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EMPIRICAL STUDY ON INTENTION TO USE BIKE-SHARING IN VIETNAM

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ABSTRACT

Background: The aim of this research is to investigate the subject is focused on identifying the factors influencing the intention to use and analyzing the influence of those factors on the use of grabbike services in Hochiminh City in Vietnam and their level of purchasing. **Methods:** Survey data was collected from 153 consumers in HCM City. The research model is proposed from the study of intention to use of some authors in abroad. The reliability and validity of the scale are tested by Cronbach's Alpha, Average Variance Extracted (Pvc) and Composite Reliability (Pc). **Results:** The analysis results of structural equation model (SEM) shows that the intention to use and some factors have a relationship with each other. **Conclusions:** The finding of this study provides valuable insights for the management of bike-sharing understanding the factors effecting.

INTRODUCTION

With the rapid development of Ho Chi Minh City and the trend of migration from rural to urban areas, the population of Ho Chi Minh City is forecasted to reach 13.2 million people in 2025 formed a large metropolitan. The main means of transportation is motorbikes, which are also needed by the people due to many factors such as economic conditions, traffic, etc. However, "Hacking" often occurs seriously affect the interests of customers. Understanding these concerns, a technology application "ride thanks" has come into operation in Vietnam. With the development and change in technology, Grabbike has brought a new wave and extremely useful for the user. With the ability to connect directly and as quickly as possible through an application between the customer and the driver. The most important thing is the price is cheap, Grab bike has approached customers quickly.

However, technology applications are not always suitable for everyone and everyone wants to use them. Therefore, for customers to have easy access and choice of service, Grab bike need to have policies to improve the quality of service and customer requirements. Researching customer intentions helps businesses understand the factors that affect the customer's intentions in choosing which services to use, so that they can assess their competitiveness and business performance. At the same time, implement policies to overcome and improve the use of customers for their services. The research on the factors affecting the intention to use Grab bike services of HCMC University of Industry students comes from these needs and needs.

This study was conducted with the main purpose of modeling the factors influencing the intention to use Grab bike services of students of Ho Chi Minh City Industrial University and the impact of This factor is intended to be used. It provides solutions to help people using Grab bike services with greater frequency and frequency.

According to Ajzen [1], the birth of the Theory of Planned Behavior (TPB) derives from the limits of behavior that humans have little control over. The third factor that Ajzen considers to affect human intent is the Perceived Behavioral Control. Cognitive behavioral control reflects the ease or difficulty of performing the behavior and whether the behavior is controlled or restricted.

Appearance of Grabbike application in HCM City can be considered as a new technology service. One of the tools useful in explaining the intention to adopt a new product is the TAM acceptance model [2]. According to Legris et al [3], the TAM model has successfully predicted about 40% of the use of a new system.

Grabbike is a new product in the city. HCM should study the proposed combination of TPB and TAM is appropriate to explain the factors affecting the intention to use Grab bike. This model has been empirically proven in the study by Chen, C.F. and Chao, W.H. (2010) on the intent to use the KMRT system in Kaohsiung City, Taiwan [4].

Chen and Lu's model investigated the attitudes of users of a bike-sharing system with the aim of identifying their priorities in [Fig. 1], thus allowing local governments to focus their efforts most effectively on enhancing users' intentions to use such systems. The relationships among green perceived usefulness user attitude and perceived ease of use with green intentions, and the mediation effect of user attitude towards bike-sharing are explored. The focus of their study was on how to enhance green intentions via perceived usefulness, perceived ease of use and user attitude of the green technology acceptance model. However, user attitude has the highest mediation effect on green intentions, and perceived ease of use does not have a significant effect on intentions for either users or non-users. Therefore, governmental institutions could strive to improve the attitudes of bike-sharing users and non-users, their green perceived usefulness, and perceived ease of use to strengthen their intentions to use this mode of sustainable transportation [5].

KEY WORDS

Vietnam, grabbikes, Pc, Pvc, SEM, Smartpls 3.0

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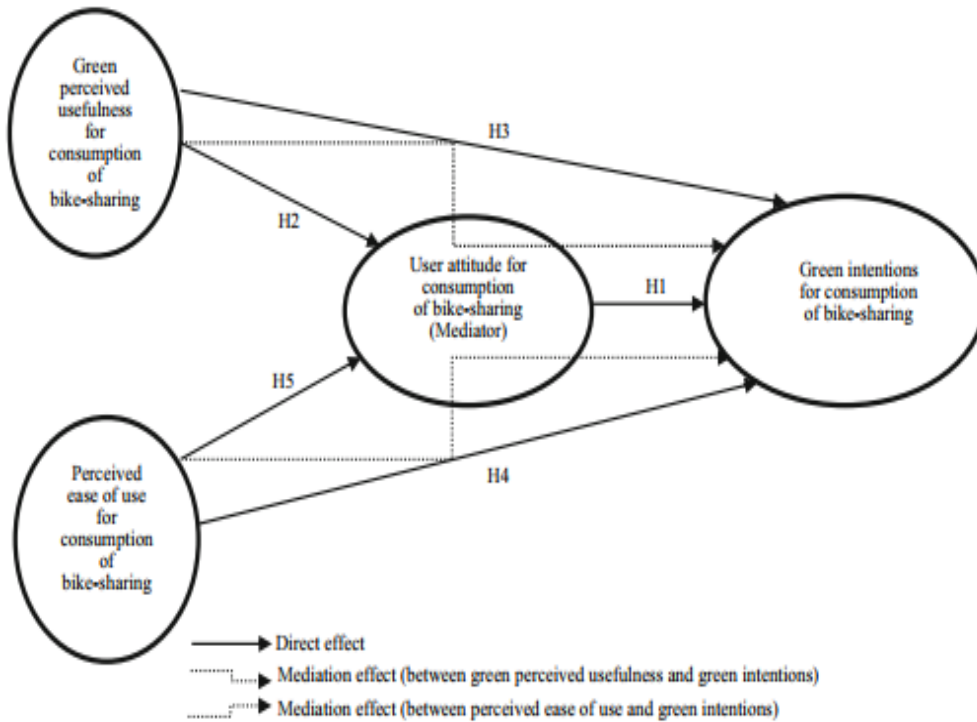


Fig. 1: A Model of Green Acceptance and Intentions to Use Bike-Sharing [5].

Commercial bike-sharing system was growing rapidly as a critical form of the sharing economy. Although past research had discussed the design and operation of commercial bike-sharing systems, there had been few studies examining the factors motivating the use of such systems. This study integrated the technology acceptance model (TAM) and the theory of planned behavior (TPB) to develop a holistic model to explain the intention to use commercial bike-sharing systems in [Fig. 2]. They found that attitude toward the bike-sharing was positively affected by perceived usefulness and perceived ease of use of the system. Beyond our expectation, subjective norm has no significant effect on the intention to use.

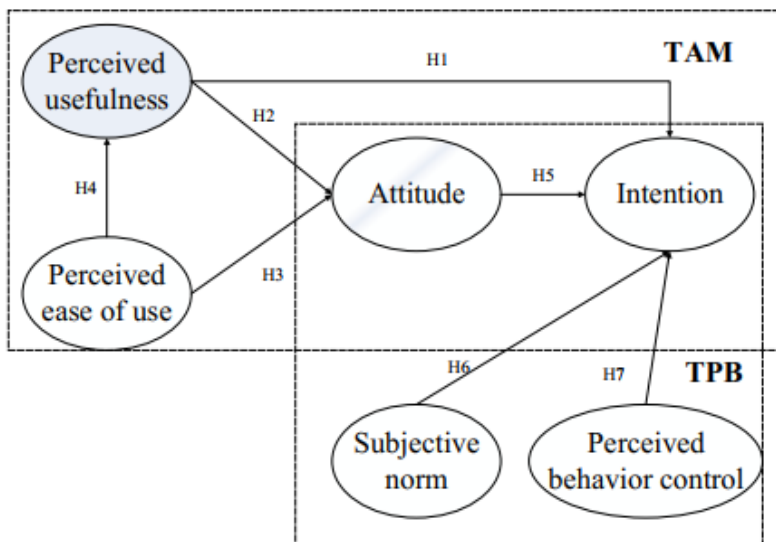


Fig. 2: Model to explain individual's intention to use bike-sharing systems. [6]

Based on the two theoretical foundations of explaining the intentions of each individual, along with the impact factors, this section presents the proposed theoretical model applied to the study, The intention is to use Grabbike applications and independent variables affect this intention. Finally, all hypotheses, factors and observations are modified as [Fig. 3].

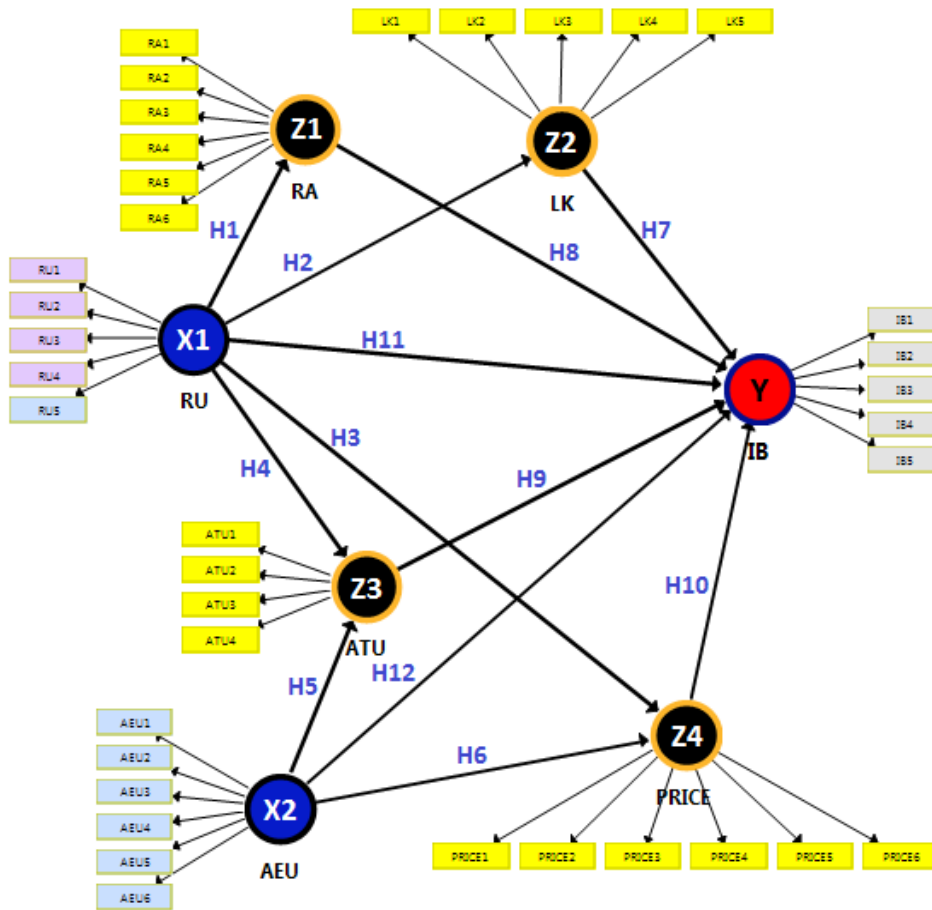


Fig. 3: Research model. **RU(X1):** recognize usefulness, **AEU(X2):** awareness of ease of use, **RA(Z1):** recognize attitude, **LK(Z2):** Legal knowledge, **ATU(Z3):** attitude to use, **PRICE(Z4):** price, **IB(Y):** behavior intension, **Source:** Designed by author.

MATERIALS AND METHODS

We followed the methods of Ly H. Anh, Le Si Dong, Vladik Kreinovich, and Nguyen Ngoc Thach (2018) [7]. Research methodology is implemented through two steps: qualitative research and quantitative research. Qualitative research was conducted with a sample of 10 people. Quantitative research is implemented two periods. First period 1 is tested on a small sample to discover the flaws of the questionnaire. Second period of the official research was carried out as soon as the question was edited from the test results with a sample of 153 people. Respondents were selected by convenient methods with a sample size of 153 students used Grab bike in Hochiminh City in Vietnam. There were 48 (31.4%) males and 105 (68.6%) females in this survey. [Table 1] was sample's income in this survey in Vietnam.

Table 1: Income

INCOME	Amount	Percent (%)
Less than 2 million VND	65	42.5
More than 5 million VND	14	9.2
From 2 million to 3 million VND	54	35.3
From 4 million to 5 million VND	20	13.1
Total	153	100.0

Source: Calculated by author.

The questionnaire written by Vietnamese and answered by respondents is the main tool to collect data. The questionnaire contained questions about the position of the intension to use and factors and their personal information. All data collected from the questionnaire are coded in Excel file with 1: Strongly Disagree, 2: Disagree, 3: Neither agree nor disagree, 4: Agree and 5: Strongly Agree, processed by SPSS and Smartpls. A 5-point Likert-scale type questionnaire was used to detect intension to use.

The survey was conducted in June 2018 in Hochiminh City, Vietnam. Data processing and statistical analysis software is used by Smartpls 3.0 developed by SmartPLS GmbH Company in Germany. The reliability and validity of the scale were tested by Cronbach's Alpha, Average Variance Extracted (Pvc) and Composite Reliability (Pc). Cronbach's alpha coefficient greater than 0.6 would ensure the scale reliability [8]. Composite Reliability (Pc) is better than 0.6 and Average Variance Extracted must be greater than 0.5 [9, 10]. Followed by a linear structural model SEM was used to test the research hypotheses [7, 11].

Datasets

We validate our model on three standard datasets for intension to use in Vietnam: SPSS.sav, Excel.csv and Smartpls.splsm. Dataset has seven variables: two independent variables, intermediate variables and one variable. There are 153 observations and 37 factors in dataset. SPSS.sav and Excel.csv were used for descriptive statistics and Smartpls.splsm for advanced analysis. Data Availability can access by email to authors.

RESULTS

Structural Equation Modeling (SEM) is used on the theoretical framework. Partial Least Square method can handle many independent variables, even when multicollinearity exists. PLS can be implemented as a regression model, predicting one or more dependent variables from a set of one or more independent variables or it can be implemented as a path model. Partial Least Square (PLS) method can associate with the set of independent variables to multiple dependent variables [7, 11].

Consistency and Reliability

In this reflective model convergent validity is tested through composite reliability or Cronbach's alpha. Composite reliability is the measure of reliability since Cronbach's alpha sometimes underestimates the scale reliability [7, 11-13]. [Table 2] shows that composite reliability varies from 0.793 to 0.887 which is above preferred value of 0.5. This proves that model is internally consistent. To check whether the indicators for variables display convergent validity.

Cronbach's alpha is used. From [Table 2], it can be observed that all the factors are reliable (Cronbach's alpha > 0.60) and Pvc > 0.5. The RA has Pvc = 0.365 (<0.5) but Cronbach's alpha = 0.715 (>0.6) and Pc = 0.769 (>0.5) so it is supported.

Table 2: Cronbach's alpha, composite reliability (Pc) and AVE values (Pvc)

Factor	Cronbach's Alpha	Average Variance Extracted (Pvc)	Composite Reliability (Pc)
AEU	0.921	0.717	0.938
ATU	0.861	0.706	0.905
IB	0.829	0.601	0.881
LK	0.784	0.539	0.852
PRICE	0.863	0.606	0.900
RA	0.715	0.365	0.769
RU	0.880	0.676	0.913

$$\alpha = \frac{k}{k - 1} \left[1 - \frac{\sum \sigma^2(x_i)}{\sigma_x^2} \right] \quad \rho_c = \frac{\left(\sum_{i=1}^p \lambda_i \right)^2}{\left(\sum_{i=1}^p \lambda_i \right)^2 + \sum_{i=1}^p (1 - \lambda_i^2)} \quad \rho_{vc} = \frac{\sum_{i=1}^p \lambda_i^2}{\sum_{i=1}^p \lambda_i^2 + \sum_{i=1}^p (1 - \lambda_i^2)}$$

k: factor, xi: observations, λ_i is a normalized weight of observation variable, σ²: Square of Variance, i; 1-λ² – the variance of the observed variable i. **Source:** Calculated by authors.

Structural Equation Modeling (SEM)

SEM results in the [Fig. 4] showed that the model is compatible with data research. The behavior intension (IB) is affected by some factors is 57.8%. Some standards in SEM are suitable in [Fig. 2]. The other hypotheses are unsupported as: AEU -> IB, AEU -> PRICE, ATU -> IB, LK -> IB, RA -> IB and RU -> IB because their p-value is greater than 0.05 as [Table 3].

Table 3: Structural equation modeling (SEM)

Relation	Beta	SE	T Value	p Value	Findings
AEU -> ATU	0.273	0.078	3.506	0.000	Accepted
AEU -> IB(H12)	-0.050	0.092	0.552	0.581	Rejected
AEU -> PRICE(H6)	0.200	0.112	1.784	0.075	Rejected
ATU -> IB(H9)	0.018	0.107	0.165	0.869	Rejected
LK -> IBH(H7)	0.145	0.086	1.680	0.094	Rejected
PRICE -> IB	0.612	0.094	6.543	0.000	Accepted

RA -> IB(H8)	0.008	0.085	0.095	0.925	Rejected
RU -> ATU	0.508	0.080	6.329	0.000	Accepted
RU -> IB(H11)	0.119	0.096	1.246	0.213	Rejected
RU -> LK	0.571	0.069	8.285	0.000	Accepted
RU -> PRICE	0.442	0.101	4.400	0.000	Accepted
RU -> RA	0.557	0.063	8.876	0.000	Accepted
AEU -> ATU	0.273	0.078	3.506	0.000	Accepted

Beta (r): SE = $\sqrt{1-r^2}/(n-2)$; CR = $(1-r)/SE$; P-value = TDIST(CR, n-2, 2). Source: Calculated by authors.

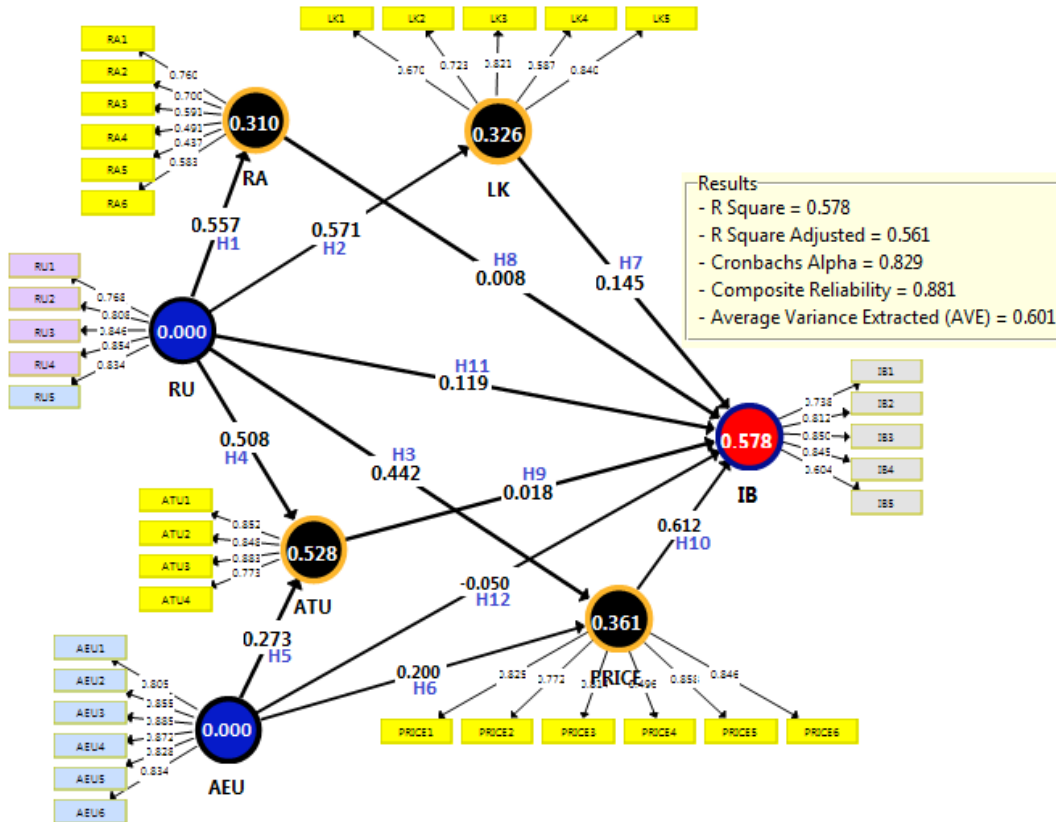


Fig. 4: Structural Equation Modeling (SEM). Source: Calculated by authors.

SEM results in table 4 showed that the model is compatible with data research: SRMR has p -value ≤ 0.007 (<0.05) [13, 14] in [Table 4].

Hypotheses H6, H7, H8, H9, H11 and H12 were unsupported. The results indicated H1, H2, H3, H4, H5 and H10 supported in [Table 3].

Table 4: Standard of model SEM

Standard	Beta	SE	T-Value	p	Findings
SRMR	0.007	17.723	0.000	0.007	Accepted

Source: Calculated by authors.

In bootstrapping, resampling methods are used to compute the significance of PLS coefficients. Output of significance levels can be retrieved from bootstrapping option. [Table 4] shows the results of hypotheses testing; all the t values above 1.96 are significant at the 0.05 level [7, 11].

CONCLUSION

The results show that the scale of independent variables; Grabbike acceptance; And the use of Grabbike guarantees reliability The results show that the scale of independent variables; Grabbike acceptance; And the use of Grabbike guarantees reliability. All scales have differentiated convergence values. Analysis of linear structural models demonstrates that legal knowledge, ease of use, subjective standards, and price value an impact on grabbike acceptance; Legal knowledge and acceptance of Grabbikes have an impact on the use of Grabbikes. Customer's evaluation of intention to use quite well however not very high. GRABBIKE needs to make every effort to improve its use. In the "intention to use", the most widely observed variable is the "legal knowledge" "price" "easy to use", which means that the customer has a considerable amount of

trust in the substance. GRABBIKE product range. GRABBIKE needs to actively maintain and improve customer ratings on this variable. The lowest rated "driver's service" means that GRABBIKE's communication service with customers needs improvement. The remaining observation variables are quite good.

CONFLICT OF INTEREST

The authors declare that there are no conflicts of interest regarding the publication of this paper.

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FINANCIAL DISCLOSURE

None

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