[LOG 25] FACTORS THAT INFLUENCE THE INTENTION OF PEOPLE IN USING SUSTAINABLE RESOURCES IN TRANSPORTATION

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ABSTRACT

Transportation sector consume the highest rate of energy compared to other sectors and this also make this sector as the highest level of carbon emission contributor worldwide. Considering carbon emission give negative impact to the environment, the usage of sustainable resources in transportation sector become a necessity. The study aimed to determine factors that influences the intention of people using sustainable resources in transportation by adapting Heider's Attribution Theory. The internal and external attributions are involved in this study. We attempt to relate the role of government, role of information and attitude with the intention of people in using sustainable resources in transportation. The data were collected from 377 full time undergraduate students of University Utara Malaysia through structured questionnaire. We choose correlation and regression study in this research as we want to examine the relationships between predictor variables with criterion variable. This research is quantitative research and unit of analysis is individual as we collect the data from individual students. This research is aimed to enhance the knowledge and encourage the awareness among people regarding the sustainability in transportation and environment.

Keywords: *factors, intention, Heider's Attribution Theory, sustainable resources, sustainable transportation, sustainable environment*

INTRODUCTION

Transport sector play an important role in this modern society. Therefore people always relate transport growth and the economic dynamics. Human activities had caused burden to our environment, this had been studied for many years. The results of the studies also reflected in the reports and policies.

There are several issues that has been highlighted when research regarding sustainability. The major concern regarding economic include resource efficiency, productivity, trade and business activity, while from environment prospect is regarding biodiversity, climate change, pollution, etc. In social, the major concern include human health, education, quality of life, etc (Geerlings, Lohuis, & Shiftan) (pg 16). From here we can relate the importance of usage of sustainable resources in order to achieved sustainable development in transport sector.

Recently, there is awareness regarding the ways to balance accessibility and sustainability in transport sector (Geerlings, Lohuis, & Shiftan) (pg30). Promoting usage of sustainable resources is aimed to have energy efficient in transport system as transport sector is the major user of energy. Using sustainable resources can help the development and adoption of technologies to exploit renewable energy sources to grow rapidly. Sustainable energy actually contribute to low carbon emission which is an issue that is being concern worldwide.

Here we need to determine whether those practices outside Malaysia is it practical to be used in our own country. We need to know what we can do in order to promote sustainable resources in Malaysia successfully.

PROBLEM STATEMENT

According to Ong et al. (2012), the global major fuel consumption is in transportation sector. And transportation sector also is the major contribution to the greenhouse gas emission. Especially road transport, the usage of gasoline and diesel grow rapidly compared to other sector. Many countries including Malaysia has take this as a serious matter and in the way of improving sustainable energy of this sector.

According to U.S. Energy Information Administration in International Energy Outlook 2016, petroleum and other liquid fuels are the major sources of the transportation energy. The usage of the sustainable resources still low in transportation sector. For example, one of the sustainable resources is electricity. Electricity remain as a minor energy source in world transportation sector although it is widely used in rail transportation (U.S. Energy Information Administration, 2016).

According to Malaysia National Energy Balance 2003, major energy use by sector in Malaysia is transport sector. This energy is used by various types of transport include motor car, motorcycle, bus, goods vehicle, train, LRT, airplane, marine etc. that is used to provide transportation services and other end-uses for society.

LITERATURE REVIEW

Sustainability resources

According to Raymond (1992), Sustainability requires of keeping up the efficiency of the resource used over time, either by re-establishing the resources or by putting its reduction in other capitals. As the pace of life in new era is continues to expanding drastically, transportation is now one of the characteristics in most of societies since the need of individual to move. This has led to more build and more cars and, unfortunately, its create pollution. Thus, there should have alternative way in providing sustainability transport and energy such solar or wind will play important part in provide power for any such of solution.

As advance drive trains, for example, battery electric or fuel cell might be a noteworthy share of the world's vehicle fleet in 10 or 15 years, the measure of energy required by these vehicles will at first be very little, and will develop step by step until the year 2020. Fossil fuel will be continuously changed over to more economical types of essential energy. The most imperative alternatives depend on practical powers bio-

diesel, ethanol, methanol. These are specifically delivered from natural sources. Hydrogen is created from natural straightforwardly or sunlight based sources. Besides is electricity delivered from renewable sources and either utilized specifically as a part of battery electric or innovation car such hybrid car, or used to create hydrogen for energy component vehicles and ultimately fossil energizes are de-carbonized.

Accordingly, governments play a key role in making the transportation sector more sustainable by expanding support for exploratory research, regulating taxation to empower renewable energies, and finally by buying sustainable fuels and vehicles for own use.

Intention

Intention is plans or goals. People oftentimes fall short of realizing their goals, in any case, which bring up the issue of whether respondents consider when beginning their intentions. Intention have been defined as the amount of effort one is willing to apply to attain a goal (Ajzen,1991). Intention can be explained from respond of an individual or speak such "I plan to do X" or "I intend to do X" or "I will do X" (Sheeren, 2002). It stated that, intention is whether to carry out the action or not.

According to Geib (1992), intention can be characterized into three which are positive, negative and unintended. It is clarified that positive intention interpret that a person engage to lead a conduct in a specific of time. Interestingly, negative intention interpreted that a person submitted not to engage in that activity or evade from to do. And unintended activity portrayed that conduct which is not considered as positive or negative because of no dedication.

Intention has been extensively utilizing as a part of scholarly and business research as it speaks to easy to-gather representations of behavior (Chandon, Morwitz & Reinartz, 2005). For instance, research has been done on factors affecting students' intentions to study at universities adopting the "student-as-customer" concept (Watjatraku, 2013) and factors that influence the intention of Swedish people to implement online movie services.

Fundamentally, intention can be considered as goal states in the expectancy value practice that are the aftereffect of an aware process that takes times, requires some though and attentions on outcomes (Loewenstein, Weber, Hsee, & Welch, 2001).

Attribution theory

According to Karsten (2002), attribution theory is theory that are mostly used by researcher in social psychology area (Hughes & Gibson, 1987). Attribution theory continues to be important topic in research study. For instance, attribution theory used to understand the job performance evaluation, group performance outcomes, performance feedback, and information looking for strategies.

Attribution theory describe the mental and communicative process which involves in everyday explanation of people or an event. In simple words, attribution theory deals on how a person define the causal explanation about why those or these things happened. It is related on people thinking and their behaviour. Graham & Juvonen (2001) and Weiner (1986) state that, attribution theory only focus on a person observation of events that shape their emotion and behaviour.

Fundamentally, Attribution theory manage with information that people use to make causal interpretation and what they do with this information and how the causal question is answered (Kelley, 1973).

Role of government

According to Hawkins and Wang (2012), role of government is define as the action of planning and making policies that intended to focus on the local sustainability efforts, which includes coding a complete plans to identify policy, statements and goals that related to the sustainability. Besides that, according to Rumpala (2011) government should also put other efforts to preserve the environment besides making policy such as in 1990s the French government come up with series of campaigns that encourage the change of everyday life style in order to protect the environment and in October 2006 the French government had launched a campaign entitled "Ecology needs all of us" and the goal of the campaign to fight against global warming and preserve environment by mobilizing people through the awareness that created by this campaign.

According to Bansal (2005), the main role of government in order to reduce greenhouse effect and carbon emission is to impose strict law which contains fines and penalties to wrongdoers who causes these environmental issues. Furthermore, according to Sarkar (2010) had mentioned that government play a role in creating incentives for mitigation action of greenhouse effects such as regulation, taxation, tradable permit schemes, subsidies and voluntary agreements. The government of India also plays their role by imposing law and regulation to overcome carbon emission by making compulsory the usage of Compressed Natural Gas (CNG) by vehicles (Baud, Bokhorst, Van de Loo, Quaedvlieg, Routhuizen & Tulleners, 2010).

Role of information

Information have a great impact to influence the intention of people in using sustainable resources. People will be feel less responsibility towards the environment as they lack of the knowledge and understanding regarding environmental issues (Fransson et al., 1999). There is also lack of information for people to adopt and adapt to practice and use sustainable resources. People usually will take action when they get informed what they should do, the way of doing it, and the reasons of doing it (Ampt 2006; Young 1993).

Besides that, a person who is better informed regarding the environmental issues will more aware of those issue. Here showed the importance the information. This is due to their level of sensitivity and commitment of that particular individual to change their practices is influenced by the information they received. And all this information is directly related to their sense of responsibility and perceived impact of their own action towards the environment (Young 2000; Howarth 2009; Marsden 2009).

There are a bundle of studies regarding the environmental and climate issue, but most of the results and finding is spread through mass media which is a way that cannot provide sufficient information to influence people (Howarth 2009). Although there are several studies that showed that information is important but still have some studies that showed that information alone is not sufficient in climate change issues. This might cause by excess of information, confusing and contradiction of the info (Rocci). But according to Rocci also, limited of knowledge regarding the environmental issues also limits the awareness of the individual and have direct relationship with their intention.

Attitude

According to Allport (1935) attitude is defined as a mental and neural state of readiness which been organized by experience that create dynamic influence on individual's response towards all objects or situation that a person involved with. Besides that, according to Krech and Crutchfield (1948) attitude is defined as the endurance of a person towards events occurs in their life is being influence by few factors such as motivational, emotional, perceptual and cognitive processes. Furthermore, attitude is also defined as the probability of a person of showing specific behavior for a specific situation or events that occurs (Fuzon, 1942). According to Bem (1970) attitude is a person's likes or dislikes on something or someone. Moreover, attitude is described as the global evaluation of a person towards object such as product or brand (Berger,1992).

Other than that, attitude also defined as the construct that being used to evaluate or predict a person's behavior and intention towards something or someone (Foong & Khoo,2015). According to Fishbein & Ajzen (1975) attitude is defined as response of someone in favorable or unfavorable situation or object. Furthermore, in current study it has been shown that attitude is define as a person's positive or negative feeling towards using something (Bashir & Madhavaiah,2014). However, it had been said that attitude of a person also could be built from deep fear and discrimination that they felt which alter their attitude on something or someone in general (Peshkopia & Voss, 2016).

RESEARCH METHODOLOGY
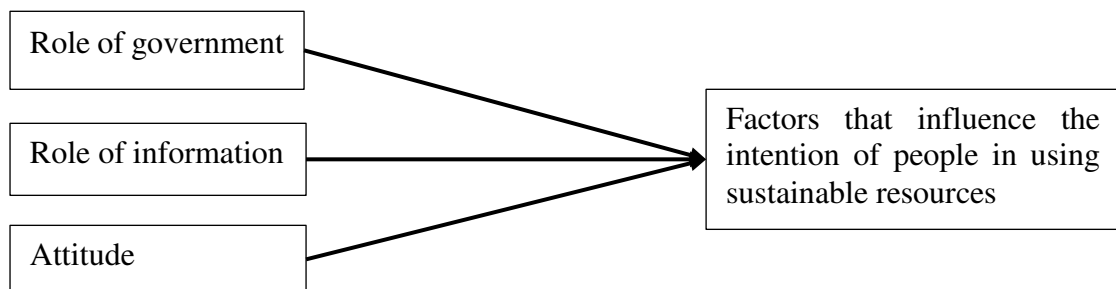
Figure 1
Research framework of factors that influence the intention of people

Research hypotheses

H1: There is a relationship between role of government and the intention of people in using sustainable resources.
H2: There is a relationship between role of information and the intention of people in using sustainable resources.
H3: There is a relationship between attitude and the intention of people in using sustainable resources.

Research design

In this research, we use quantitative research. A non-contrived setting is being used in the research. Non-contrived setting means that events normally occur in natural environment. In this research, the unit of analysis is individual as we collect the data from individual students. This research is cross sectional research. Cross sectional research is the research where the data is collected just in one time.

Sampling and data collection

Based on Krejcie and Morgan's formula, we choose 385 UUM full time undergraduate students for our sample size. We also apply proportionate stratified random sampling method. Under this method, we divide our population unto three strata which are gander, race, and college. Based on researcher's observation, the gender proportion is divided into 62.9 % of female and 37.1% of male. While for race, 74.3% is Malay, 15.4% is Chinese, 7.4% is Indian and rest 2.9% is Other. In terms of Colleges, the proportion are divided into three, which are COB 65%, CAS 22.5% and COLGIS is 12.5%. In this research, all the data gathered is primary data which is collected through questionnaires. This questionnaires were printed out and distributed throughout COB, CAS and COLGIS area inside UUM.

Measurement scale

A set of structured questionnaire with Likert five-point rating scale was used in this research. This scale is rated from strongly disagree until strongly agree to measure the agreement to each question. The questionnaires we adapt and adopt from several sources, which are Michalos, et al.. (2009), Chen, (2008), Feng, (2012), Oldekop et al. (2015), and Shahabuddin et al.(2012).

Data analysis

The reliability test is used to access the questionnaire. The higher the internal consistency require higher Cronbach's alpha score. Pearson correlation and linear regression is used in this research to determine the relationship between independent variables and dependent variable.

RESULTS

Researchers analyzed the data obtained by using Package for Social Sciences (SPSS) version 23.0 software.

Table 1
Cronbach's alpha value for variables

Variables	Item	Alpha Cronbach Value
Role of Government	5	0.784
Role of Information	5	0.855
Attitude	5	0.704
Intention	5	0.893

The reliability value consider poor is value that less than 0.6, value that is acceptable is 0.7, and value that over 0.8 is consider good (Sekaran & Bougie, 2013). In this research, the Cronbach's alpha value for the four variables range from 0.784 until 0.893 as shown in Table 1. Therefore all the variables are reliable.

According to Table 2, the p-value for role of government is 0.026 at which it is less than α value of 0.05, so we statistically have 95% confident that there is a significant correlation between role of government and intention. The p-value for role of information is 0.023 at which it is less than α value of 0.05, so we statistically have 95% confident that there is a significant correlation between role of information and intention. The p-value for attitude is 0.002 at which it is less than α value of 0.01, so

we statistically have 99% confident that there is a significant correlation between role of information and intention.

Table 2
Correlations

		Role of Government	Role of Information	Attitude	Intention
Role of Government	Pearson Correlation	1	0.485**	0.211**	0.115*
	Sig. (2-tailed)		0.000	0.000	0.026
	N	377	377	377	377
Role of Information	Pearson Correlation	0.485**	1	0.095	0.117*
	Sig. (2-tailed)	0.000		0.064	0.023
	N	377	377	377	377
Attitude	Pearson Correlation	0.211**	0.095	1	0.159**
	Sig. (2-tailed)	0.000	0.064		0.002
	N	377	377	377	377
Intention	Pearson Correlation	0.115*	0.117*	0.159**	1
	Sig. (2-tailed)	0.026	0.023	0.002	
	N	377	377	377	377

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

Linear regression analysis was conducted to test the relationship between independent variables and dependent variable. The $F= 4.803$ (Table 4) and p-value $= 0.003$ ($\alpha < 0.05$). This means that there is a significant relationship between the independents variables (role of government, role of information and attitude) and dependent variable (intention).

Table 3
Model summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.193[a]	0.037	0.029	0.3589

a. Predictors: (Constant), Attitude, Role of Information, Role of Government
b. Dependent Variable: Intention

Table 4
ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	1.855	3	0.618	4.803	0.003[b]
	Residual	48.036	373	0.129		
	Total	49.891	376			

a. Dependent Variable: Intention
b. Predictors: (Constant), Attitude, Role of Information, Role of Government

Based on Table 3, R-square (R^2) value is 0.037. This means that only 3.7% of dependent variable can be explained by those three independent variables. All of the predictors significantly contributed to predict intention where attitude is the best

predictor (β=0.141), followed by role of information (β=0.082) and role of information (β=0.045), as shown in Table 5.

Table 5
Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.251	0.318		10.227	0.000
	Role of Government	0.042	0.055	0.045	0.762	0.447
	Role of Information	0.078	0.056	0.082	1.411	0.159
	Attitude	0.149	0.055	0.141	2.719	0.007

a. Dependent Variable: Intention

Based on Table 5,
H1: There is a relationship between role of government and the influences the intention of people in using sustainable resources.

According to the table above, the p-value for role of government is 0.447, which is more than α value 0.05. From here we can conclude that there is no significant relationship between role of government and the intention of people in using sustainable resources. Therefore, H1 is rejected.

H2: There is a relationship between role of information and the intention of people in using sustainable resources.

According to the table above, the p-value for role of information is 0.159, which is more than α value 0.05. From here we can conclude that there is no significant relationship between role of information and the intention of people in using sustainable resources. Therefore, H2 is rejected.

H3: There is a relationship between attitude and the intention of people in using sustainable resources.

According to the table above, the p-value for attitude is 0.007, which is less than α value 0.05. From here we can conclude that there is significant relationship between attitude and the intention of people in using sustainable resources. Therefore, H3 is rejected.

DISSCUSSION

Based on our research, attitude is the strongest factor that influence the intention of people in using sustainable resources. This is supported by previous studies. But, the result also showed that there is no significant relationship between role of government and influence the intention of people in using sustainable resources, also no significant relationship between role of information and influence the intention of people in using sustainable resources.

There are reasons that the role of government has no significant relationship with the intention of people in using sustainable resources. The previous studies is done outside of Malaysia. If government Malaysia want to promote sustainable resources, government can take others country's policy and make some modification according to local cultural in order to achieve satisfactory result. Geographical bias is one of the reason that affect the result.

According to this research, there is no significant relationship between role of information and influence the intention of people in using sustainable resources. This is supported by previous study. Only information alone is not enough to influence people to use sustainable resources. There must be in line together with some tool or social media in order to make those information reached to end user.

FUTURE RESEARCH

For future research the independent variables that being used to test the dependent variable should be different than the one being used now. Besides that, in future research the time should be given conduct research is longer compare to the present research. The next research should be done with bigger crowd as respondent. Finally, this research should be funded in order for the researches to move around from place another place to collect data if the future respondents does not reply their mail perhaps.

LIMITATION

In this research, the respondents all are from Universiti Utara Malaysia (UUM) , Sintok, Kedah only. Thus it cannot represent the population of Malaysia. Furthermore, respondents of this research have limited knowledge regarding sustainable resources. This will affect their contribution in this research. Besides that, financial restriction and time period also limit the accuracy of this research as researchers are students from UUM conduct this research within three months.

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