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Perceptions of Online Taxi Utilization In Bandar Lampung Using UTAUT Model (Unified Theory Of Acceptance And Use Of Technology)

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Abstract. The presence of online transport applications that allow transportation services can be booked and paid online has been rife in Indonesia, especially major cities since 2015. One of the transportation that can be ordered online is a taxi. Two major operators are Go-Jek and Grab. This study aims to determine the factors that affect the acceptance and use of online taxi in Bandar Lampung based on UTAUT and UTAUT2 models. The object of this research is the customer and driver from Go-Car and GrabCar. The result of the research indicates that at research on customers using UTAUT2, almost all variables affect the acceptance and use of an online taxi, except price value that does not affect the acceptance and use of online taxi Go-Car. Furthermore, research on the driver using UTAUT with the variables of performance expectancy, effort expectancy, and social influence have a positive effect to acceptance and use of Go-Car online taxi application, while the facilitating condition variable does not affect. On the other side, only social influence variables that affect the use and acceptance of the GrabCar, while the other three variables do not affect. So in general, although both companies are rival, they have their customer segmentation.

1   Introduction

Along with the advance of technology and science, it becomes easier to obtain public transportation. In its current development, there is transportation that can be ordered and paid online. Happening and rifting in Indonesia, the phenomenon of online public transport starts since 2015 is, especially in big cities one of which is an online taxi. Online Taxi is now also have started operating in the region of Bandar Lampung. Timbel launched by PT. Trans Indonesia Mobile Lampung is said to be the first online transport service application in Lampung; however, the online taxi phenomenon was gained attention in Bandar Lampung in the early of 2017 since the entry of several online transport service providers such as Gojek, Grab and Uber.

The technology is still new; hereby it is necessary to be reviewed to find out what factors affect the use of online taxi applications. The UTAUT (Unified Theory of Acceptance and Use of Technology) and UTAUT2 approach is applied to identify the utilization of online taxi in Bandar Lampung City. At first, this research includes four providers then only focus on Grab and Gojek. As Trans Lampung

online taxi service, not only use the Timbel application but also mostly use the phone order. While Grab acquired uber, therefore, Timbel and Uber were excluded.

UTAUT as the approach used in this study is a combination of eight models that have been successfully developed previously [1]. This study will discuss on the influence of the variables contained in UTAUT2, that performance expectancy, effort expectancy, social influence, facilitating condition, hedonic motivation, price value, and the habit of the behavioral intention to use based on the perception of the customer. Then the UTAUT model will determine what factors affect the acceptance and use of online taxi based on driver perceptions. The variables contained in UTAUT, among others: performance expectancy, effort expectancy, social influence, and facilitating condition.

1.1   Unified Theory of Acceptance and Use of Technology (UTAUT) Model

Venkatesh, et al. [1] developed the UTAUT model by combining eight other technology acceptance models: TRA (Theory of Reasoned Action) , TAM (Technology Acceptance Model) , TPB (Theory of Planned Behavior), C-TAM- TPB (Combined TAM and TPB), MM (Motivational Model), SCT (Social Cognitive Theory), IDT (Innovation Diffusion Theory) and MPCU (Model of PC Utilization) as a technological acceptance model [2]. The UTAUT mainly use to assist the organization to cognize how users will respond to the new technologies introduction [3].

The UTAUT model has been widely applied and has mixed findings [4]. Some research topics have been conducted, such as Internet Banking [5], E-Government [6], [7], Mobile Commerce [8], Academic Information System [4], Online Transportation Application [9], Online Shopping System [10], and so forth.
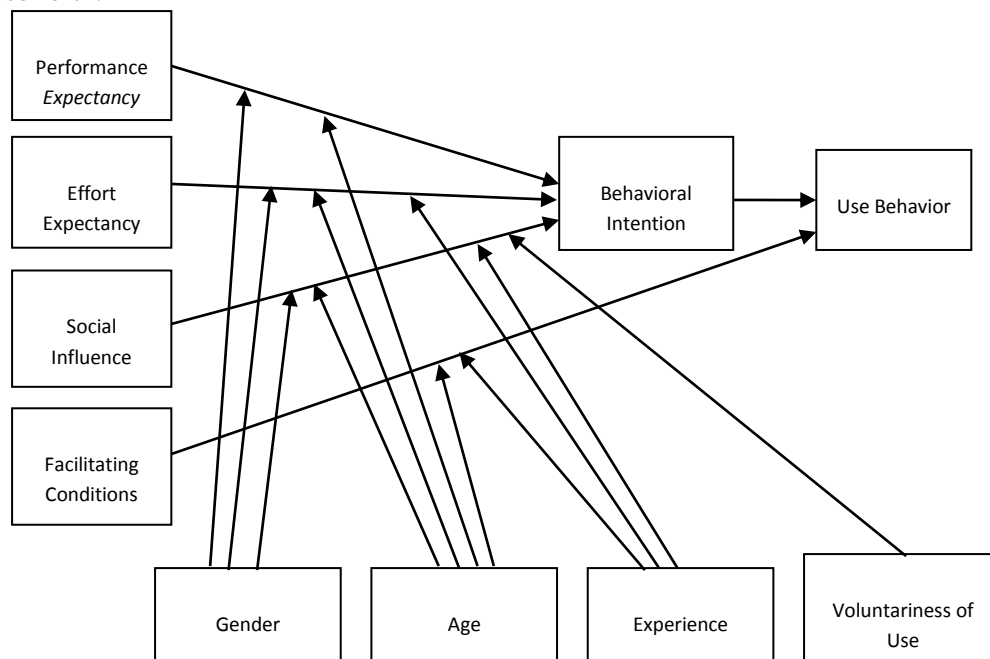

Figure 1. UTAUT Model [1]

Four significant variables become a direct contributing factor to the acceptable behavior and use of technology in the UTAUT model namely:

1. Performance Expectancy
   Performance Expectancy (PE) the extent of the belief of an individual that a system will help in gaining performance.
2. Effort Expectancy

Effort Expectancy (EE) is the level of simplicity in using a system. More simple, less effort. More complex, high effort.
3. Social Influence
   Social Influence (SI) is the extent of individual perception on his/her importance may trigger him to use the new system.
4. Facilitating Condition
   Facilitating Condition (FC) is defined as the degree to which a person believes that organizational and technical infrastructure is available to support the system.

In addition to these four variables, four other mediators serve as mediators that reinforce the influence of the four main variables on the acceptance and use of technology. The mediator fourth is Gender, Age, Experience, and Voluntariness of use. Figure 1 shows the linkage of UTAUT variables and mediators.

1.2   Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) Model
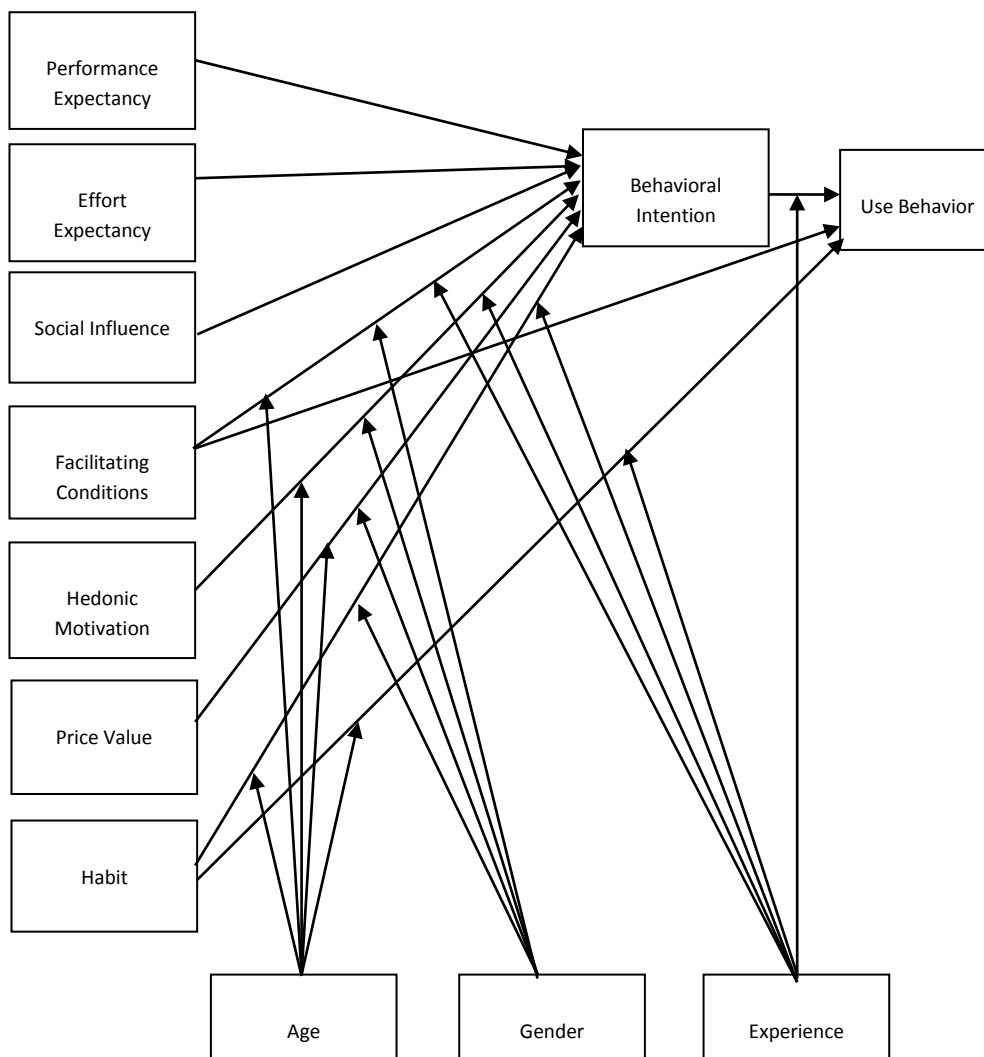

Figure 2. UTAUT2 Model [11]

Then in [11], Venkatesh et al. developed the UTAUT model into UTAUT2 to identify the behavior and acceptance of Mobile Internet technology in Hong Kong and found that Hedonic Motivation, Price Value, and Habit have a positive and significant influence. Hedonic Motivation (HM) is a pleasure motivation derived from the use of a system or technology [11], [12]. Price Value (PV) is a trade-off between fees paid and benefits derived from the use of technology [11], [12]. Habit (HT) describes how a person uses a system in his daily life [11], [12]. This model describes the acceptance of a technology based on the user side better with the percentage of improvement from 56% to 74% for acceptance in the form of behavioral intentions of use and improvement on the acceptance of user behavior with a percentage from 40% to 52% [11]. Unlike the contextual UTAUT1 which is organizational, UTAUT2 is able to explain the acceptance of technology whose context is consumer use [11]. Figure 2 is a model of UTAUT2 developed by [11].

2   Data and Methods

This study uses a model of the theoretical framework of UTAUT and UTAUT2 in an online taxi environment. UTAUT2 is used to identify the use of online taxi receipt from the customer, while UTAUT is used to identify the use and acceptance of the online taxi receipt from the driver. The UTAUT2 model is not used in the study of drivers because the hedonic motivation, price value, and habit variables are less suitable to identify acceptance and use of online taxi applications by drivers. A Model UTAUT used in this study did not identify the existing moderators in the UTAUT model due to the condition of the amount of data by gender and age that the number is far adrift. The UTAUT research model of the driver can be seen in figure 3.
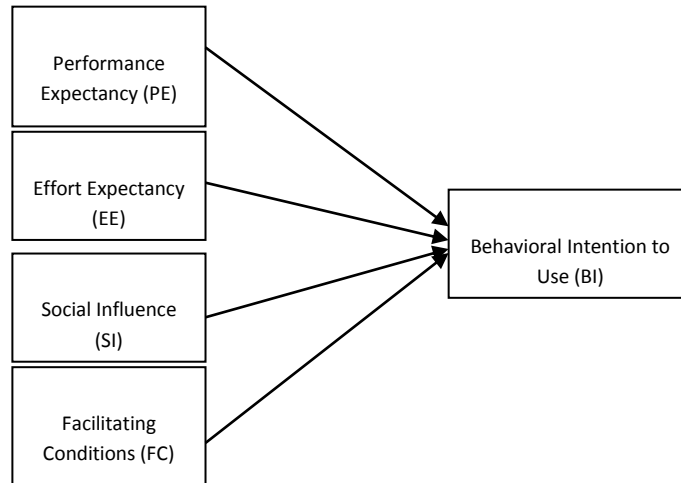

Figure 3. *Driver* Research Model

From figure 3 above, it can be seen that this study aims to find out whether there is a positive relationship between performance expectancy (PE) variable, effort expectancy (EE), social influence (SI) variable, and facilitating condition (FC) variable with the behavioral intention to use (BI) variable.

Then the UTAUT2 model used in this study did not identify the moderators present in UTAUT2. This is because the demographic condition of the respondents from the data obtained by the researchers is not possible to identify the moderators. The research model on the customer can be seen in Figure 4.

From Figure 4, it can be seen that this study aims to determine whether there is a positive relationship between the variables of performance expectancy (PE), effort expectancy (EE), social

influence (SI), facilitating condition (FC), price value (PV), hedonic motivation (HM), habit (HT) to behavioral intention to use (BI) variable .

   We use critical research to find an explanation of why and how the relationship between two aspects of a situation or phenomena [14]. Because the main reason for explanatory research is to know the cause and effect relationship of a situation, it is hoped that this research can explain the relationship and influence of the variables.
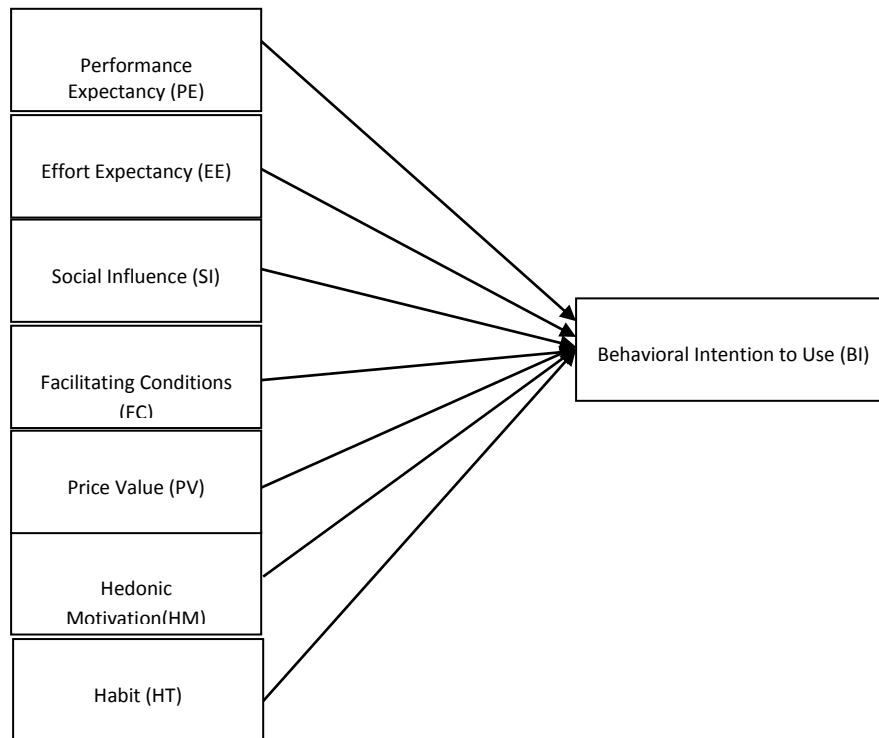

Figure 4. Model Research on the *Customer*

Then the method used in this research is survey method. A survey is a common tool for assessing public opinion, perceptions, attitudes, and behavior for analysis in many social disciplines [15]. In this case, the survey is done by making a question list which is visualized in the form of questionnaires that will be filled by respondents. To conduct this research, the population criteria taken by the authors are the customers and drivers of Go-Car and GrabCar Bandar Lampung. Based on the results of data collection through questionnaires distributed to respondents who are customers and also drivers Go-Car and GrabCar operating in Bandar Lampung, then obtained 164 data, with details of 104 data from users and 60 data from the driver. For more weld can be seen in table 1 following.

Table 1. Details of Respondents

Respondents	Taxi Type	Total	%
Customer	Go-Car	53	51
	GrabCar	51	49
	Total	104	100
Driver	Go-Car	30	50
	GrabCar	30	50
	Total	60	100

(Source: primary data processed, 2018)

From table 1 can be seen that as much as 51% of user data is a customer of Go-Car transport services and 49% comes from GrabCar customers. As for the driver data, as many as 30 people are drivers Go-Car and 30 others are drivers GrabCar.

2.1   Research Hypothesis

Based on the research model, the hypothesis is proposed about the relationship between independent constructs consisting of PE (Performance Expectancy) construct, EE (Effort Expectancy) construct, SI (Social Influence) construct, FC (Facilitating Condition) construct, HM (Hedonic Motivation), PV (Price Value), and HT (Habit) to the dependent construct of BI construct (Behavioral Intention to Use). The hypothesis proposed in this study can be seen in table 2 and table 3.

Table 2. Research Hypothesis on Drivers

	Hypothesis
H1	Performance Expectancy (PE) has a positive influence on interest utilization and application usage online taxi (Behavioral Intention to Use)
H2	Effort Expectancy (EE) has a positive influence on interest utilization and application usage online taxi (Behavioral Intention to Use)
H3	Social Influence (SI) has a positive influence on the interest of utilization and use of online taxi applications (Behavioral Intention to Use).
H4	Facilitating Conditions (FC) has a positive influence on the behavior of the utilization and application usage online taxi (Behavioral Intention to Use).

Table 3. Research Hypothesis on Customer

	Hypothesis
H1	Performance Expectancy (PE) has a positive influence on interest utilization and application usage online taxi (Behavioral Intention to Use)
H2	Effort Expectancy (EE) has a positive influence on interest utilization and application usage online taxi (Behavioral Intention to Use)
H3	Social Influence (SI) has a positive influence on the interest of utilization and use of online taxi applications (Behavioral Intention to Use).
H4	Facilitating Conditions (FC) has a positive influence on the behavior of the utilization and application usage online taxi (Behavioral Intention to Use).
H5	Hedonic Motivation (HM) has a positive effect on behavior and the use of taxi online utilization (Behavioral Intention to Use).
H6	Price Value (PV) has a positive effect on behavior and the use of taxi online utilization (Behavioral Intention to Use).
H7	Habit (HT) has a positive influence on the behavior of utilization and use of online taxi (Behavioral Intention to Use).

3   Results and Discussion

3.1   Validity Test

Validity is often defined as a measure of the accuracy of an instrument able to measure the object under investigation. The test technique used is product moment correlation technique. The ordinal score of each question item tested for its validity is correlated with the overall ordinal score of the item. A questionnaire is said to be valid if the question on the questionnaire is able to reveal something to be measured by the questionnaire. The significance test is done by comparing the value of r_{value} with r_{table}. By criterion, if r_{value} is bigger than r_{table}, then an item of question is valid, while if r_{value} smaller than r_{table}, the question of an item is invalid.

In testing of the customer, the number of samples used (n) = 30 and alpha = 0.05 was obtained r_{table} = 0.361. The question or indicator is said to be valid if the value of r_{value} is greater than the value of r_{table}. The results of validity testing using PASW Statistics 18 program on the instrument of this study indicates that all the questions from the research variables, namely performance expectancy, effort expectancy, social influence, facilitating condition, hedonic motivation, price value, habit, and behavioral intention show the correlation value greater than r_{table}. Therefore, it can be said that the whole item of question or statement to the customer is valid and feasible to be used.

Then on the research of the driver, the number of samples used for this validity test as many as 60 people with the alpha value 0.05, so that the value of r_{table} = 0.254. Based on test results using the program PASW Statistics 18, shows that all the questions of the study variables performance expectancy, effort expectancy, social influence, facilitating condition, and behavioral intention has a value of r_{value} is greater than the value of r_{table}, so it can be said that the research instrument valid and worth using.

3.2   Reliability Test

In a general sense, reliability is defined as consisting of measurement [16]. In this study, we used Alpha Cronbach Coefficient using PASW Statistics 18 application to test the reliability of each item. A variable is said to be reliable if it gives Cronbach Alpha value > 0,70 [17].

The results of reliability testing of customer research variables showed that all research variables have a value of Cronbach Alpha more than 0.70, so it can be said that the research instrument to the customer meets the value of reliability and feasible to use. While in the research instrument to the driver is known that there is one variable that does not meet the reliability value, with Cronbach Alpha = 0,589 value, that is Facilitating Condition variable, so there is one indicator available in the facilitating condition variable that must be removed, to meet the reliability value. That way, only used three indicator variable facilitating condition to be analyzed to know the relation of the variable to acceptance and use of an online taxi.

3.3   Hypothesis Testing

The data analysis technique used in this research is by Spearman's rank correlation test to test the relationship of two variables studied. The determination of a hypothesis is accepted or cannot be seen from the sig value (2-tailed) and also to find the value of Spearman's rank correlation, then searched the t_{value}, and then compared with the t_{table} value. The results of this hypothesis testing can be seen in table 4.

Based on Table, it can be seen that from the results of research on the customer, almost all research variables that exist in UTAUT2, the variable performance expectancy, effort expectancy, social influence, facilitating condition, hedonic motivation, and habit affect the acceptance and use of online taxi, except the variable price value (PV). In Go-Car customers, the price value does not affect the acceptance and use of the online taxi, while the GrabCar customer is influential. This means that Go-Car customers do not place importance on pricing or cost, whereas GrabCar customers are concerned with or take into account the costs to be paid.

Then from the research of the driver using UTAUT method in the Go-Car driver, the performance variable expectancy (PE) affect the acceptance and use of an online taxi, while the GrabCar driver does not affect. This means that online taxi apps are useful for Go-Car drivers and to be one of the factors that affect the usage of this application. Then the variable effort expectancy (EE), H0 in the study of Go-Car was rejected, but in GrabCar H0 accepted. Therefore, it can be said that according to the Go-Car driver Go- Jek online taxi application is easy to use for them, whereas according to GrabCar driver GrabCar online application is quite complicated. Then for the variable social influence (SI), H0 of both the research object, namely driver Go-Car and driver GrabCar equally rejected, so it can be said that social influence is a factor that encourages them to use the application and be online

driver taxi while facilitating condition (FC) does not affect the Go-Car driver or GrabCar to use the application and become an online taxi driver.

Table 4. Hypothesis Test Results

		Go-Car				GrabCar			
		Sig. (2-tailed)	Spearman's Rank	t_{value}	Result	Sig. (2-tailed)	Spearman's Rank	t_{value}	Result
Customer	PE □ BI	0,000	0,533	4,499	H_0 rejected	0,002	0,418	3,22	H_0 rejected
	EE □ BI	0,001	0,452	3,618	H_0 rejected	0,036	0,294	2,15	H_0 rejected
	SI □ BI	0,000	0,601	5,369	H_0 rejected	0,000	0,720	7,26	H_0 rejected
	FC □BI	0,012	0,341	2,59	H_0 rejected	0,004	0,399	3,044	H_0 rejected
	HM □ BI	0,001	0,432	3,42	H_0 rejected	0,003	0,406	3,11	H_0 rejected
	PV □ BI	0,061	0,260	1,923	H_0 accepted	0,001	0,436	3,39	H_0 rejected
	HT □ BI	0,000	0,775	8,75	H_0 rejected	0,000	0,887	13,45	H_0 rejected
Driver	PE □ BI	0,000	0,712	5,366	H_0 rejected	0,160	0,263	1,44	H_0 accepted
	EE □ BI	0,041	0,376	2,147	H_0 rejected	0,907	-0,022	-0,116	H_0 accepted
	SI □ BI	0,000	0,759	6,16	H_0 rejected	0,001	0,594	3,909	H_0 rejected
	FC □ BI	0,489	0,131	0,699	H_0 accepted	0,905	0,023	0,1217	H_0 accepted

(Source: primary data processed, 2018)

4   Conclusions

Based on the results of research and discussion, it can be concluded as follows:
1. Based on the results of hypothesis testing on research on the customer, it is known that the variable performance expectancy (PE), effort expectancy (EE), social influence (SI), facilitating condition (FC), hedonic motivation (HM), and habit (HT) effect on behavioral intention to use (BI), while the variable price value (PV) only affects the customer GrabCar, while the customer Go-Car has no effect.
2. Based on the results of hypothesis testing on the research on the driver, it is known that the variable performance expectancy (PE), effort expectancy (EE), and social influence (SI) effect on the use of online taxi Go-Car application, but the facilitating condition (FC) variable does not affect. While the GrabCar driver is known only variable social influence (SI) which affects the

use of online taxi application GrabCar, while the other three variables, performance expectancy (PE), effort expectancy (EE), and facilitating condition (FC) do not affect.

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