of all total variable correlation coefficients of the variables were more than 0.7), showing that the observed variables are meaningful (Hair & et al, 2016).

4.2.1.2. Test the reliability of the scale

Evaluate the scale reliability of influencing bus-taking behavior of university students in Hanoi city on PLS-SEM through two main indices: Cronbach's Alpha and Composite Reliability (CR).

Table 2: Reliability coefficient (Cronbach's Alpha) and composite reliability (Composite Reliability) of factors affecting bus-taking behavior of university students in Hanoi.

	Cronbach's alpha	Composite reliability (rho a)	Composite reliability (rho c)	Average variance extracted (AVE)
CCQ	0.903	0.913	0.927	0.718
DSD	0.838	0.856	0.892	0.676
HU	0.874	0.880	0.913	0.725
HV	0.821	0.873	0.869	0.570
TD	0.889	0.892	0.918	0.693
QD	0.934	0.935	0.950	0.791

Source: Testing results of the researchers

According to Table 2, after analyzing the reliability test using Cronbach's Alpha coefficient of the factor, the result is: "Subjective norm" (CCQ) reached 0.903, "Perceived ease of use" (DSD) reached 0.838, "Perceived usefulness" (HU) reached 0.874, "Perceived behavioral control" (HV) reached 0.821; "Students' attitudes toward taking the bus" (TD) reached 0.872; "Students' behavior in choosing to take the bus" (QD) reached 0.934. Thus, all scales satisfy the condition > 0.7 (DeVellis, 2012) and do not violate any rules for eliminating variables, so no variables are eliminated and are acceptable in terms of reliability. The Composite Reliability (CR) of all observed variables is also > 0.7 (Table 2). As a result, the scale is trustworthy, has analytical importance, and is used in following factor analysis. (Bagozzi & Yi, 1988).

4.2.1.3. Convergence

According to the data analysis results in Table 2, the average variance extracted index AVE (Average Variance Extracted) of the factor "Subjective Norms" (CCQ) reached 0.781, "Perceived ease of use" (DSD) reached 0.676, "Perceived usefulness" (HU) reached 0.725, "Perceived behavioral control" (HV) reached 0.570, "Students' attitude toward riding the bus" (TD) reached 0.693, and "The behavior of students choosing to take the bus" (QD) reached 0.791. Thus, the average variance extracted index AVE (Average Variance Extracted) of all variables is > 0.5 (Hock & Ringle, 2010). Shows that the model satisfies the convergence conditions.

4.2.1.4. Discriminant Validity and multicollinearity assessment

Results in Table 3 are on the Fornell-Larcker criteria of the research model. Factors affecting the choice of taking the bus among university students in Hanoi city: "Subjective standards"; "Perceived ease of use"; "Usefulness when using buses"; and "Students' attitudes toward bus riding" ensured discrimination because all on-diagonal AVE square root values are higher than their off-diagonal values. Factor "Perceived behavioral control" has a square root value of AVE on the diagonal that is close to an off-diagonal value, but this difference is very small so it still ensures discrimination; therefore, in terms of discriminant validity, the difference in two criteria, including the cross-loading coefficient and the criteria of Fornell and Larcker, satisfied the condition.

Table 3: Fornell-Larcker criteria of research model of elements affecting Students' bus-taking behavior

	CCQ	DSD	HU	HV	TD	XB
CCQ	0.847					
DSD	0.629	0.822				
HU	0.522	0.522	0.851			
HV	0.709	0.743	0.582	0.755		
TD	0.772	0.741	0.700	0.683	0.832	
QD	0.655	0.534	0.634	0.761	0.641	0.889

Source: Testing results of the researchers

Multicollinearity assessment

The test results show that the Inner VIF index assessing multicollinearity among latent variables is < 3, indicating that there is no multicollinearity phenomenon.

4.2.2. Assessment results of influence level using structured models

4.2.2.1. Evaluate influential relationships

The relationship and level of influence of the factors influencing the behavior of choosing the bus as a means of transportation among university students in Hanoi city (SMARTPLS) is shown in Figure 2.

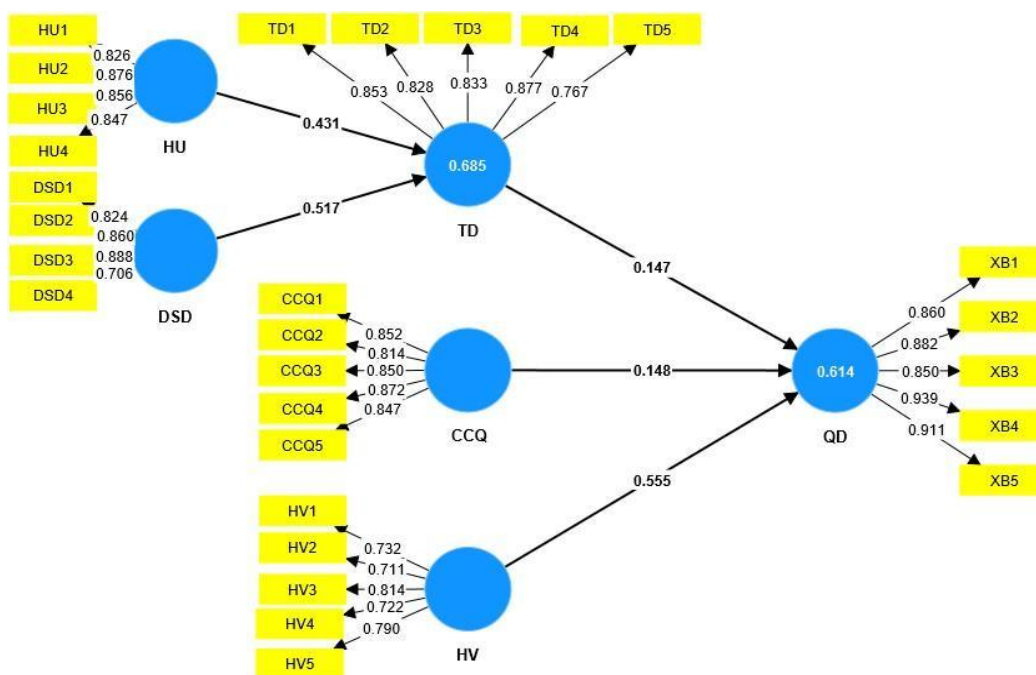


Figure 2: Motivational factors affecting students' bus-taking behavior

Source: Testing results using SMARTPLS by the researchers

The results of Bootstrap analysis to evaluate relationships are shown in Table 6. Accordingly, all relationships between factors are equal. *There are P Values < 0.05*, which reflects that these factors are statistically significant enough to show a positive influence on choice behavior Buses are used as a means of transportation for university students in Hanoi city (Hypotheses H1, H2, H3, H4, and H5 are all accepted).

Table 6: Path Coefficient of the structural model (Path Coefficient)

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values
CCQ -> QD	0.148	0.148	0.072	2,062	0.039
DSD -> TD	0.517	0.509	0.066	7,806	0.000
HU -> TD	0.431	0.438	0.070	6.119	0.000
HV -> QD	0.555	0.559	0.056	9,866	0.000
TD -> QD	0.147	0.146	0.075	1,976	0.048

Source: Testing results using SMARTPLS by the researchers

The test results in Table 6 show that, with a reliability of 95%, the factor "Perceived behavioral control" (HV) had the most influence on Students' behavior of choosing the bus as a means of transportation with an effect level of 0.555; Next is the factor "Subjective Norms" (CCQ) with an influence level of 0.148; The two factors "Perceived ease of use" and "Perceived usefulness" have a strong influence on the intermediate factor "Students' attitude toward riding the bus" and thereby affect their behavior. The impact of students' choice to take the bus is 0.147

From the testing results, the regression equation is presented as follows:

$$QD=0.555*HV + 0.148CCQ + 0.147*TD (0.517*DSD+0.431*HU)$$

4.2.2.2. Evaluate the overall coefficient to determine R² (R square)

The results of the PLS algorithm analysis give the R² value, reflecting the level of explanation of the independent variable for the dependent variable. The R² index measures the overall coefficient of determination (R-square value), which is an index to measure the degree of model fit of the data (the model's explanatory ability). According to Hair et al (2010), the suggested R-square value is at 0.75, 0.50, or 0.25.

Table 7: Summary table of R² values

	R-square	R-square adjusted
TD	0.685	0.682
QD	0.614	0.610

Source: Testing results of the researchers

The data in Table 7 shows that the adjusted R² for the representative factor "Students' attitudes toward taking the bus" is 0.682, so the independent variables "Perceived ease of use" and "Perceived usefulness" explained 68.2% of the variation (variance) of the dependent variable "Students' attitudes toward taking the bus" and the remaining 31.8% was due to systematic error. And from other factors outside the model. Similarly, the adjusted R² for the representative factor "Students' behavior of choosing to take the bus" (QD) is 0.610, so the independent

variables explain 61% of the variation (variance) of the dependent variable. Students' behavior in choosing to take the bus (QD), the remaining 39% is due to systematic errors and other factors outside the model.

4.2.3. Descriptive statistical results

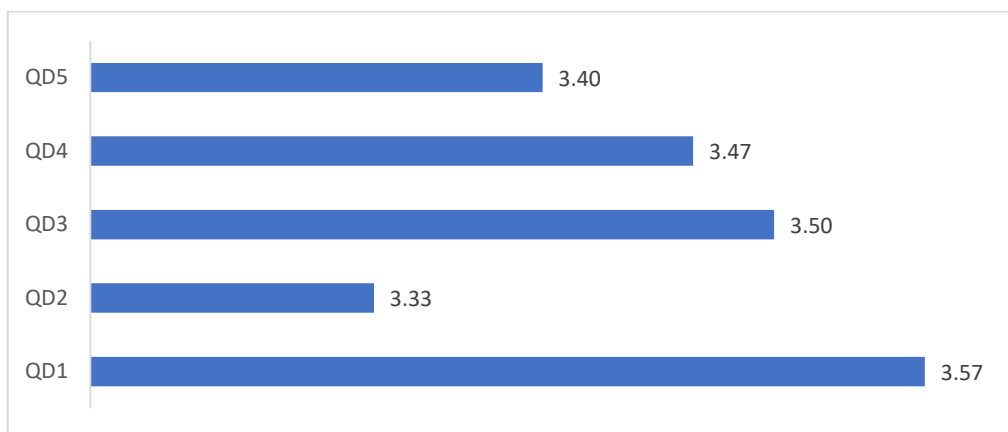


Figure 4: The average value of the factor scale "students' behavior of choosing the bus as a means of transportation" (QD)

Source: Survey results

The survey results showed that the observed variable "I will take the bus every day" (QD1) reached an average value of 3.57, showing that respondents highly agreed with this opinion; Next is the observed variable "I choose the bus as my main means of transportation" (QD3), reaching 3.50; and the observed variable "Choosing to take the bus is my right decision," reaching an average value of 3.47, are all within the threshold of agreement; Only the observed variable "I will invite my friends to take the bus" (QD2) has an average value of 3.33, which is normal. This shows that most of the students surveyed tend to choose the bus as a means of transportation but are not ready to invite their friends to join them.

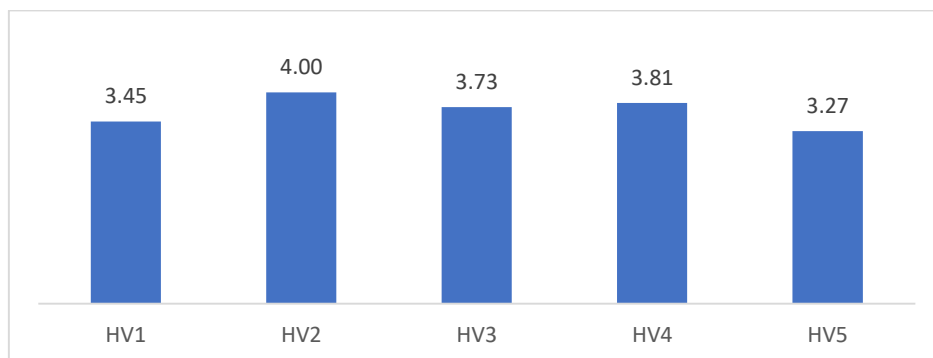


Figure 5: The average value of the factor scale "Perceived behavioral control" when choosing the bus as a means of transportation for students" (HV)

Source: Compiled and calculated from survey results

The survey results show that all observed variables have an average value within the threshold of agreement, especially the observed variable "I have a lot of time to take the bus (HV5), which reached 3.27, which is within the average threshold. This proves that when students are aware of controlling their behavior regarding resources and understanding bus routes and stops, they are ready to choose buses as a means of transportation. However, students will have to focus on studying at school, so they do not have much time to take the bus. This is also an issue that bus routes need to pay attention to in order to increase trip frequency and run on time to help students limit waiting and travel time.

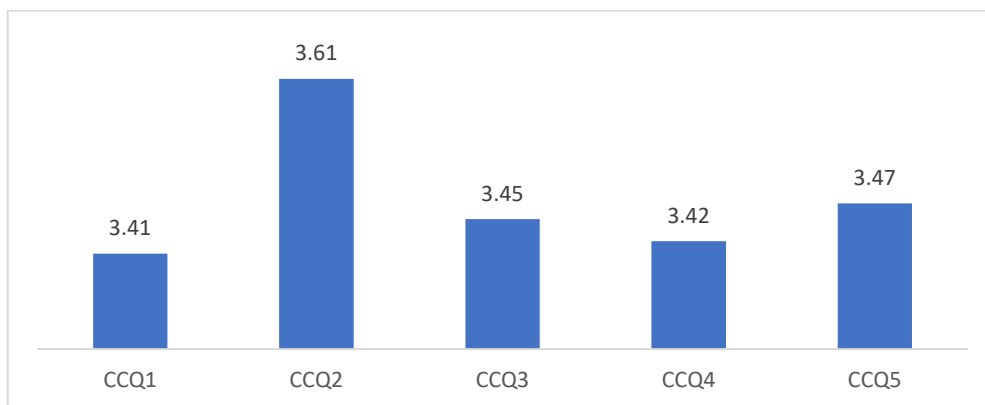


Figure 6: The average value of the factor scale "Subjective Norm" (CCQ)

Source: Compiled and calculated from survey results

The observed variables of the "Subjective Norms" factor all have an average score at the "Agree" threshold, in which the observed variable "My family advises me to use bus transportation services" has an exceptionally high threshold. 3.61, which shows that the impact of a student's family is quite important in students' behavior of choosing the bus as a means of transportation.

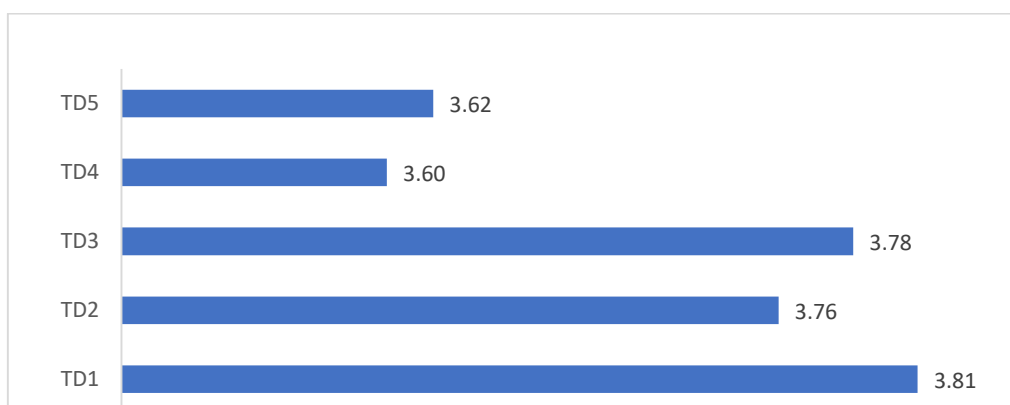


Figure 7: The average value of the factor scale "Students' attitudes toward taking the bus" (TD)

Source: Compiled and calculated from survey results

The observed variables of the factor "Students' attitudes toward taking the bus" (TD) all have an average score at the "Agree" threshold. In which the observation boundary "I believe that riding the bus is civilized" (TD1) has a high average value of 3.81; "I believe that riding the bus is to maintain a clean environment" (TD3) has an average value of 3.78; and the observed variable "I believe that taking the bus reduces traffic congestion" (TD5) also reached an average value of 3.62.

This proves that students are very conscious and have a community spirit in the issue of traffic control, environmental protection, and minimizing traffic congestion, which is becoming more and more serious today.

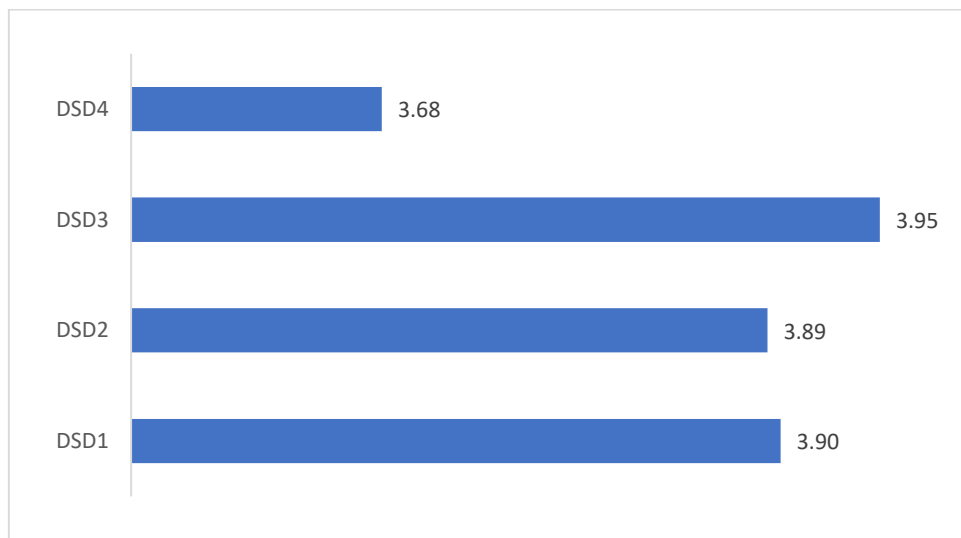


Figure 8: Average value of the factor scale "Perceived ease of use" (DSD)

Source: Synthesized and analyzed from survey results

The data in chart 8 shows that the observed variables of the factor "Perceived ease of use" (DSD) all have an average score at the "Agree" threshold. In which the observed variable "The interface and equipment on buses in Hanoi are designed to be simple and easy to use, helping me learn and use the service quickly and conveniently" (DSD3) achieved the highest value at 3.95; the observed variable "The bus system in Hanoi provides clear information and navigation, making it easy for me to use the service effectively" (DSD2) has an average value of 3.89.

Most of the students surveyed agreed that using bus services in Hanoi is easy and convenient. This is a factor that has a strong influence on students' awareness and attitude towards bus travel, so bus companies need to increase innovation in equipment and facilities on buses as well as routes.

The point for passengers to use bus services is increasingly easier and more convenient, thereby changing perceptions and attitudes towards using buses as a means of transport.

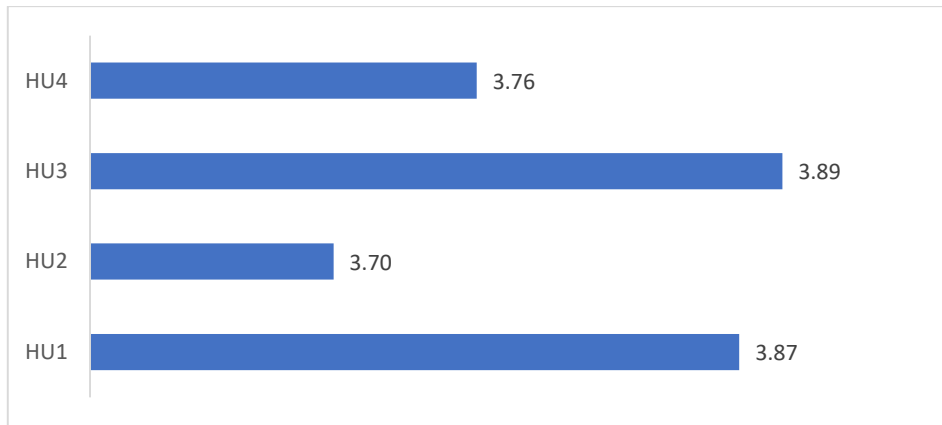


Figure 9: The average value of the factor scale "Perceived usefulness" (TD)

Source: Synthesized and analyzed from survey results

The data in Figure 9 shows that the observed variables of the factor "Perceived usefulness" (HU) all have an average score at the "Agree" threshold. In which the observed variable "believes that using bus services in Hanoi helps reduce environmental pollution and contributes to protecting a greener city" (HU3) reached a high average value of 3.89; The observed variable "using bus services in Hanoi brings benefits and value to personal transportation needs" (HU1) has an average value of 3.87. Through this, it can be seen that students have felt the usefulness of using buses as a means of transportation for themselves as well as for society. From there, students have a more positive attitude toward bus-taking behavior, which is reflected in the impact level of the factor "Perceived usefulness" on "Students' attitude towards bus riding". High value up to 0.431

5. DISCUSSIONS AND RECOMMENDATIONS

Test results show that, among the factors included in the model, with 95% confidence, the factor "Perceived behavioral control" (HV) has the strongest influence on the behavior of choosing the bus as a means of transport. Students' transportation preferences influence 0.555, meaning that when a student's perceived behavioral control increases by 1 unit, the student's behavior of choosing the bus as a means of transportation increases by 0.555 units. Continued Next is the factor "Subjective norms" (CCQ) with an influence of 0.148, meaning that when a student's "Subjective norms" increases by 1 unit, the student's behavior of choosing the bus as a means of transportation increases by 0.148. The factor "Perceived ease of use" affects students' attitudes toward taking the bus with an influence of 0.517, and the factor "Perceived usefulness" affects students' attitudes toward taking the bus. students towards taking the bus with an influence of 0.431, from which the intermediate factor "Students' attitude towards taking the bus" affects students' behavior of choosing to take the bus with an influence of 0.147, meaning when a student's attitude toward taking the bus changes by 1 unit, the student's behavior of choosing to take the bus also changes in the same direction by 0.147 units.

Descriptive statistics also show results similar to the test results. Most of the students surveyed tend to choose the bus as a means of transportation but are not ready to invite friends to join them and also do not have much time to take the bus. All opinions agree that using bus services in Hanoi is easy and convenient. Students have felt the usefulness of using buses as a means of transportation for themselves as well as for society, and at the same time, they are very conscious and have community spirit in the issue of traffic culture, protecting the environment, and reducing traffic congestion. In addition, when students are aware of controlling their behavior regarding resources and understand bus routes and stops, they are ready to choose the bus as a means of transportation. However, the survey results also show that the proportion of students using buses as a means of transportation gradually decreases according to the student's year of study. Interviews with some students revealed the reason why many students participate in the final years. To work part-time, bus routes are not convenient to travel from school to work, forcing students to use personal transportation.

From the research results, the researchers has the following recommendations:

- State management agencies allow opening more bus routes in the inner city so that bus routes can cover all cities; Support for bus transport businesses to replace vehicles with electric buses to modernize vehicles, protect the environment, and reduce noise
- Bus companies increase investment in innovating equipment and facilities on buses as well as routes to make it easier and more convenient for passengers to use bus services, increasing Increase trip frequency to minimize waiting time for passengers
- The media and universities need to increase propaganda about bus routes and the benefits of traveling by bus for students. They should continue to maintain fare support for students on bus routes across the city
- Students need to increase awareness of environmental protection and, community protection, proactively participate, and encourage friends to use buses as a means of transportation.

CONCLUSION

The study examines 5 factors (independent variables) that affect students' behavior in choosing to take the bus, including 3 factors that directly impact and 2 factors that impact through intermediary factors. Research results show that the 5 factors considered all have an influence on students' behavior in choosing to take the bus. Among them, the factor "Perceived behavioral control" (HV) has the strongest influence on students' behavior of choosing to take the bus with an influence of 0.555; followed by the factor "Subjective Norms" (CCQ). With an influence of 0.148; the two factors "Perceived ease of use" and "Perceived usefulness" have a strong influence on the intermediate factor "Students' attitude toward taking the bus," thereby influencing students' behavior in choosing to take the bus with an influence of 0.147. Based on the analysis results, the researchers had some discussions to attract students to use the bus as a means of transportation, contributing to reducing traffic congestion and protecting the environment in Hanoi city.

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