

Internet banking: Analysing encouragement and impediment factors among academicians

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Abstract— This paper aims to explore the encouragement and impediment factors for consumers to adopt internet banking services. The study should provide effective strategies for banking institutions on how to maximize the rate of adoption. A survey involving a sample size of 200 was conducted by sending questionnaires to lecturers in 20 public universities in Malaysia. The Decomposed Theory of Planned Behavior model (DTPB) was used. While “Perceived usefulness” and “Features of website” were the top factors which encourage the adoption of internet banking, “Culture” was the most significant impediment to adoption. In terms of moderating variables, only a few variables show significant impact on certain factors. Age and income impacted only on “External environment” whereas WAP feature had an impact only on “Perceived usefulness”. Other variables have not shown significant effect on the factors. The findings suggest that banking institutions should plan effective strategies to enhance the push factors and to counter the barrier of culture in order to enhance internet banking adoption. This study offers valuable strategies for marketers to rethink how to educate potential customers and promote Internet banking using innovative approaches. Recommendations are offered to financial institutions to plan effective strategies to enhance adoption of internet banking. The potential factors influencing internet banking adoption also provide useful insights for other developing countries.

Keywords- Internet banking, Adoption, Encouragement factors, Impediment factors, Decomposed TPB

I. INTRODUCTION

Hitherto, Internet banking has undergone a rapid growth in various countries and transformed traditional banking practice. Reference [1] found that internet banking tends to offer benefits to financial institutions by means of lowering operating costs, improving customer banking services, retaining clients, reducing branch networks, and downsizing number of service staff. However, the success of internet banking is influenced by not only from financial institutions or government support but also by customer acceptance of it [2], [3]. Some studies focus on the users' adoption pattern in the developed countries as in [2] and [3], while some concentrate on the developed and developing countries [4-8]. Malaysia is

categorized among the developing countries and the recent statistics show that the adoption of internet banking in Malaysia is still low in spite of various initiatives made by financial institutions to attract users [9]. Hence, the purpose of this study is to investigate users' perception of factors which encourage and discourage internet banking adoption in Malaysia. Specifically, the objectives are threefold; to analyze the most significant factors which enhance or discourage adoption of internet banking, to examine the relationship between moderating variables and the encouragement/impediment factors and to compare the findings to the previous research by [4] whose framework is used in the present study. To reflect these objectives, four research questions are formulated:

- R1: What are the main factors which encourage the adoption of internet banking services?*
R2: What are the main factors which discourage the adoption of internet banking services?
R3: What are the relationship between demographic characteristics and the factors?
R4: How do the present study compare to the study of [4] of Thailand consumers?

II. LITERATURE REVIEW

A. Internet banking in Malaysia

The Automated Teller Machine (ATM) was the first electronic innovation used by Malaysian banks in 1981 [10]. Later, telephone banking service was introduced in 1990s [6]. Then, in 2000, the Central Bank of Malaysia granted permission to local banks to offer Internet banking services to their customers. Maybank is the first bank to offer internet banking in Malaysia through its website www.maybank2u.com. Some of the services include banking enquiry functions, bill payment, credit card payment, fund transfers, account summary and transaction history. Up to 2001, [6] found that the adoption of internet banking was not widespread initially, due to various factors like Internet accessibility, poor awareness, and security concerns. In 2006, the scenario has not changed much. However, based on the report in [11], the number of the internet banking user had

increased more than doubled from 2006 (3.2 mil) to the third quarter of 2009 (7.5 mil). Thus, the internet banking adoption is slowly increasing. Reference [7] stated that this indicates the existence of positive factors of internet banking in Malaysia. Hence, to study the factors which contribute to this positive development is essential.

B. Factors influencing the adoption of internet banking

Most financial institutions favor internet banking services for it gives benefits to them. Reference [3] stated that the two key reasons banks adopt e-services are *cost savings* and the *convenience of self-service mode* which is more economical in terms of time and effort. On the same note, [1] found that internet banking tends to offer benefit to financial institutions by means of lowering operating costs, improving customer banking services, retaining clients, reducing branch networks, and downsizing number of service staff.

The adoption of internet banking services has been analyzed through the use of various models. Reference [3] used a single model, the Technology Acceptance Model (TAM) of [14] for users in Finland and found that *perceived usefulness* of, and *information on online banking* were the main factors influencing users' acceptance. They found that system use (i.e. actual behavior) was determined by *perceived usefulness* and *perceived ease of use* which were related to attitude and actual use. On the contrary, [5] used a number of models including pure (TPB) [15] and decomposed Theory of Planned behavior (DTPB) [13] and also Theory of Reasoned Action (TRA) [16]. They found both TPB [15] and TRA [16] were compatible with the data. However, they noted that the decomposed TPB model of [13] was better in explaining "behavioral intention, attitude and subjective norm than the TRA and pure TPB models". Similarly, reference [9] used a research model based on a compilation from various past research. His E-service quality variables include *ease of use, appearance, communication, incentive, reliability and customization constructs*. Reference [12] also compiled ten features adapted from the extant literature namely *convenience of usage, accessibility, features availability, bank management and image, security, privacy, design, content, speed, and fees and charges*. The findings revealed that all features have significant impact on internet banking adoption. Meanwhile, reference [7] adopted models proposed by [13] and [8] which include *importance to banking needs, complexity, trialability, compatibility, perceived risk, utilitarian orientation and hedonic orientation*. Her findings yielded that *Hedonic oriented Internet banking sites, perceived Importance of Internet banking to banking needs* and *Compatibility* affect the adoption of Internet banking by Malaysian users. Various researchers use different framework in their study which investigate different dimensions in each study. The present study used the decomposed Theory of Planned behavior [13].

Compared to the TAM of [14] and the traditional TPB model [15], the decomposed Theory of Planned Behavior [13] was found to have better predictive power, as Taylor and Todd (1995, p. 169) noted:

In comparing the two versions of TPB, we believe that there is value added as a result of the decomposition, in terms of increased explanatory power and a better, more precise, understanding of the antecedents of behavior. Moreover, if the aim is to predict usage only, then TAM is preferable (Taylor and Todd 1995, p. 170).

On the other hand, the DTPB of [13] offers more insights into the behavior and intention [5]. This should be the base for IT managers and researchers interested in the study of system implementation as human beings are using their rationale and making systematic use of information available to them in their actions. Thus, to understand and predict human's behavior, one needs to identify and measure factors which ascertain such behavior.

Based on the DTPB, *attitude, perceived behavioral control* and *subjective norms* affect human behavior [1]. *Attitude* reflects an individual's positive or negative behavior towards innovation adoption. Attitude refers to perceptions on the usefulness of internet banking, adoption features, bank online features, risk and privacy, and personal preferences. *Perceived behavioral control* represents beliefs about having necessary resources and opportunities for an individual's intention to perform. Reference [17] regards these as facilitating conditions which refers to the availability of resources such as the technological resources and infrastructure needed to engage in the behavior. In the present study, the external environment represents perceived behavioral control. Lastly, *subjective norms*, features the social pressure that may affect an individual's intention to perform. In this study, the subject norm refers to culture. Based on a study, the research variables were divided into two groups: the ability or inability of banks to facilitate internet banking adoption [4]. The groupings are as follows:

Bank factors: They are able to be controlled by banks when they attempt to attract more online users. They influence the perceptions of customers towards internet banking and include items like perceived usefulness, adoption features, bank online features, risk and privacy and marketing appeals.

Other factors: They are dependent on the users and the environment and beyond the control of banks and are viewed as potential barriers to internet banking adoption. They reflect a compatibility with the consumer's personal preferences, the external environment and Malaysian culture. Fig.1 features the framework with the addition of *marketing appeals*.

III RESEARCH FRAMEWORK

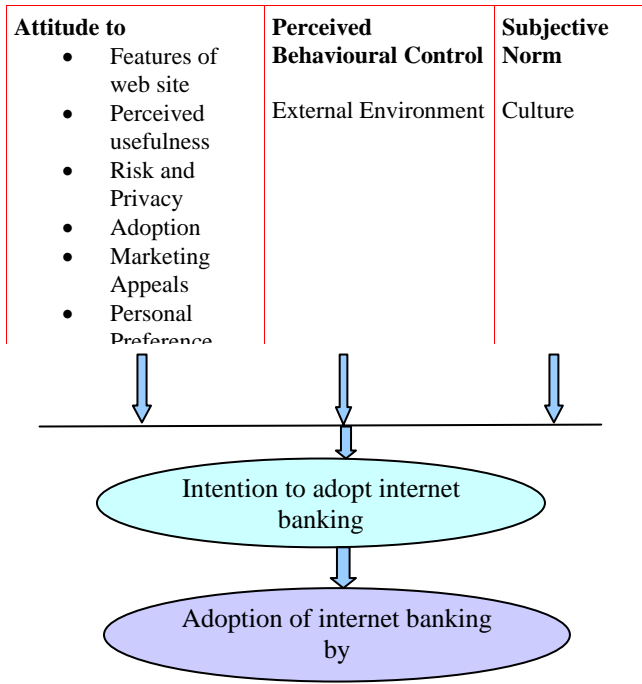


Figure 1: Framework

IV METHODOLOGY

This section illustrates the areas on sample and data collection, content validity and reliability.

A. Sample and Data Collection

A quantitative analysis was used to test the research model through a customer survey method. 250 survey questionnaires were sent out to randomly selected academicians in Malaysian universities through e-mail. 200 completed questionnaires were returned. The questionnaire was divided into 2 sections. The first section consisted of questions regarding the demographic characteristics of the respondents. The second section consisted of two parts. The first part of the questionnaire included questions on the perceptions of customers towards internet banking and items like perceived usefulness, adoption features, bank online features, risk and privacy and marketing appeals. The second part consisted of questions measuring all the impediment factors beyond the control of bank like external environment, personal preference and culture. The measurement items were adapted from [13] and [4]. The seven-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree) was used for the questions to indicate a degree of agreement or disagreement with each of a series of statements related to the stimulus objects. The questionnaire was pre-tested within the faculty and was sent to four experts in the field for establishing face validity of the items. The pre-test resulted in the minor adjustment to the vagueness of wording and sequence of the questions. An addition of two items to measure marketing appeals is included based on the experts'

suggestion during the pre-test. The revised questionnaire was then administered to respondents along with a cover letter explaining the purpose of the research. The data were analyzed by examining the distribution of responses based on frequencies and percentages. The two factors and items within each factor are ranked by mean score. Participants in the study were academicians in institutions of higher learning. This group is chosen because the nature of their job requires them to do online communication. Hence, they have immediate internet access available on campus and possess computer literacy which is essential in adopting online services.

B. Content Validity

Content validity of the questionnaire was established by reviewing existing literature. Most of the items intended to measure the variables in this study were adopted from previously validated instruments except for two additional items suggested by the experts. Hence, the major aspects of the topic were adequately covered by the items included in the questionnaire.

C. Reliability

Cronbach α 's of [18] were used to measure the reliability. Alpha coefficients for the eight factors influencing the adoption of internet banking in this study ranged from 0.77 to 0.80. As the values for all of the variables involved are above 0.7, they are accepted as reliable. This is supported in [4] which indicated that the Alpha coefficients for the similar seven factors which influence the adoption of internet banking in their study ranged from 0.77 to 0.90. Hence, the internal reliability of the measures used is good.

V. FINDINGS

The findings discuss the demographic profile, encouragement and impediment factors. In addition the influence of demographic profile on the encouragement and impediment factors was also determined through ANOVA test.

A. Demographic Profile

Demographic profile consists of gender, marital status, age, income level, level of education, race, status and phone features. From a total of 200 completed questionnaires received, number of women respondents is more than men (72%). Most of the respondents were Malay (60%), married (65.5%). 62.5 percent aged within 26 to 29 years old This shows that respondents in this study were relatively young. This confirms the findings by [19] that the majority of internet users (80.1%) are young adults who were under 39 years old. The majority of respondents earned about RM 4500 to RM5499. The majority of respondents obtained Masters Degree (69.5%). This is consistent with previous research of [20] which found that internet users are highly educated because it required computer awareness and internet skill.

About 90 percent have Wireless Application Protocol (WAP) features on their mobile devices, indicating that most respondents have immediate access to internet. Table I illustrates the respondents’ demographic profile.

TABLE I: RESPONDENTS’ DEMOGRAPHIC PROFILE

Feature	Classification	Percentage
Gender	Female	72
	Male	28
Marital status	Married	65.5
	Single	24.5
	Divorce	7.5
	Widow	2.5
Age	26-29	62.5
	30-45	29.5
	> 45	8.0
Income level	RM 2500-3499	30
	RM3500-4499	21.5
	RM4500-5499	43
	> 5500	5.5
Level of education	Masters	69.5
	PhD	30.5
Race	Chinese	15
	Malay	60
	Indian	14.5
	Others	10.5
Status	Lecturer	51.5
	Senior Lecturer	32
	Assoc. Prof.	11
	Prof	5.5
Phone features	WAP feature	90
	Yes No	10

B. Encouragement Factors

The five factors and items within each factor are ranked by mean score. Two factors of **Attitude** which were rated the highest are *Perceived usefulness* and *features of the websites*. Table 1 shows the mean score for encouragement factors on average.

TABLE II: MEAN SCORE FOR ENCOURAGEMENT FACTORS

Encouragement factors	Mean	SD
Features of the web site	5.5	0.38
Perceived usefulness	5.65	0.69

Risk and privacy	3.87	0.45
Adoption	4.52	0.38
Marketing Appeals	2.75	0.58

A paired samples t-test was conducted to find significant difference. Table III illustrates the details.

TABLE III : T-TEST SCORE FOR PAIRED SAMPLES

Pair		M	S. D	t	df	Sig. (2-tailed)
Pair 1	mean F - mean P	-.15	.77	-2.75	199	.006
Pair 2	mean F - mean R	1.6	.63	36.13	199	.000
Pair 3	mean F - mean A	1.0	.55	24.95	199	.000
Pair 4	mean F - mean M	2.8	.72	53.22	199	.000
Pair 5	mean P - mean R	1.8	.84	29.85	199	.000
Pair 6	mean P - mean A	1.1	.71	22.57	199	.000
Pair 7	mean P - mean M	2.9	.94	43.81	199	.000
Pair 8	mean R - mean A	-.7	.62	-14.77	199	.000
Pair 9	Mean R-mean M	1.1.	.70	22.46	199	.000
Pair 10	Mean A-mean M	1.8	0.79	31.63	199	.000

As a result, there was statistically significant difference (at $p > 0:05$) for all the pairs. Between the two top factors, *Perceived usefulness* (P) showed higher mean and significant difference from the *Features of website* (F) with $t (199) = -2.82, p < 0.05$. This confirms that the former is the top feature which influences users’ internet banking adoption. Moreover, a statistically significant difference did occur between the two factors above and all the other factors. The third factor, “*Risk and privacy*” (R) also showed significant difference with “*Adoption*” (A) and “*Marketing appeals*” (M). Similarly, significant difference existed between “*Adoption*” and “*Marketing appeals*”. Hence, “*Features of the website*” and “*Perceived usefulness*” are the most significant encouragement factors of internet banking adoption in Malaysia.

C. Impediment Factors

The three factors and items within each factor are ranked by mean score. Table IV shows the mean score for impediment factors on average.

TABLE IV: MEAN SCORE FOR IMPEDIMENT FACTORS

Impediment Factors	Mean	SD
External Environment	4.23	0.53
Personal Preference	4.72	0.34
Culture	5.19	0.37

A paired samples t-test was conducted to find significant difference. Table V illustrates the score.

TABLE V. T-TEST SCORE FOR PAIRED SAMPLES

Pair		M	S. D	t	df	Sig. (2-tailed)
Pair 1	mean E - mean P	-.49	.52	-13.29	199	.000
Pair 2	mean E – mean C	-.97	.49	-28.11	199	.000
Pair 3	mean P - mean C	-.48	.48	-14.119	199	.000

As a result, there was a statistically significant difference (at $p > 0.05$) for all the pairs. Among the three factors, Culture (P) showed the highest mean and significant difference from the other two. This verifies that culture the top feature which impede users’ internet banking adoption.

D. Moderating Factors

Moderating variables such as gender, marital status, age, income level, level of education , race, status and phone features were analyzed to see whether they influenced the relationship between encouragement and impediment factors (the independent variables) and the adoption of internet banking (the dependent variable). ANOVA test was conducted to assess the significant difference. As a result, only a few variables show significant impact on certain factors. Age and income impacted only on *External environment* whereas WAP feature had an impact only on *Perceived usefulness*. Other variables have not shown significant effect on the factors.

VI. DISCUSSION

Based on the framework of [13], the intention and adoption of internet banking is triggered by the attitudinal factors and inhibited by a subjective norm. The attitudinal factors which encourage the adoption of internet banking in Malaysia are *Features of the website* and *Perceived Usefulness*. While the encouragement factors are similar to the findings of [4], the impediment factor shows a stark contrast. They found that *External environment* a feature of perceived behavioral control, was the main factor which discouraged the internet banking adoption but not culture. On the contrary, the present study shows that culture is the most significant factor in inhibiting internet banking adoption and the least significant is external environment. This shows the difference in the perceptions of Thailand and Malaysian consumers with regards to the inhibiting factors. It is interesting to note that Malaysian customers may be afraid of technology. They still want to maintain the status-quo as they are comfortable with it. Some researchers found that human beings try to resist change [21], especially towards technological innovation and

[22] found that Malaysian customers still patronize bank branches and treasure personal interactions. A theory of [13] is applied for the potential adoption of internet banking in Malaysia as shown in Fig. 2.

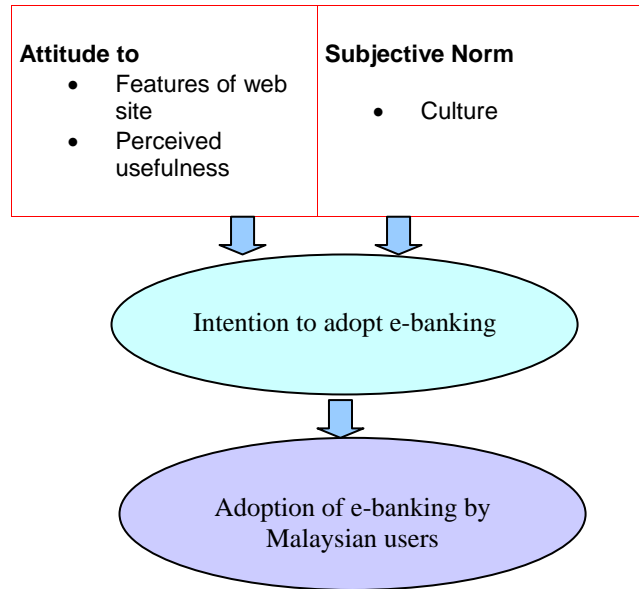


Figure 2: Application of Todd and Taylor's model (1995)

In comparison with other findings, it is found that *accessibility; convenience, design* and *content* were sources of satisfaction [5]. Similarly, reference [6] found *accessibility, ease of use* and *convenience* were significant adoption factors. This agrees with the present study where *accessibility* is part of “Features of website” whereas *convenience* and *ease of use* belong to “Perceived Usefulness”. Besides, the *speed, product features availability, and reasonable service fees and charges* are critical factors [12]. This also agrees to the present findings as all the elements are included under “Perceived usefulness”. Besides, [7] also found that “perceived importance of internet banking” as an important adoption factors. Some features that she used include *easy access, cost, convenience* which correspond to “features of website” and “Perceived Usefulness”.

In terms of moderating variables, only a few variables show significant effect on certain factors. Age and income impacted only on *External environment* whereas WAP feature had an impact only on *Perceived usefulness*. In comparison to the study of [4], the significant moderating variables which influence the adoption of internet banking by Thai consumers are gender, educational level, income, internet experience and internet banking experience, but not age. The two most significant moderators are income and internet experience as they affect each of the most significant encouragement and impediment factors. This large gap between the Malaysian and Thailand users may be caused by the choice of respondents as

Malaysian users consists of specific type of users, academicians. Hence, the impact of moderating variables may not vary as much compared to Thai respondents which consist of users from various field.

VII. RECOMMENDATION

The study revealed that the push factors for banks to attract customers are through features of the website and perceived usefulness whereas the barrier is culture. Some recommendations for banks are as follows:

- The content of the website should include interactivity features such as Web 2.0 as to encourage personal interaction between users and banks and users and other users. This, indirectly, will counter the problem of culture.
- The bank may have a Memorandum of understanding with WAP provider so as to include WAP features for users' mobile device when they adopt internet banking services. This acts as incentives for users.
- Trial exercise is essential for potential customers to experiment the services before deciding to adopt them. Hence, banks should offer training to educate the users on internet banking products, procedures and security measures.

These strategies will enhance the push factors and adopt pull factors for the barriers on culture.

VIII SUMMARY AND CONCLUSION

From the commercial viewpoint, e- banking is essential and is broadly accepted. Thus, financial institutions have to devise effective strategies to attract users to use online facilities in a turbulent, competitive environment. The results of this study indicate that marketers should rethink how to educate potential customers and promote Internet banking using innovation approaches. The potential factors influencing internet banking adoption also provide useful insights for other developing countries.

Despite this, since our study was limited to respondents experienced with Internet banking, it was difficult to understand the group differences for the relationship of DTPB and intention adoption between users and non-users. Hence, non-users' view may be included for future research. Furthermore, the interview with the users and non-users will provide more in-depth insights on the reasons behind the adoption and non-adoption of internet banking. This should provide a meaningful research area for the future.

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