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## Information Technology in Malaysia: E-service quality and Uptake of Internet banking


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## Abstract

Internet banking is one of the most popular services utilized by the Malaysian retail banking customers in recent years. Despite its attractiveness, studies have shown that the quality of e-services is core a issue that influences adoption of Internet banking services worldwide. The objective of this study is to evaluate consumer perceptions on quality of e-services and Internet banking adoption in Malaysia. Results show that Internet banking users and non-users have different expectation towards e-service quality preferences. The implications are discussed and recommendations are made in order to improve Internet banking service quality in Malaysia.

Keywords: **banking; information and communication technology (ICT); eService Quality, Internet banking, Malaysia**



## INTRODUCTION

Electronic revolution in the Malaysian banking sector started since 1970s. The actualization of the electronic revolution happened during the introduction of Automated Teller Machine (ATM) in 1981. The introduction of telephone banking service in 1990s became the next technological leap in Malaysian banking industry (Suganthi et al, 2001). In June 2000, the Malaysian Central Bank (Bank Negara Malaysia) allowed commercial banks to offer Internet banking services to their customers. Nevertheless, as highlighted by Suganthi et al., (2001), the uptake of Internet banking in the country was not widespread initially, largely due to various factors (e.g. Internet accessibility, poor awareness, and security concerns). The current state of play is relatively the same. Three largest commercial banks in the country (i.e. CIMB, Maybank and RHB Bank Berhad) collectively had an estimated 917,000 Internet banking users as of end of 2006. This is only 8 percent of the total number of Internet users in 2006, which was estimated to be about 13.5 million users (www.maxis.com.my). Hence, the uptake of Internet banking in Malaysia is still low despite the various initiatives made by the banks to attract consumers.

The purpose of this study is to investigate retail customers' perception of e-service quality and adoption of Internet banking in Malaysia. Specifically, the objectives are threefold: to explore the key dimensions of e-service quality perceptions towards Internet banking; to examine the relationship between demographic characteristics and the perceived e-service quality perceptions; and to find out the relationship between e-service quality perceptions among Internet banking adopters and non-adopters. Recommendations are offered to practitioners to improve the quality of Internet banking services.

## E-SERVICE QUALITY

Service as an intangible goods appeal differently to each customer. Certain extent of service should be achieved in order to satisfy the customer. The advancement of technology and the customer driven era seems to force the service sector to provide certain level of service and by using technological advancement, the service sector might be able to provide competent infrastructure in their e-service creation

Service quality in an online environment as a definition needs to be understood before we can define what e-service quality is. There are various dimensions of service quality. Kang and James (2004) divide the perceived service quality dimensions into functional dimensions (the process), technical (the outcome) and image. The functional dimensions are the most common dimensions that are discussed in the service quality models. The service quality models are reliability, assurance, tangible, empathy, and responsive. In the online environment, reliability reflects the capability of the company to provide accurate information on the respective products. Assurance might reflect the confidence that the customer can get when they trust and purchase product from the seller. Tangibility refers to the design of the user interface that might contact between the customer and the online firm. Empathy would be the customization on the interface that the customer might enjoy. Lastly, the responsiveness might be in terms of timely response to e-mail requests or complaints, and confirmations of orders, etc.

The broad idea of traditional service quality might not be sufficient to build the e-service quality dimensions. Modifications and adding several variables are important. Santos (2003) in this regard discussed e-service quality dimensions as consisting of, ease of use, web-appearance, linkage, structure and layout, content as the incubative dimensions; reliability, efficiency, support, communication, security, and incentive as active dimensions.

Yang et al. (2003) suggested another different perspective in service quality dimensions of the online retail business. The authors' service quality definition consists of eight dimensions that are driven/measured by a bank's responsiveness in the following aspects:

- prompt delivery, timely response,
- credibility that includes confidence and good reputation
- ease of use that includes user friendly, easy navigation,
- reliability that includes accurate order, keeping promises,
- convenience that includes convenient shopping in time and place,
- communication that includes up to date information,
- access that includes the accessibility through almost every channel and lastly,
- competence that includes representative knowledge to resolve problems.

After reviewing some perspective on service quality dimensions in their literature review, Van Riel et al. (2003) described their own e-service quality dimensions. They use design of user interface, reliability, security, customization, and responsiveness as major factors that drive e-service quality. These dimensions reflect the different nature of dealing with a website as opposed to interacting with service employees.

## E-SERVICE QUALITY DIMENSIONS – OUR MODEL

E-Service Quality in this paper is classified into following components:

- Ease of use
- Appearance
- Reliability
- Customization
- Communication
- Incentive

"Ease of use" allows the researcher to identify whether respondents' perception on the user friendliness is important to build the E-service quality. Based on Santos (2003), "Ease of Use" variable is related to an easy-to-remember URL address, well-organized, easy in site navigability, concise and understandable contents, terms and conditions. Sathye (1999) also described ease of use as the factor influencing the adoption of Internet banking, though the author does not specifically categorize the "ease of use" variable as an E-service quality dimension.

Santos (2003), Van Riel et al. (2003), and Lee and Lin (2005) supported the appearance variable as the driver in e-service quality. Based on Santos (2003), variable appearance means that the graphics, colors, and images are attractive enough to the customers. Van Riel et al. (2003) also mentioned that user interface or appearance means that the website is clear and well organized. Lee and Lin (2005) suggested that appearance means user interface design that is interpreted by the customers.

The construct "reliability" is defined differently by researchers. Lee and Lin (2005) and Van Riel et al. (2003) conceptualize reliability as one dimension in e-service quality. Kang and James (2004) also pointed out variable reliable in the traditional service quality dimensions. Despite all of the authors' dimensions, Ratnasingham (1998) and; Meerilees and Louis Fry (2003) mentioned that the variable "reliable" is in the trust creation dimension. It means that variable "reliable" can be classified into both e-service quality as well as trust. However, the researcher includes variable "reliable" as factor that supports the e-service quality. Reliability includes accurate order, updated content and keeping promises. Fast support service and availability of technical service where also included in the reliability variable.

We feel that customization can build up e-service quality due to the customer demand for personalized service. Yang et al. (2003) suggested that personalization should be done in the form of individual attention. We also believe that personalization can be done through customization. Customization would be the customization of the interface that the customer might enjoy as mentioned by Field et al (2004). Van Riel et al (2003) mentioned that customization is to adapt with the customer's needs.

We further believe that communication should be analyzed as internet banking lacks contact and personal touch with the service provider. Therefore, we investigate if

communication impacts e-service quality. Communication as suggested by Santos (2003) refers to the accessibility of the website's user to communicate to the website provider and availability of various communication methods to contact the support service through the website.

We also envision that incentive or encouragement can become a crucial factor to be analyzed and would like to find out if the customer will be motivated by certain incentives provided by the financial institutions. Incentive refers to encouragement that is given by the website provider in order to maintain their current customers and also attract the prospective users (Santos, 2003).

## RESEARCH FRAMEWORK

The research model is a compilation from various past researches. E-service quality variables that consist of ease of use, appearance, communication and incentive are adapted from Santos (2003) and Yang et al. (2003); Van Riel et al. (2003); Lee and Lin (2005) and Yang et al. (2003). Reliability and customization constructs were adapted from Van Riel et al. (2003) and Yang et al (2003).

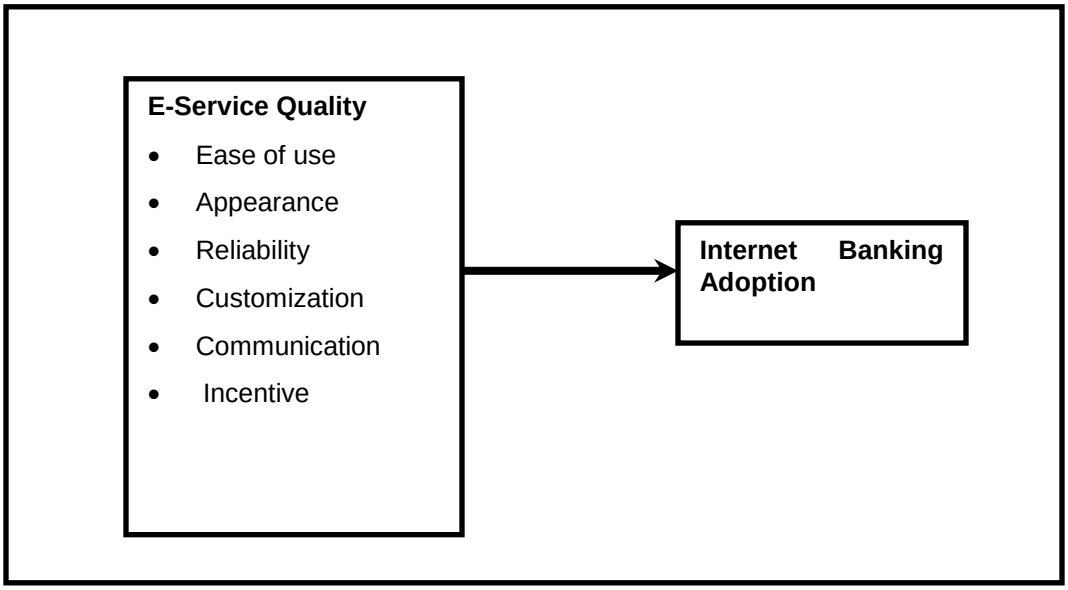


**Figure 1: Research Model**

Source: Adapted from: Santos (2003), Yang et al. (2003), Lee and Lin (2005), Van Riel et al. (2003), Field et al. (2004), Meerilees and Louis Fry (2003).

## RESEARCH METHODOLOGY

We constructed several questions in the questionnaire based on the objectives of the research. Some questions were adapted from the past research. In the general

questions, Tan and Teo (2000) contributed on several questions. The questions are on "frequency of visiting the bank", "the banking products that the respondents currently using", "access to the Internet', and "frequency to use the Internet". www.Bankinginfo.com.my (2006) also contributed in the list of selections from question "the most frequent activity in the bank".

In the measurement of independent and dependant variables, Likert scale is used in order to identify the respondents' perceptions towards E-service quality and Internet banking adoption.

**Table 1: Independent and Dependant Variables' Questions Justification**

| **E-service quality perception** | Variable | Adapted from |
|---|---|---|
| I feel that user friendliness of the website is important | Ease of use | - |
| I believe instructions on the website are comprehensible | Ease of use | - |
| I agree that attractive design of the website will catch my attention | Appearance | - |
| I feel animations on the website is important | Appearance | Tan and Teo (2000) |
| I agree that fast support and availability of technical service is important | Reliability | - |
| I believe that up to date content is crucial | Reliability | - |
| I believe that little time is required to download the websites | Reliability | Tan and Teo (2000) |
| I agree that it is important for the websites' to be customized to my preferences | Customization | Tan and Teo (2000) |
| I agree various method in communication (phone, fax, email, sms) is important in the website | Communication | Tan and Teo (2000) |
| I think that the incentive (encouragement) from the banks is necessary | Incentive | - |
| | | |
| **Internet Banking Adoption** | | |

| | | |
|---|---|---|
| I find Internet banking is useful for managing my financial matters | Internet banking adoption | Tan and Teo (2000) |
| I believe Internet banking is an easy way to conduct banking activities | Internet banking adoption | Tan and Teo (2000) |
| I agree that Internet banking is frustrating | Internet banking adoption | Tan and Teo (2000) |
| I feel fast Internet access speed is important in Internet banking | Internet banking adoption | Tan and Teo (2000) |

www.Bankinginfo.com.my (2006) contributed in the list of selections in question "activities during in Internet banking". In the personal detail questions, Tan and Teo (2000) contributed in the list of selections in the questions "age" and "monthly income".

## Subjects and Procedure

Data was gathered from a total of 150 respondents using the judgmental sampling method. Judgmental sampling method is a form of non probability sampling in which the population elements are purposely selected based on the judgment of the researcher. The selection of the sampling units in judgmental sampling is judged through the respondents' profile where certain criteria should be fulfilled. The respondents that have access to the Internet, working people (executives) and the respondents that have bank account are the criteria that were fulfilled in this study. The targeted population in this research was the retail banking customers of the Klang Valley area.

Of the 150 respondents, 44 percent were less than 20-29 years of age (n=66), 48 percent were 30-39 (n=72), and 8 percent were over 39 years old (n=12). About 61.3 percent of the respondents were male (n=92) and 38.7 percent were female (n=58). Finally, about 72 percent of the respondents are Internet banking adopters (n=108) while rest 28 percent are non-adopters (n=28). From the total of 108 respondents who experience Internet banking, 50% of the respondents thought that they were light users, 33% of the respondents believed that they were medium users, while remaining 17% of the respondents thought that they were heavy users of the internet. Low level of adoption is probably due to 50% of the respondents still perceive themselves as light users of this facility.

## Statistical Analysis

The results of questionnaire were entered and processed into SPSS software, version 13. The analysis methods that applied to the study are Frequency analysis, Chi-square test, and Analysis of Variance (ANOVA). ANOVA allows the researcher to examine E-service quality preferences among Internet banking users and non-users.

## FINDINGS

One sample T-tests on E-service quality preferences are performed on the complete sample (user and non-user of Internet banking). Table 2 shows the entire mean of E-service quality preferences and respondents view on its importance level.

### One Sample T-test of E-Service Quality Preferences

**Table 2: One Sample T-test of E-Service Quality Preferences**

| Preferences | Sig. (2-tailed) | Mean | Strongly Agree (n) | %age (n/150) |
|---|---|---|---|---|
| I feel that user friendliness of the website is important. | 0.00 | 4.3 | 67 | 44.6 |
| I believe concise instructions on the websites are important. | 0.00 | 4.37 | 81 | 54 |
| I agree that attractive design of the website will catch my attention. | 0.00 | 4.4 | 75 | 50 |
| I feel animations on the website are important. | 0.00 | 2.84 | 6 | 4 |
| I agree that fast support and availability of technical service is important. | 0.00 | 4.49 | 82 | 54.7 |
| I believe that up to date content is crucial. | 0.00 | 4.32 | 65 | 43.3 |
| I feel accurate transactions process is important. | 0.00 | 4.62 | 99 | 66 |
| I believe that little time to download the websites is important. | 0.00 | 4.56 | 90 | 60 |
| I agree that it is important for the websites' to be customized to my preferences | 0.00 | 4.42 | 75 | 50 |
| I agree various method in communication (phone, fax, e-mail, SMS) is important in the website | 0.00 | 4.46 | 86 | 57.4 |
| I think that the incentive (encouragement) from the banks is necessary | 0.00 | 4.56 | 94 | 62.6 |

Dimensions of E-service quality are ranked in order to identify which dimensions are the most important among the respondents. The highest mean of all is “reliability” variable in term of transaction process with 4.62. It is followed by “incentive” variable and “reliability” variable in terms of time to download the website where both contribute a mean of 4.56. The next preference is the “reliability factor” in term of support services with a mean of 4.49. It is followed by “communication” variable with the mean of 4.46. “Customization” variable contributes to the next rank with 4.42. The next aspect that is preferred by the respondents is “appearance” variable in term of attractive design with 4.4. Both of “Ease of use” variable’s preferences in term of concise instructions and user friendliness make up 4.37 and 4.3 respectively. “Reliability” variable in term of up-to-date content contributes mean of 4.32. Lastly, “appearance” variable in term of animation on the

website contributes to the lowest mean of 2.84.

In the E-service quality creation, not all of the dimensions are preferable by the respondents. It can be seen from the least preference by the respondents which is "appearance" variable in term of animations. However, the simple and catchy website design is more preferred by the respondents.

## ANOVA among Internet banking Adopters and Non- Adopters

In Analysis of Variance among user and non-user, E-service quality variables are used as the dependent variables. The independent variable is the population of user and non-user of Internet banking. Hypotheses are constructed and ANOVA test will be used for results generation.

## ANOVA test on E-Service Quality Preferences among Internet Banking User and Non-Users

$H_0$: There is no difference between the mean of Internet banking user and the mean of Internet banking non-user in E-service quality preferences.

$H_1$: There is difference between the mean of Internet banking user and the mean of Internet banking non-user in E-service quality preferences.

**Table 3: ANOVA test on E-Service Quality Preferences among Internet Banking User and Non-User**

| | F | Sig. |
|---|---|---|
| I feel that user friendliness of the website is important | 1.91 | 0.17 |
| **I believe concise instructions on the websites are important.** | **7.71** | **0.01** |
| I agree that attractive design of the website will catch my attention | 0.05 | 0.83 |
| I feel animations on the website is important | 0.92 | 0.34 |
| I agree that fast support and availability of technical service is important | 1.70 | 0.19 |
| I believe that up to date content is crucial | 1.05 | 0.31 |
| I feel accurate transactions process is important. | 3.59 | 0.06 |
| **I believe that little time to download the websites is important.** | **6.64** | **0.01** |
| I agree that it is important for the websites' to be customized to my preferences | 1.55 | 0.21 |
| I agree various method in communication (phone, fax, email, sms) is important in the website | 0.94 | 0.33 |

| | | |
|---|---|---|
| I think that the incentive (encouragement) from the banks is necessary | 0.20 | 0.66 |

The findings indicate that some E-service quality preferences differ among Internet banking users and non-users. Table 3 shows that there are only two preferences that differ among Internet banking users and non-users. The statement on "I believe concise instructions on the websites are important" which is categorized as independent variable "ease of use" and "I believe that little time to download the websites is important" which is categorized as independent variable "reliability" are differ due to their significance of 0.01 and 0.01 respectively which is below alpha 0.05. Thus, null Hypothesis is rejected and alternative hypothesis is accepted in the "ease of use" variable and "reliability" variable. Therefore it can be concluded that the Internet banking users and non-users have different expectation towards "ease of use" preference and "reliability" preference.

## ANOVA test on E-Service Quality Preferences among Internet Banking Adopters (Light, Medium and Heavy Users)

In Analysis of Variance among Internet banking adopters (light, medium and heavy users), E-service quality variables act as the dependent variables. The independent variable is the adopters of Internet banking that can be categorized as light, medium and heavy users. Hypotheses are constructed and ANOVA test will be used for results generation.

$H_0$: There is no difference between the mean of Light, medium and heavy users of Internet banking in E-service quality preferences.
$H_1$: There is difference between the mean of Light, medium and heavy users of Internet banking in E-service quality preferences.

**Table 4: ANOVA test on E-Service Quality Preferences among Internet Banking Adopters (Light, Medium and Heavy Users)**

| | F | Sig. |
|---|---|---|
| I feel that user friendliness of the website is important | 2.36 | 0.10 |
| I believe concise instructions on the websites are important. | 0.29 | 0.75 |
| I agree that attractive design of the website will catch my attention | 0.75 | 0.48 |
| I feel animations on the website is important | 0.22 | 0.80 |
| I agree that fast support and availability of technical service is important | 2.56 | 0.08 |
| I believe that up to date content is crucial | 0.31 | 0.73 |
| I feel accurate transactions process is important. | 0.06 | 0.95 |
| I believe that little time to download the websites is important. | 0.30 | 0.74 |
| I agree that it is important for the websites' to be customized to my preferences | 0.33 | 0.72 |
| I agree various method in communication (phone, fax, e-mail, SMS) is important in the website | 2.77 | 0.07 |
| **I think that the incentive (encouragement) from the banks is necessary** | **3.72** | **0.03** |

The Analysis of Variance in E-service quality among Internet banking adopters indicates there is not much different in the mean. Table 4 displays that the only different is in the statement of "I think that the incentive (encouragement) from the bank is necessary".

The significance of 0.03 which is below alpha 0.05 means that alternative hypothesis is accepted. Thus, it can be concluded that there is difference between the mean of Internet banking adopters in the "incentive" variable.

## DISCUSSIONS

As indicated in the findings 72% of the respondents mentioned that they have already adopted the Internet banking which is almost three-quarter of the respondents. 50% of the respondents picture themselves as light users of Internet banking. The light users are very critical users where they will stay and become the medium and heavy user or they might leave Internet banking due to negative reasons. Preemptive actions should be taken by the banking sector in order to increase the retention of Internet banking users. The researcher proposes the implementation of E-service quality as integral constituents to maintain and increase the Internet banking users' retention.

Internet banking is perceived by the users as quite a useful tool to manage their financial matters. Ease of use is one of the factors considered acceptable by the Internet banking users. Most of the respondents demand for faster download access to the Internet banking. Room for improvement should be undertaken in terms of providing better accessibility.

Based on the analysis of variance among Internet user and non-user in E-service quality preferences, the respondents' mean differ in "ease of use" variable in terms of concise instructions and "reliability" variable on little time to download the website. The Internet banking non-users might assume that Internet banking is difficult to learn or negative experience on the Internet usage has led them to distrust in Internet service. The non-users need concise instructions where they can learn it from basic method. In terms of time to download the website, respondents might have experienced lag or delay in downloading therefore the respondents tend to have negative perspective towards Internet banking. The non-users fear slow process of download, and service failures that might happen, which will likely lead to frustration.

Analysis of variance in E-Service Quality Preferences among Internet Banking Adopters (light, medium, and heavy users) does not vary. The only difference is in the "incentive" variable preference. The medium and heavy users might not need as much incentive as the light user. The medium and heavy users are the early adopters who already rely and realize the importance of Internet banking. It is different with light user where incentive should be given appropriately to them.

## RECOMMENDATION

Government plays an important role in influencing the Internet banking adoption level in a country. In order to reduce the gap between the adopters and the non-adopters, government should put extra effort in establishing Internet banking campaign. The huge step has been taken by the government to reduce the banks operation into five days in a week where the customers are forced to conduct Internet banking in the off day of the bank. Government should also improve the competitiveness among the Internet banking providers by setting procedural standard in the service delivery and security system, which should subsequently be established as a benchmarking method nationwide.

Awards and certain gratitude should be given to the Internet banking providers that have provided excellent effort in delighting its users. The other way for the government to increase the adoption of Internet banking is to fully utilize the high media exposure on publications of Internet banking. Publication is effective in maximizing brand awareness into mass audiences. Internet banking has higher possibility to be adopted by the customer when it is exposed to certain extent of disclosure. Enhancing and improving the cyber law in the country is also one of the challenges that the government should do to protect and regulates the Internet banking.

**E-Service Quality Development**

- Ease of use

In term of ease of use, Internet banking providers should focus on website navigation and applicable functions to cater the needs of various user segments. For the first time user, the Internet banking provider should provide simple website that will not lead into further confusion. The first time users would agree that they do not know where to start with. To ease the difficultness and to reduce the confusion, the Internet banking should provide convenient attributes or features to deliver the instructions.

- Appearance

Internet banking providers cannot do anything to increase the speed of Internet connection as it relies more on the Internet service provider. However, in order to avoid slow downloading process, less animation, and graphics used can be reduced in order to increase the speed of downloading. Web site with a lot of flash animations, pop-up advertisement and graphic banners would dissatisfy the user. Internet banking users are only interested to do financial matters rather than seeing animations. It is also supported by the response from the respondents that animation on the Internet banking website is not important.

Before launching new interface, the Internet banking provider could have trial launch for Internet banking users. Feedback from the user is important to be gathered before launching the real commercial website interface. Opinion poll and feedback form in the trial web page should be accessible to determine the satisfaction rate on several aspects. From the feedback that is provided by the user, improvement on the new interface can be done.

- Reliability

Various aspect of reliability should be focused by the Internet banking provider. From the physical object to the psychological needs of the user should be fulfilled. An effective way to fulfill the physical object of the Internet banking provider is to increase the reliability of the website. Monitoring the traffic of websites, measuring the hits of various visitors such as the Internet banking users, the informational user, etc, is important in order to evaluate the website operational activity. The way to increase the reliability of a website is by increasing the availability of support service so that during the high traffic access, the website download process is not slow. Minimizing the lag and delay of transfer of a website should be undertaken in order to reduce the anxiety level among the Internet banking user. Web servers should run with minimal problem and interruption. Therefore, reliability is notably a critical aspect to the extent that it forms first impression

of the first-time users which can be favorable or unfavorable. Once negative impression is formed due to the unreliability, customers especially who are reluctant to the Internet banking, most likely will not engage in the Internet banking anymore. It is about the mentality and attitude on the concept on banking itself, whereby traditional way of banking process requires the presence of both the service provider (bank) and the customer face-to-face into direct communications.

In order to increase reliability, the Internet banking provider can fully utilize a trustworthy system. Another crucial aspect in reliability is the customer feedback. Feedback should be collected to identify what kind of website content and expectation that they want. The most important thing to increase reliability is to integrate customer service and quality that is needed by the Internet banking user. Customer Relationship Management (CRM) can become the answer for Internet banking. CRM can assist the Internet banking providers to control various segment of users. Different of segment needs different act from the provider. CRM can also manage the various segment of user database where it allows the Internet banking providers to understand better the various segment's needs. CRM functions should be implemented in terms of automation on user feedback, complaints, and maintaining the user database. CRM can provide a platform for quick response to inquiries and excellent platform of support service.

Another way to increase the reliability is to provide the user with reference number each time the user conducts transaction. The reference number is the consumer database that can be used to check and record the user activities when the user calls the customer support service. Besides the reference number, Electronic receipt (E-receipt) can become the tool to increase the website reliability. E-receipt is an innovative way to prove the transaction in a virtual world. It can be in the shape of document file where it states certain detail of transactions that has been done and it is certified by the Internet banking provider as an official receipt. The implementation of E-receipt is to give sense of reliability on the Internet banking provider towards its service. Even in the ATM transaction, some customers do keep the receipt in every transaction and are unwilling to do transaction when the ATM machine cannot issue a receipt.

- Customization

The Internet banking website should focus on the user financial needs, task, and expectation. Various customer segments should be fulfilled in different ways. Customization of interface can be done in order to fulfill the individual needs of various users. Customization can be done through creating a personalize account. Personalize account allow customization of interface and content. The users can choose various templates that suit their desire. The Internet banking provider should provide various interface templates to cater different demographic profiles. Templates design should be based on the age and interest of the user.

- Communication

Communication has become the barrier in almost all the virtual business. Virtual world creates a gap between the Internet banking provider and the user. Competitiveness and communication also become the crucial element in the Internet banking. One of the ways for the Internet banking provider to compete is to differentiate their services from other competitors. Excellent customer service can be one of the solutions.

The communication concept currently is more on verbal and non-verbal. Visual contact that is less focused by the Internet banking provider can become one of the ways to improve various communication channels. The hotline operator should be equipped with video web camera instead of telephone. Video conferencing through the Internet banking platform can become a great way to communicate directly with the Internet banking user. Besides increasing various methods to communicate, it will also lead to increase in trust and feel of touch by seeing visual object of human customer service through video conferencing.

- Incentive

The adoption of Internet banking can be increased by the attractive incentives and encouragement. Human beings are likely to be motivated and influenced by incentives. Based on the survey, adoption of Internet banking is showing a great deal in the development with 72% of the respondents having adopted Internet banking. However, the 28% of non-adopters have the opportunity to adopt Internet banking. For the non-adopters, incentive that should be given is the incentive through the first time registration. For the first time registration, incentive should be given in order to attract the non-users to register. Various incentives can be given to the first time user. Sponsorship from various companies can reduce the burden of the Internet banking provider to provide incentives.

For the light user, incentives should also be emphasized. The light user can become a non-user when they are no longer using the Internet banking. Sometimes the users see advantages of using the Internet banking not from the functions and acceptance but from the incentives provided. The light user retention should be maintained with various incentives.

## CONCLUSION

The perception and attitude of the society towards Internet banking is the primary issue that should be improved in order to increase the adoption of Internet banking in Malaysia. Technology needs extensive learning before it can be adopted. It is just like a new product where the early adopters need to try and feel it first before they adopt it. In order for the adoption in Internet banking to be rationally progress with the advancement, the adopters should also experience, learn, and educate themselves with the Internet banking. Looking at the E-service quality preferences among the adopters and non-adopters will give the banks an option to better devise and strategize this mode of banking.

## REFERENCES

Bankinginfo.com.my (2006), 'About Internet Banking', Available from: www.bankinginfo.com.my

Bennett, C. (2004), 'IDC's Financial Insights Forecasts Rapid Internet Banking Usage to 2007 - Highlights 300% Growth and Massive Potential in China and India', Available from: http://www.idc.com.au/press/detail.asp?releaseid=82

Collis, J. and Hussey, R. (2003), 'Business Research: A Particular Guide for

Undergraduate and Postgraduate Students', 2nd Ed. New York, Palgrave, Macmillan.

Comptroller of the Currency Administrator of National Banks (1999), 'Internet Banking', Available from: http://www.occ.treas.gov/handbook/intbank.pdf

Clickz.com (2005), 'Internet Usage in the World', Available from: http://www.clickz.com/stats/sectors/geographics/article.php/5911_151151

Damanpour, F. (2001), 'E-Business E-Commerce Evolution: Perspective and Strategy', Journal of Managerial Finance, 27:7, 16-33, Available from: http://www.emeraldinsight.com/Insight/viewPDF.jsp?Filename=html/Output/Published/EmeraldAbstractOnlyArticle/Pdf/0090270702.pdf

Duffy, G. and Dale, B.G. (2002), 'E-Commerce Process: A Study of Critically', Journal of Industrial Management and Data System, 102:8, 432-441, Available from: http://www.emeraldinsight.com/10.1108/02635570210445862

Field, J.M., Heim, G.R., and Sinha, K.K. (2004), 'Managing Quality in the E-Service System: Development and Application of a Process Model', Journal of Production and Operations Management, 13:4, 291-306, Available from: http://search.epnet.com/login.aspx?direct=true&db=buh&an=15753581&loginpage=custlogin.asp?custid=s7433796&site=ehost

Guru, B.K, Vaithilingam, S., Ismail, N. and Prasad, R. (2000), 'Electronic Banking in Malaysia - A Note on Evolution of Services and Consumer Reactions', Journal of Internet Banking and Commerce, Available from: http://www.arraydev.com/commerce/JIBC/0001-07.htm

Hao, X and Chow, S.K (2004), 'Factors affecting Internet development', Available from: http://www.firstmonday.org/issues/issue9_2/hao/

IDC Malaysia (2006), 'Malaysia ICT Overview', Available from: http://www.idc.com/getdoc.jsp?containerId=IDC_P4833

Kang, G.D. and James, J. (2004), 'Service Quality Dimensions: An Examination of Grönroos's Service Quality Model', Journal of Managing Service Quality, 14:4, 266 – 277, Available from: http://www.emeraldinsight.com/10.1108/09604520410546806

Kolsaker, A. and Payne, C. (2002), 'Engendering Trust in E-Commerce: A Study of Gender-Based Concerns', Journal of Marketing Intelligence & Planning, 20:4, 206 – 214, Available from: http://www.emeraldinsight.com/10.1108/02634500210431595

Lee, G.G. and Lin, H.F. (2005), 'Customer Perceptions of E-Service Quality in Online Shopping', International Journal of Retail & Distribution Management, 33:2, 161 – 176, Available from: http://www.emeraldinsight.com/10.1108/09590550510581485

Malhotra, N.K. (1999), 'Marketing Research – An Applied Orientation', 3rd Ed. New Jersey, Prentice-Hall.

Mazlog-Lewis, K. (2004), 'Internet banking to take over offline banking', Available from: http://www.zdnet.com.au/news/business/soa/Internet_banking_to_take_over_offline_banking_IDC/0,39023166,39146736,00.htm

Merrilees, B. and Fry, M.L. (2003), 'E-trust: The Influence of Perceived Interactivity on E-Retailing Users', Journal of Marketing Intelligence & Planning, 21:2, 123 – 128, Available from: http://www.emeraldinsight.com/10.1108/02634500310465461

Multimedia Development Corporation (2006), 'Multimedia Super Corridor', Available from: www.mdc.com.my

Mukherjee, A. and Nath, P. (2003), 'A Model of Trust in Online Relationship Banking', International Journal of Bank Marketing, 21:1, 5-15, Available from: http://www.emeraldinsight.com/10.1108/02652320310457767

New Strait Times (2005), 'Facts and Figures of the IT Industry - Global ICT Spending 2007', Malaysia, 21 November.

Nordin, S. (2002), 'Revenue Implications of E-Commerce - Government and Private Sector Experience', Available from: www.wto.org/english/tratop_e/devel_e/sem05_e/**nordin**_malaysia.ppt

Papadopoulou, P., Andreou, A., Kanellis, P. and Martakos, D. (2001), 'Trust and Relationship Building in Electronic Commerce', Journal of Internet Research, 11:4, 322 – 332, Available from: http://www.emeraldinsight.com/10.1108/10662240110402777

Peng, H.A and Chee, M.L. (n.d), 'Internet Development in Asia', Available from: http://www.isoc.org/inet96/proceedings/h1/h1_1.htm

Rahman, Z. (2004), 'E-Commerce Solution for Services', European Business Review, 16:6, 564 – 576, Available from: http://www.emeraldinsight.com/10.1108/09555340410565396

Raman, M. (2006), 'Developing Nations and the Global E-Business Framework: The Malaysian Experience', (email to author)

Ratnasingham, P. (1998), 'The Importance of Trust in E-Commerce', Journal of Internet Research, 8:4, 313 – 321, Available from: http://www.emeraldinsight.com/10.1108/10662249810231050

Ribbink, D., Van Riel, A.C.R., Liljander, V. and Streukens, S. (2004), 'Comfort Your Online Customer: Quality, Trust and Loyalty on the Internet', Journal of Managing Service Quality, 14:6, 446 – 456, Available from: http://www.emeraldinsight.com/10.1108/09604520410569784

Santos, J. (2003), 'E-Service Quality: A Model of Virtual Service Quality Dimensions', Journal of Managing Service Quality, 13:3, 233 – 246, Available from: http://www.emeraldinsight.com/10.1108/09604520310476490

Sathye, M. (1999), 'Adoption of Internet banking by Australian Consumers: An Empirical Investigation', International Journal of Bank Marketing, 17:7, 324 – 334, Available from: http://www.emeraldinsight.com/10.1108/02652329910305689

Singh, M. (2002), 'E-Services and Their Role in B2C E-Commerce', Journal of Managing Service Quality, 12:2, 434 – 446, Available from: http://www.emeraldinsight.com/10.1108/09604520210451911

Srinivasan, S. (2004), 'Role of Trust in E-Business Success', Journal of Information Management & Computer Security, 12:1, 66 – 72, Available from: http://www.emeraldinsight.com/10.1108/09685220410518838

Suganthi, Balachandher and Balachandran (2001), 'Internet Banking Patronage an Empirical Investigation of Malaysia', Journal of Internet Banking and Commerce, Available from: www.arraydev.com/commerce/JIBC/0103_01.htm

Tahla, M and Salim, A.S.A. (2005), 'Role of E-Commerce in 21st Century', Journal of Internet Banking and Commerce, Available from: http://www.arraydev.com/commerce/JIBC/0311-06.htm

Tan, M. and Teo, T.S.H. (2000), 'Factors Influencing the Adoption of Internet Banking', Journal of Association Information System, 1:5, Available from: http://is.lse.ac.uk/support/ICIS/2000/pdffiles/AIS/0105JAIS.PDF

Tapp, A. and Hughes, T. (2004), 'New Technology and The Changing Role of Marketing', Journal Marketing Intelligence & Planning, 22:23, 284 – 296, Available from: http://www.emeraldinsight.com/10.1108/02634500410536876

The Star Newspaper (2006), 'Five-Day Week for Banks', Available from: http://thestar.com.my/news/story.asp?file=/2006/1/26/nation/13221860&sec=nation

Van Riel, A.C.R., Semeijn, J. and Janssen, W. (2003), 'E-Service Quality Expectations: A Case Study', Journal of Total Quality Management and Business Excellence, 14:4, 437 – 451, Available from: http://search.epnet.com/login.aspx?direct=true&db=buh&an=9756728&loginpage=custlogin.asp?custid=s7433796&site=ehost

Vijayan, P. and Shanmugam, B. (2003), 'Service Quality Evaluation of Internet Banking in Malaysia', Journal of Internet Banking and Commerce, Available from: http://www.arraydev.com/commerce/JIBC/0306-06.htm

Yang, Z., Peterson, R.T., and Cai, S. (2003), 'Services Quality Dimensions of Internet Retailing: An Exploratory Analysis', Journal of Services Marketing, 17:7, 685 – 700, Available from: http://www.emeraldinsight.com/10.1108/08876040310501241

Zin, A.N.M and Yunos, Z. (2005), 'How to Make Online Banking Secure', The Star Newspaper, Available from:

http://startechcentral.com/tech/story.asp?file=/2005/4/21/itfeature/10680731&sec=itfeature