

INTERNET BANKING ACCEPTANCE IN MALAYSIA BASED ON THE THEORY OF REASONED ACTION

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ABSTRACT

The theory of reasoned action originally introduced in the field of Social Psychology has been widely used to explain individuals' behaviour. The theory postulates that individuals' behaviour is influenced by their attitude and subjective norm. The purpose of this study was to determine factors that influence an individual's intention to use a technology based on the theory of reasoned action. We used Internet banking as the target technology and Malaysian subjects as the sampling frame. A principal component analysis was used to validate the constructs and multiple regressions were used to analyze the data. As expected, the results supported the theory's proposition as that an individuals' behavioural intention to use Internet banking is influenced by their attitude and subjective norm. Based on the findings, theoretical and practical implications were offered.

Keywords: theory of reasoned action, Internet banking, technology acceptance

1. INTRODUCTION

The theory of reasoned action (TRA) (Fishbein and Ajzen, 1975), originally

Recebido em/*Manuscript first received:* 22/06/2007 Aprovado em/*Manuscript accepted:* 06/11/2007

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ISSN online: 1807-1775

Publicado por/*Published by:* TECSI FEA USP – 2008

introduced in the field of Social Psychology, has been widely used to explain individuals behaviour. The TRA hypothesizes that behaviour is predicted by an individual's intention to engage in a given behaviour. Intention, in turn, is predicted by two factors, the individual's attitude towards the outcome of the behaviour and by the opinions of the person's social environment, which is called the subjective norm (Fishbein and Ajzen, 1975).

Attitude toward the behaviour reflects an individual's evaluation or general feeling toward a target behaviour. It indicates an individual's positive or negative evaluation about performing the behaviour. The attitude toward behaviour is a product of beliefs about the behaviour and the individual's evaluation of the outcome resulting from that behaviour. The theory postulates that the intention to perform a behaviour will be higher when the individual has positive evaluation of performing the behaviour (Ajzen, 1991).

Subjective norm refers to an individual's perceived social pressure to perform or not to perform a target behaviour. The subjective norm is a composite of normative beliefs about a certain behaviour and the individual's motivation to comply with relevant others (Fishbein and Ajzen, 1975). Normative beliefs indicate one's perception of the influence of opinion among reference groups while motivation to comply indicates the extent the individual wants to comply with the wishes of the referent other (Mathieson, 1991). The theory suggests that people often act based on their perception of what others think they should do, and their intention to adopt a behaviour is potentially influenced by people close to them. Figure 1 diagrams the relationships.

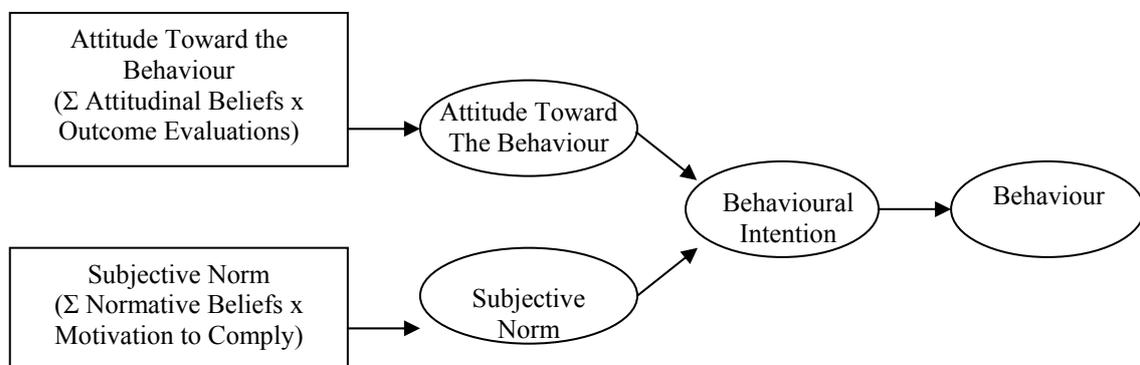


Figure 1. Theory of Reasoned Action

TRA has been widely applied in a variety of research settings, from predicting knowledge sharing intentions (Bock et al., 2005) to predicting the use of contraceptives among low-income Indian women (Kulkarni, 2007). The theory has also been used in the information system field (Loiacono et al., 2007; Rensel et al., 2006; Shih and Fang, 2006).

The purpose of this study is to determine factors that influence an individual's intention to use a technology based on the theory of reasoned action. We used Internet banking as the target technology and Malaysian subjects as the sampling frame. As

proposed in the theory of reasoned action, we hypothesized that attitude towards Internet banking and subjective norm positively affect an individual's intention to use Internet banking. The research model for this study is shown in Figure 2.

Based on the theory of reasoned action as shown in the research model above, two hypotheses were proposed.

Hypothesis 1: Attitude toward Internet banking positively affects the intention to use the technology.

Hypothesis 2: Subjective norm positively affects the intention to use Internet banking.

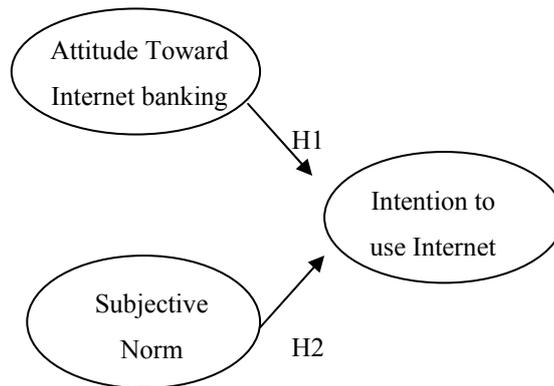


Figure 2. Research Model

2. PREVIOUS STUDIES

Most researchers confirmed the ability of the model to predict behavioural intention to use a certain technology. A study by Liker and Sindi (1997) involving accountants at the two largest accounting and audit firms in the U.S. revealed that subjective norm was a significant determinant of intention. Interestingly, they found that attitude did not significantly influence intention to use a expert system. TRA has also been used to examine differences in pre-adoption and post-adoption beliefs and attitudes. Gentry and Calantone (2002) compared the TRA, Theory of Planned Behaviour (TPB) and TAM in explaining Shop-Bot use on the web. Shop-Bot is an intelligent agent that informs buyers which Internet retailer gives the best price for a specific product. They found that the TRA works best in predicting Shop-Bot use. Shih and Fang (2006) used TRA to determine whether attitude and subjective norms would influence an individuals' intention to adopt internet banking. They found that consumer attitude and specific network attributes had a significant relationship with behavioural intention, while subjective norms did not.

The TRA has also been used as a framework to analyze the effects of interventions on behaviour. Wu (2003) used the theory to assess the underlying factors that can be used to encourage executives toward promoting the strategic role of IT in

process reengineering. The results revealed that changes in attitude (i.e., one's evaluation or general feeling toward a target behaviour) and subjective norm (i.e., how much one thinks that social referents would approve) could be used to change the executives' behaviour toward promoting the strategic role of IT in process reengineering.

Kolekofski and Heminger (2003) used the TRA as a framework to explore the beliefs and attitudes that influence intentions to share information in an organisation. The results of the study identified a number of beliefs that influenced attitude. Three types of attitudes that influence workers' intention to share information emerged from the analysis. They are worker attitudes toward the ownership versus stewardship of organisational information, the instrumentality of sharing and the interpersonal feelings of engaging in the potential information-sharing relationships. In another study, Bock et al. (2005) utilized the TRA to examine the role of extrinsic motivators, social psychological forces, and organizational climate on knowledge sharing. They found that attitude towards and subjective norms as related to knowledge sharing affected an individuals' intention to share knowledge.

Loiacono et al. (2007) utilized TRA and TAM as a foundation to develop an instrument that could be used to evaluate a consumers' perceptions of a specific Web site. Through a rigorous development process, they were able to identify twelve dimensions that had strong measurement validity. Table 1 summarizes the studies discussed above.

Table 1. Representative Studies Utilising TRA

Source	Technology	Participant	Relevant Findings
Liker and Sindi (1997)	Expert system	94 accountants at two large accounting firms in the U.S.	Perceived usefulness and perceived impact on valued skills were significant determinants of attitude. Intention to use was significantly influenced by subjective norm. Intention was not influenced by the attitude.
Gentry and Calantone (2002)	Shop-Bot	199 undergraduate students at a major public university	TRA worked in predicting Shop-Bot use.
Wu (2003)	N.A	105 executives of manufacturing, services and financial and banking firms	TRA could be used to assess the effects of interventions to change a behaviour toward promoting the strategic role of IT.
Kolekofski and Heminger (2003)	N.A.	85 faculty and support staffs at the Air Force Institute of Technology.	TRA was used as a framework to explore the influence of beliefs and attitudes on information sharing. Three types of

			attitudes influenced the intention: ownership versus stewardship of organisational information, the instrumentality of sharing and the interpersonal feelings of engaging in the potential information-sharing relationships
Bock, Zmud, Kim, and Lee (2005)	Knowledge sharing	154 managers from 27 Korean organizations	TRA was used as a theoretical framework to investigate knowledge sharing intentions. Both attitude and subjective norms were found to influence behavioural intention of the respond to share.
Shih and Fang (2006)	Internet Banking	425 banking customers from Taiwan	TRA was replicated and extended in the context of intention to adopt internet banking. Attitude was found to be significant, while subjective norm was not.
Loiacono, Watson, and Goodhue (2007)	Instrument development for Web site quality	1023 undergraduate students from various business disciplines	TRA and TAM were utilized to develop an instrument that would facilitate consumer evaluation of Web sites. The 12 resulting dimensions showed strong measurement validity.

3. METHODOLOGY

Business students and MBAs at four public universities in West Malaysia were subjects for this study. We used questionnaires as the method of data collection. All items intended to measure the variables in this study i.e., attitude, subjective norm, and intention were adopted from previously validated instruments (Taylor and Todd, 1995; Bhattacharjee, 2000). The data were collected with the help of professors, who distributed the questionnaires to students in their class. Factor analysis was performed to assess the validity of the construct and multiple regressions were used to analyze the data.

4. ANALYSIS

We distributed 1350 questionnaires to the targeted respondents. About 86 percent (1164) of the questionnaires were returned. Out of 1164 returned questionnaires, 326 responses were from current users of Internet banking. We excluded these

responses. We believe factors that affect an individual's intention to use a technology might be different among users and non-users. By grouping both users and non-users together, the validity of the findings might be affected. Therefore, in this study we analyzed responses from non-users only. The final count for this study was 817 after dropping 21 missing data cases and 326 responses from users.

Table 2 provides the respondents' demographic profile. Majority of the respondents were female representing 79 percent of the total respondents. The mean age of the respondents was about 22 years old. Fifty percent of them were Malay, 42 percent were Chinese, 5 percent were Indian and 3 percent were others.

Table 2. Demographic Profile

Variable	Category	Frequency	Percent
Gender	Male	174	21.3
	Female	643	78.7
Age	20-21	433	53.0
	22-23	280	34.3
	23+	104	12.7
Class standing	Undergraduate	752	92.0
	Masters	65	8.0
Race	Malay	404	49.5
	Chinese	341	41.7
	Indian	45	5.5
	Others	27	3.3

A principal component analysis with varimax rotation was performed. Inspection of the correlation matrix showed that all coefficients are more than 0.3. The Kaiser-Meyer-Okin value is 0.936, which is higher than the recommended minimum of 0.6 (Kaiser, 1974). Bartlett's test of sphericity (Bartlett, 1954) was significant (0.000), supporting the factorability of the correlation matrix. As shown in Table 3, all items loaded as expected on their respective factor. The three factors namely attitude, social influence, and intention respectively explained 81.7 percent of the variance. The items were also subjected to the reliability test. Cronbach's coefficient alpha (α) was used to measure the internal consistency of the items. As shown in Table 3, all α values were above 0.9 and thus all items provided a relatively high level of internal consistency.

Table 3. Rotated Component Matrix

Items	Factor 1	Factor 2	Factor 3
Using Internet banking is a good idea.	0.784		
I like the idea of using Internet banking.	0.807		
Using Internet banking is a pleasant idea.	0.866		
Using Internet banking is an appealing idea.	0.852		
Using Internet banking is an exciting idea.	0.796		
People who influence my behaviour think that I should use Internet banking.		0.825	
People who are important to me think that I should use Internet banking.		0.862	
People whose opinions I value think I should use Internet banking.		0.877	
People who are close to me think that I should use Internet banking.		0.888	
People who influence my decisions think that I should use Internet banking.		0.867	
I intend to use Internet banking in the future.			0.835
I will use Internet banking in the future.			0.861
Given the chance, I predict I will use Internet banking in the future.			0.828
It is likely that I will use Internet banking in the future.			0.854
I expect to use Internet banking in the future.			0.842
Percentage of total variance explained	26.487	27.312	27.955
Cronbach alpha	0.94	0.93	0.95

Notes: Only loading > 0.4 are shown; Extraction method: principal component analysis; Rotation Method: varimax with Kaiser normalisation; a rotation converged in 5 iterations

Having confirmed the construct validity and the instrument reliability, we ran multiple regression analysis. Table 4 summarizes the regression results.

Table 4. Regression ResultsMultiple $R = 0.674$ R square = 0.455Adjusted R square = 0.453

Standard error = 0.8111

	DF	Sum of squares	Mean square	
Regression	2	446.228	223.114	
Residual	814	535.564	0.658	
$F = 339.110$		Significance $F =$ 0.0000		

Variable	Beta	t	Sig.	VIF
Attitude	0.586	20.248	0.000	1.252
Subjective Norm	0.161	5.557	0.000	1.252

Variance inflation factor (VIF) is commonly used to detect any collinearity problem (Stevens, 1992). As a guideline, a VIF greater than 10 indicates a multicollinearity problem (Myers, 1990). An examination of VIF (1.252) for both variables in the final model showed that multicollinearity was not a potential problem.

As illustrated in Table 4, the F statistic for the final model is 339.110 with a p value of 0.000, indicating a significant model. The regression results also showed that the attitude ($\beta = 0.586$, $p < 0.001$) and subjective norm ($\beta = 0.161$, $p < 0.001$) effect on behavioural intention is statistically significant, thus supported both hypotheses in this study. Attitude effect on the intention is higher as compared to the subjective norm on intention as indicated in its larger standardized beta coefficient. Overall, attitude and subjective norm together explain 45 percent of the variance in the behavioural intention.

5. DISCUSSION AND CONCLUSION

In this study, we have attempted to empirically test a research model based on the theory of reasoned action using Internet banking as the target technology. As expected, the results have supported the theory's proposition that individuals' behavioural intention to use Internet banking is influenced by their attitude and subjective norm. The results indicate the applicability and ability of the theory of reasoned action to predict adoption intentions, in this study's case within different sampling frame (i.e., in Malaysia) and target technologies (i.e., Internet banking).

The results of this study have several practical implications. A significant positive relationship between attitude and behavioural intention suggests that positive attitude about Internet banking could influence individuals to use Internet banking. Banks can create a positive attitude amongst its customer towards Internet banking by promoting its usefulness, ease of use, compatibility to their value, and image (Md Nor and Pearson, 2006).

Consistent with findings in other empirical studies (e.g., Harrison et al., 1997; Karahanna et al., 1999; Limayem et al., 2002; Rimenschneider et al., 2002), the findings indicates the importance of social pressure in influencing ones' behaviour towards intention to use Internet banking. Banks may want to explore promotional activities to promote the technology. Md Nor and Pearson (2006) in their study on Internet banking acceptance have found that friends, family, and peers have a positive influence on individuals to accept the technology. Thus, promotional activities such as advertisement and referral plan should target these groups.

As with any study, there are limitations to this research. First, one potential limitation of this study is the use of student subjects. Although students are good surrogates for banking customers because they typically are current banking customers, questions remain concerning the generalizability of the results to a larger population. A second limitation of this study maybe the significant number (79%) of female subjects. This may bias the result in term of gender's effect on behavioural intention. Third, we did not differentiate between undergraduate and graduate (MBA) students. The inclusion of graduate students in the sample frame may bias the findings, as MBA students may be more experienced in internet usage (i.e. e-commerce transactions). Finally, our study was conducted in Malaysia. The results may not be generalizable to customers in other countries and cultures. Customers in these countries might not share the same exposure, experience, level of information technology infrastructure, the comprehensiveness of legal framework and policies protecting customers and others.

In conclusion, this study has supported the generalizability of the theory of reasoned action in predicting individual's behavioural intention to use a technology. We have empirically test the research model based on this theory in Malaysia as the sampling frame and Internet banking as the target technology. Both hypotheses as suggested by the theory in this study were well supported. Practical implications were discussed and the suggestions put forward could be used by banks to encourage banking customer to adopt Internet banking.

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