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A Study of Mobile Travelers Behavior of Postgraduate Students in Universiti Utara Malaysia

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Abstract

The general purpose of this study was to find out whether a relationship between attitudes, subjective norm, perceived behavioral control and mobile travelers of postgraduate students. Theory of Planned Behavior (TPB) employed as the underlying to figure out the description about mobile traveler behavior among postgraduate students. Meanwhile, postgraduate students at Universiti Utara Malaysia (UUM) will be used as a sample of the study. Their perception about each variable of the planned behavior examined through the model existed. Unit of analysis of postgraduate students in every subject of study in master and doctoral level selected as sample to determine their behavior in mobile travelers.

Keyword: Attitude towards, Subjective Norms, Perceived Behavior Control, Postgraduate Universiti Utara Malaysia

Introduction

The mobile technology is one of the more recent developments in communication and information transfer. It is considered a technology asset because of its ability to disseminate large volume of information quickly and efficiently to all types of stakeholders, including employees, customer, stakeholders and suppliers (Violino, 1996). Since the discovery of the internet as a new communication medium it has become a part of the strategy of firms. The mobile technology has been largely used in management: it works as an advertising medium for firms to include in their campaigns, as a distribution channel and as a source of information. Internet application to the development of diverse firm strategies is a practice that has come to be called e-commerce. In addition, by 2005, the daily traffic will constitute almost 2.3 million terabits every day, representing 93 times the volume of traffic in 2000 a 147 percent annual growth in traffic (Nua Internet Surveys, 2000). As today's costumers are more focused on time saving and are more likely to access a greater proliferation of product information, the Internet appears to have several advantages over other media as an information gathering tool (Schonland and Williams, 1996; Walle, 1996).

Basically, the mobile internet added-value resides in its ability to contribute to cost reduction associated to communication and transaction (Boyd and Spekman, 2001; Porter, 2001; De Boer et al., 2002). The internet allows the access to a great amount of information with lower costs of time and money than those derived from the use of other tools (Boyle and Alwitt, 1999; Min and Galle, 1999; Avlonitis and Karayanni, 2000; Tang et al., 2001), both inside and outside the organization. Inside the firm, the development of the intranet can greatly facilitate the transmission of information among its members (Goles and Hirschheim, 1997; Osmonbekov et al., 2002).

Practically, mobile operators need more traffic and larger markets for mobile content services and applications. Efficient mobile payment solutions facilitate the sales of mobile content and also generate more traffic for mobile networks. Mobile banking services enable users to receive information on their account balances via SMS. The new WAP- and Java-enabled mobile phones using GPRS support a wider variety of banking services such as fund transfers between accounts, stock trading, and confirmation of direct payments via the phone (Herzberg, 2003). Indeed, mobile devices, computers, and related electronic devices have become an important part of digital life. Wireless data transfer is highly preferred for personal and business purposes. It offers users flexibility and convenience. To meet the demand, various wireless technologies have been developed. Nowadays, there are different types of technologies in the world wireless market. Wireless communication is not a new technology; broadcast television and radio programs have been using wireless communication for a long period (Barnes, 2002).

The use of mobile technologies is increasingly widespread especially among the Asian countries such as Malaysia. Users of mobile phone grew from 9.7 percent in 1995 to 55.9 percent in 2004 (<http://www.cmc.gov.my>). Various applications can be observed among the users, which ranged from telephone conversation and simple text messages (SMS), to multimedia messaging services (MMS) and internet access, depending on the capability of each mobile phone technology and services rendered. These applications have been made possible through various developments in the mobile telephone technology such as GPRS, WAP, and the 3G standard.

Problem Statements

In the midst of the mobile application evolution, Goto *et. al* (1999) presented a new mobile guide system for visually disabled persons. Utilizing the latest technology available in the current market at that time, he embedded data-carriers at many places in the particular station. Higher education for example seems justified for several reasons in order to favour economic growth. One of them being the current speed of technological change according to Yannis (2000) that makes high-skilled individuals more important than ever as a determinant of economic performance the future ubiquitous computing environment will consist of mobile users with information appliances (mobile devices), such as cellular phones or Personal Digital Assistants (PDA's), that will be wirelessly communicating and interacting with the varied services and devices encountered at any particular moment and place.

As Ajzen and Fishbein (1980) suggest that before we can provide guidelines for the formulation of persuasive communications that will be effective in changing behavior, we must have an understanding of the factors that determine behavior. Thus, the present research found up problems that various attitudinal, cognitive, behavioral, normative constructs and demographic variables that may influence or be associated with customer mobile travelers behavior. To address the problems that issues discussed earlier, the present research will examine the mobile traveler behavior among postgraduate students.

Using the theory of planned behavior as underlying of the study, this study was to identified the relationships among beliefs about the Internet privacy and trustworthiness, along with beliefs about perceived behavioral control and the expectations of important others, and mobile travelers behavior. The study contributed towards the increase of adoption of mobile technology in the existing worldwide service technologies. The study was determining the suitability of the technology and pace the way for the postgraduate students of UUM.

The research questions that have arisen of the study are:

1. Is there a relationship between attitude and mobile travelers?
2. Is there a relationship between subjective norm and mobile travelers?
3. Is there a relationship between perceived behavioral control and mobile travelers?

Objective of The Study

The objectives are:

1. To examine the relationship between attitude toward behavior and the actual usage of mobile travelers?
2. To examine the relationship between subjective norm and the actual usage of mobile travelers?
3. To determine the relationship between perceived behavioral control and the actual usage of mobile travelers?

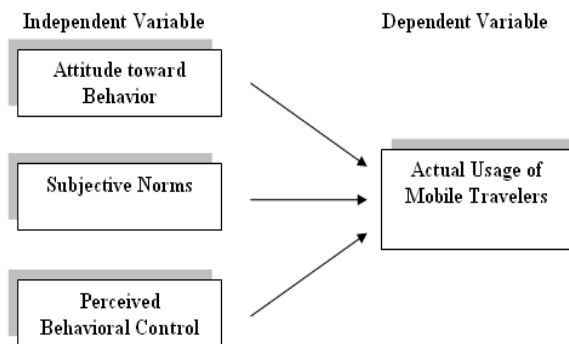
Research Methodology

This is a descriptive research which is undertaken in order to ascertain and be able to describe the characteristics of variables in specific situation. In this research, sampling procedure, data collection, questionnaire and data analysis employed.

Research Framework

Figure 1 shows framework that used for the study.

Figure 1: Research Framework



Source: Azjen (1989)

Hypothesis

Based on the relationship of the variables described in the theoretical framework the following hypotheses were developed. Hypotheses developed in this study were:

H1: Attitude toward behavior has positive impact to the actual usage of mobile travelers.

H2: Subjective Norm has positive impact to the actual usage of mobile travelers.

H3: Perceived Behavioral Control has positive impact to the actual usage of mobile travelers.

Measurement of Variables

A questionnaire using a seven-point scale was employed to collect the data for the constructs of the research model. Items from previous studies were modified for adaptation to the internet purchasing context. The measure using a seven-point Likert-scale ranging from “1” (strongly disagree) to “7” (strongly agree). Item of measurement is shows in Table 1.

Sampling

The population was postgraduate student in UUM as they expected to come from the various personal backgrounds, which may represent better sample distribution. Based on the population number of postgraduate students of UUM, and stratified in every college and department of the study, sample needed about 140 respondents’ based on Sekaran’s (2000) table of size. To identify the sample, sample selected based on the Stratified Random Sampling Technique as recommend from Sekaran (2000).

Table 1: Item of Measurement.

	Mobile Travelers
1	Assuming I had access to mobile traveler, I intend to use it.
2	Given that I had access to mobile traveler, I predict that I would use it.
3	I will use the mobile traveler in the future.
	TPB
1	Buying things over the mobile traveler is a good idea.
2	Buying things over the mobile traveler is a wise idea.
3	Buying things over the mobile traveler is an idea I like.
4	Using the mobile traveler to buy things would be pleasant.
5	People who influence my behavior would think that I should buy things over the mobile traveler.
6	People who are important to me would think that I should buy things over the mobile traveler.
7	I am capable of buying things over the mobile traveler.
8	Buying things over the mobile traveler is entirely within my control.

Data Collection

The primary objective of this research is to test the research hypotheses, based upon the conceptual framework of this study. This study will be use quantitative research approach and survey the HRIS performance. Questionnaire is designed and will be distributed to the sample of the research.

Results

Demographic Background

Questionnaires were distributed to 140 students postgraduate UUM in Sintok, Kedah, Malaysia. The subjects were 94 (67%) male and 46 (32%) female respondents. We have the ethnic origin information, of our respondents, where 39.3% respondent belongs to Malay origin however 26.4 % were Chinese respondents, 11.4 % Indians and 22.9 % were followed by other race.

Most of the participating respondents in this survey of about 9.3 % first semester, 23.6 % second semester, 25.7 % third semester, while 41.4 % of the respondents were final semester. 5 % of the respondent had been using mobile traveler less than 6 month; 37.1 % 6-12 month, 27.9 % 1 to 3 years, and 60 % more than 4 years.

Correlations among Variables

Table 2 shows that attitude toward behavior and actual usage variables were significantly correlated in the strong positive correlation (0.78) and Table 3 shows that subjective norms and actual usage variables were significantly correlated in the strong positive correlation (0.68). Table 4 shows that perceived behavior control and actual usage variables were significantly correlated in the strong positive correlation (0.78).

Table 2: Correlations between Attitude toward Behavior and Actual Usage

		Attitude toward behavior
Usage	Pearson Correlation	.786(**)
	Sig. (2-tailed)	.000
	N	140

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

Table 3: Correlations between Subjective Norms and Actual Usage

		Subjective Norms
Usage	Pearson Correlation	.681(**)
	Sig. (2-tailed)	.000
	N	140

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

Table 4: Correlations between Perceived Behavior Control and Actual Usage

		Subjective Norms
Usage	Pearson Correlation	.782(**)
	Sig. (2-tailed)	.000
	N	140

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

Regressions among Variables

1. Regression between Attitude towards Behavior to the Actual Usage

Table 5 shows that attitude towards behavior to the actual usage variables were significantly correlated in the strong positive correlation (0.78). R^2 is 0.61, therefore 61 % of the cases will be correctly predicted by the regression equation and 39 % not. R^2 , also called *multiple correlations* or the *coefficient of multiple determinations*, is the percent of the variance in the dependent explained uniquely or jointly by the independents. R-squared can also be interpreted as the proportionate reduction in error in estimating the dependent when knowing the independents.

Table 5: Regression between Attitudes towards Behavior to the Actual Usage

Variable		B	Se. B	β
Attitudes towards behavior		.834	.056	.786

Note: R^2 0.61; $F= 1.13$; $F= 223.614$; $\text{Sig.}F= .00^{**}$; ($p<.000$)

B= Unstandardized coefficient beta;

Se.B= Standard error of regression coefficient;

β = Beta coefficient

Simple regression was conducted to investigate how attitude towards behavior could influence actual usage. The results (table 4.8) are statistically significant $F(1, 13) = 223.614$, $p < 0.000$. The identified equation in table 4.8 to understand the relationship was: *Actual Usage Mobile Traveler = 0.565 + 0.834 attitude towards behavior + ϵ* .

The adjusted R squared value was 0.61. This indicates that 61 % of the variance in actual usage mobile traveler was explained by the attitude towards behavior variable (**Hypothesis 1 Accepted**). According to Cohen (1988) this is a large effect.

2. Regression between Subjective Norms to the Actual Usage

Table 6 shows that subjective norms to the actual usage variables were significantly correlated in the strong positive correlation (0.68). R^2 is 0.46, therefore 46 % of the cases will be correctly predicted by the regression equation and 54 % not. R^2 , also called *multiple correlations* or the *coefficient of multiple determinations*, is the percent of the variance in the dependent explained uniquely or jointly by the independents. R-squared can also be interpreted as the proportionate reduction in error in estimating the dependent when knowing the independents.

Table 6: Regression between Subjective Norms to the Actual Usage

Variable	B	Se. B	β
Subjective Norms	.758	.069	.681

Note: R^2 0.61; $F= 1.13$; $F= 94.852$; $\text{Sig.}F= .00^{**}$; ($p<.000$)

B= Unstandardized coefficient beta;

Se.B= Standard error of regression coefficient;

β = Beta coefficient

Simple regression was conducted to investigate how subjective norms could influence actual usage. The results are statistically significant $F(1, 13) = 94.852$, $p < 0.000$. The identified equation in table 4.9 to understand the relationship was: *Actual Usage Mobile Traveler = 0.827 + 0.758 Subjective Norms + ϵ* .

The adjusted R squared value was 0.68. This indicates that 46 % of the variance in actual usage mobile traveler was explained by the subjective norms variable (**Hypothesis 2 Accepted**). According to Cohen (1988) this is a large effect.

3. Regression between Perceived Behavior Control to the Actual Usage

Table 7 shows that perceived behavior control to the actual usage variables were significantly correlated in the strong positive correlation (0.78). R^2 is 0.61, therefore 60 % of the cases will be correctly predicted by the regression equation and 40 % not. R^2 , also called *multiple correlations* or the *coefficient of multiple determinations*, is the percent of the variance in the dependent explained uniquely or jointly by the independents. R-squared can also be interpreted as the proportionate reduction in error in estimating the dependent when knowing the independents.

Table 7: Regression between Perceived Behavior Controls to the Actual Usage

Variable		B	Se. B	β
Perceived Behavior Control		.641	.044	.782

Note: R^2 0.61; $F= 1.13$; $F= 125.116$; $\text{Sig.}F= .00^{**}$; ($p<.000$)

B= Unstandardized coefficient beta;

Se.B= Standard error of regression coefficient;

β = Beta coefficient

Simple regression was conducted to investigate how subjective norms could influence actual usage. The results (table 4.10) are statistically significant $F(1, 13) = 125.116$, $p < 0.000$. The identified equation in table 4.10 to understand the relationship was: *Actual Usage Mobile Traveler = 0.450 + 0.641 Perceived Behavior Control + ϵ* .

The adjusted R squared value was 0.78. This indicates that 61 % of the variance in actual usage mobile traveler was explained by the subjective norms variable (**Hypothesis 3 Accepted**). According to Cohen (1988) this is a large effect.

4. Multiple Regressions between Attitude towards Behavior, Subjective Norms and Perceived Behavior Control (TPB variables) to the Actual Usage

Table 8 shows that TPB to the actual usage variables were significantly correlated in the strong positive correlation (0.79). R^2 is 0.62, therefore 61 % of the cases will be correctly predicted by the regression equation and 39 % not. R^2 , also called *multiple correlations* or the *coefficient of multiple determinations*, is the percent of the variance in the dependent explained uniquely or jointly by the independents. R-squared can also be interpreted as the proportionate reduction in error in estimating the dependent when knowing the independents.

Table 8: Regression between Subjective Norms to the Actual Usage

Variable		B	Se. B	β
Attitude towards Behavior		.753	.347	.710
Subjective Norms		.158	.148	.142
Perceived Behavior Control		-.032	.330	-.039

Note: R^2 0.62; $F= 3.13$; $F= 75.398$; $\text{Sig.}F= .00^{**}$; ($p<.000$)

B= Unstandardized coefficient beta;

Se.B= Standard error of regression coefficient;

β = Beta coefficient

Simple regression was conducted to investigate how subjective norms could influence actual usage. The results are statistically significant $F(3, 13) = 75.398, p < 0.000$. The identified equation in table 4.11 to understand the relationship was: *Actual Usage Mobile Traveler = 0.390 + 0.753 Attitude towards Behaviors + 0.158 Subjective Norms + -.032 Perceived Behavior Control + ϵ* .

The adjusted R squared value was 0.79. This indicates that 62 % of the variance in actual usage mobile traveler was explained by the subjective norms variable (**Hypothesis 4 Accepted**). According to Cohen (1988) this is a large effect.

Discussion

Their experience in the use of mobile traveler varies from less than 6 month to more than 4 years. Majority of them (60 percent) were using the mobile traveler technology for more than four years. The result also indicates that most of the respondents were aware of the information services although they were not using the services. Looking at their student status and the amount they can afford, this group of users is not expected to spend much on these types of information services due to the high costs that may incur.

The questionnaire sees a complete picture of the way different things are connected, what to focus on and measure, together with direction and clarity. The TPB variables (attitude towards behavior, subjective norms and perceived behavior control) of representation in used seems to look up the capacity to make things appear to be connected, making a kind of wholeness or optimum solution. It seems to generate a perceived relevance to UUM.

The result of correlation, the regression and multiple regressions in assessing the variables or the empirical relationship between attitude towards behavior, subjective norms and perceived behavior control contribute were positively related to actual usage mobile traveler as hypothesized. The positive association between independent variables attitude towards

behavior, subjective norms and perceived behavior control) to the actual usage of student was supported.

With respect to factors determining usage of the internet for travel information and shopping. It is found that time saving and conveniences are the two main factors considerations for internet users. Therefore, traveler planners and marketers should simplify the online purchase process involved so as to meet the needs of their potential markets. In contrast, since “prefer other service” and “concerned about security” are two main reasons that discourage travelers from using the mobile traveler. It appears that main challenges faced by on-line travel planners and marketers are “virtual” nature of the transactional and the security. Many of these consumers prefer to use the traditional market channel (i.e. travel agency) because this channel can provide more detailed information and allow direct contact with service providers.

Future Research

Previous studies found individual characteristics (e.g gender) influence consumers’ information processing (e.g Meyers – Levy and Maheswaran, 1991), technology decisions (e.g Davis *et al.*, 1989; Vankatesh *et al.*, 2005). By investigating the moderating role of individual characteristics, future research is expected to provide more insightful guidelines to consumer research as well as practitioners.

The mobile technology is one of the more recent developments in communication and information transfer. It is considered a technology asset because of its ability to disseminate large volume of information quickly and efficiently to all types of stakeholders, including employees, costumer, stakeholders and suppliers (Violino, 2006).

Mobile devices, computers, and related electronic devices have become an important part of digital life. Wireless data transfer is highly preferred for personal and business purposes. It offers users flexibility and convenience. To meet the demand, various wireless technologies have been developed. Nowadays, there are different types of technologies in the world wireless market. Wireless communication is not a new technology; broadcast television and radio programs have been using wireless communication for a long period (Barnes, 2002).

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