

Impact of Service Quality Dimensions on Internet Banking Adoption, Satisfaction and Patronage

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Abstract

Banking, a demand-driven industry is vastly growing to date by consistently expanding its client network via internet banking. The rendered service quality by banks has nevertheless been the essential tool for attracting prospective customers. Although, impact of service quality on satisfaction and patronage is well researched, investigating the same for internet banking and in Malaysian context is a definite research gap. This study is conducted to see the impact of service quality on the adoption of internet banking and then to identify if the service quality dimensions of reliability, responsiveness, communication, access and security leads to customer satisfaction and subsequently leads to patronage in Malaysia. The data is gathered from 202 bank customers using judgmental sampling through two sets of questionnaires viz. User of Internet Banking and Non-User of Internet Banking. Based on the determined results produced using

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SPSS 20 indications were obtained that the customers place great emphasis towards the service quality dimension of security and accessibility of internet banking respectively. The service quality has been found to significantly influence the adoption of internet banking in Malaysia. Service quality aspects, specially access and security, impact satisfaction and satisfaction impacts patronage, therefore, in accelerating the adoption rate, the banks should further enhance their offering in internet banking and concurrently provide a more efficient and easy to user interface.

Keywords: Adoption, Internet Banking, Loyalty, Satisfaction, Service Quality

Cite this article: Raviadaran, H., Dastane, O., Ma'arif, M. Y., & Mohd Satar, N. S. (2019). Impact of Service Quality Dimensions on Internet Banking Adoption, Satisfaction and Patronage. *International Journal of Management, Accounting and Economics*, 6(10), 709-730.

Introduction

It is worth noting that service quality and customer loyalty have been given increasing importance lately in the business practices. These constructs would continue to be critically evaluated as per many prior articles. Much of the past research has emphasised on service quality (Baker, Grewal, & Parasuraman, 1994; Parasuraman, A., Zeithaml, V., Berry, 1988) customer loyalty (Voss, Parasuraman, & Grewal, 1998). The quality-loyalty linkage is consistent (Heskett, Sasser, & Hart, 1990) with service-profit (Reichheld, 1993) and work on loyalty. Abreast with the continuous development of electronic commerce (e-commerce), businesses have steadily adopted this tool chiefly to increase their interactions with the customers. Besides the e-commerce which are present in the form of web sites/pages, business with the most experience and success have realized that the key determinants to success or failure are very dependent on the quality of electronic service (Parasuraman, Zeithaml, & Malhotra, 2005; Yang, 2006). Banking, a demand-driven service industry majorly dependent on the number of customers or clients utilizing their service has evolved rapidly to date, from the regular visits to tellers to performing a transaction using a smartphone. This circumstance has been chiefly influenced by the introduction of online banking in the 80s'. The online banking service were introduced by Citibank, Chase Manhattan, Chemical and Manufacturers Hanover, the four major banks, in 1980 at New York as reported. Nevertheless, the definition and applications of internet banking has grown significantly to date as compared to then. The new generation which has been using the banking services for less than a decade, chooses quicker transactions and professional relationships. It is critical to highlight that the internet service has nevertheless revamped the style of which banks used to operate and deliver financial services conventionally.

These significant gains should also be nevertheless being viewed from the perspective of possible shortcomings in the sense of declined face to face interactions as well as security threats. However, notwithstanding internet banking speeding up the transactions as well as access to data, a large number of bank customers are yet to enrol themselves in this service. According to (Reichheld, 1993), in order to have a profitable e-banking service, emphasis should be given towards the holding of present customers besides the

gaining of new customers as the retaining costs in online banking is greater than that of traditional off line business by 20-40%. As a result of it, creating unending customer relationship is of great need for bringing good customer value through the offered online service. With regard to this, progressive development has been made of transforming the simple banking websites to much more comprehensive online banking portal. This was achieved by offering more services on top of the traditional bank products. According to (Jun & Cai, 2001), the offering of a broad range of banking services at single webpage has indeed been indicated as the most essential development for online banking services. However, the authors also mentioned that despite the above, yet, most of the offered services are still falling behind their customers' expectations. In guaranteeing customer faithfulness, the offered online banking service should emphasize on their customers' requirement which are increasing incrementally due to the growing competitiveness in the internet banking sector (Jun & Cai, 2001). Essentially, loyalty is the key towards long-term profitability. This finding is true since the reduction of 5% boosts the profit up to 80% in the financial sector (Heskett et al., 1990). On top of that, the rendered service is the key parameter for differentiating the offered service as well as to build a competitive advantage (Storbacka, Strandvik, & Gronroos, 1994). In addition, (Oliver, 2006) also highlighted that the organization success and long-term profit is very dependent on the bank's customers' loyalty. Hence, it is indeed critical to ensure maximum customer satisfaction in ensuring the sustainability in this challenging industry as well as generate positive revenues. Despite financial sector in Malaysia which has grown significantly, the academic studies towards the subject areas as described above are scarce. The existing studies thus far have managed to identify the various parameters which adversely affect the service quality, as well as the latter proved more difficult to gauge in the servicing industries for instance banking.

In Malaysia, the Malayan Banking Berhad (Maybank) is the largest domestic bank from the perspectives of both assets as well as physical network distribution. Maybank is also the first bank in Malaysia to offer the online banking services through their own portal at www.maybank2u.com. Among the offered services include banking related queries, account overview, transaction history, bill payment, credit card payment and funds transfer. As of June 2000, since the Malaysian Central Bank has given the rights for the commercial banks to provide e-banking services, these banks have attempted to come up with websites (Sadiq Sohail & Shanmugham, 2003). The footsteps of Malayan Banking Berhad of venturing into the online banking service was later followed by Hong Leong Bank which introduced its Internet Banking operation called 'E-Banking' via its web site at www.hlbb.hongleong.com.my in December 2000. It was then followed by the Southern Bank which offered the internet banking service in Malaysia through their website www.sbbdirect.com.my. Later on, other banks such as Alliance Bank, as well as Public Bank offered online banking service in 2001. At present, typically, all local domestic banks offer online banking services. In general, the internet banking service is expected to benefit the bank institutions in terms of savings in the form of operation costs, as well as the expansion of their operation into other business activities such as promotions of their products and services to the customers (Sathye, 2002). In the meantime, the customers are also expected to enjoy the benefits of performing user-friendly transactions, accessibility and reduction in cost for travelling, as well as parking (Chan, Lakonishok, & Sougiannis, 2001). Hence, it is indeed absolutely necessary to gather critical information pertaining the customers' perspective and satisfaction of the

rendered internet banking service. This study will therefore focus towards the rendered service quality of internet banking in Malaysia. This study chiefly aims to assess the Malaysian customers viewpoint concerning the internet banking service. This study shall contribute on the on-going debates and evaluations concerning this subject area as the customers from various countries might display different perceptions in regards to a specific offer (Ladhari, 2009). The service quality provided by the banking sector is essential as the profit margin is meticulously linked to the rendered service quality. The aim of this study is to examine the impact of service quality on the adoption of internet banking in Malaysia. The specific objectives for this research is: To identify if the service quality dimensions of reliability, responsiveness, communication, access and security leads to customer satisfaction and subsequently leads to loyalty of customers. The research questions and hypotheses are formulated accordingly mentioned at later stage along with conceptual framework.

Literature Review

Definition of Key Concepts

Internet Banking: Internet banking, which may also be referred to as online banking, denotes an secure and hassle-free online facility that enables customers to enjoy the convenience of online banking from the comfort of the own homes. Internet banking allows users with internet access to carry out a variety of transactions through a centralized database. The bank branch offices are interlinked via satellite or terrestrial connections that conceal the physical identity of the branches while providing unlimited banking access. According to (Ram Mohan, Krishnaraj, Harindranath, & Vijayaragavan, 2014), the concept of internet banking has made 'Anywhere and anytime' banking a reality. **Service quality:** Service delivered which exceeds customers' expectations is an excellent benchmark for a service quality as defined by (Lewis & Booms, 1983). (Stauss et al., 2010) on the other hand says service quality is very much dependant on the actual outcome of the service as opposed to the perceived expectation. Early research (Heskett et al., 1990; Lewis & Booms, 1983) has suggested that service quality is assessed by comparing what the customer feel a seller should offer (ie. their expectations) against the seller's actual service performance. According to (Parasuraman, Zeithaml, & Berry, 1985), the depiction of service quality found strong support in an extensive exploratory study, which also identified various specific attributes on which customers might assess the expectations-performance gap. **Service quality dimensions:** Prior literature (Andreassen & Lindestad, 1998; Guo, Duff, & Hair, 2008) indicates that service quality is linked to customer's perceived value through judgement while evaluating the advantage of the service/product against its costs (Parasuraman, A., Zeithaml, V., Berry, 1988; Zeithaml, Berry, & Parasuraman, 1996). This study posits that perceived value relates positively with the five bank service quality dimensions described below: Reliability, Responsiveness, Communication, Access, and Security. The parameters above are as described below:

Reliability: According to (Jun & Cai, 2001; Parasuraman et al., 1985) reliability is the service delivered or performed in a prompt manner which is in line with the promise made by the organization. **Responsiveness:** As per (Jun & Cai, 2001), services delivered and issues dealt in a timely manner and promptly in an appropriate way, describes

responsiveness. Communication: (Light, 1997) depicts that communication refers to both online and traditional communication methods whereby the customers is able to grasps and understand the messages. (Hanaysha, Abdullah, & Warokka, 2011) added on emphasizing that communication ought to be consistent, confidentially transmitted and deeply empathetic. Access: Access here refers to the mode of communications through which customers can benefit themselves through the services rendered by the bank. Granting unlimited access regardless of the ticking of the clock, location besides distance would curb the waiting time, enable service around the clock possibly on a twenty four-seven basis in the most preferred location. (Jun & Cai, 2001) further expanded the notion to seek for assistances and being able to retrieve one's bank account as desired even when out of country. Security: Security is outlined as the autonomy from risk, peril, scepticism or uncertainty, as defined by (Light, 1997; Parasuraman et al., 1985). As per (Jiang, Yang, & Jun, 2013), security in the context of Internet Banking also includes online transactions processing while averting unauthorised access to bank accounts and personal information.

Customer satisfaction: According to (Olsen & Johnson, 2003), transaction-specific refers to customer's feedback in regards to his or her experience with a specific product. On the other hand, the cumulative satisfaction is identified as the customer's overall consumption experience with a product over a prolonged use of time. As per (Gupta & Zeithaml, 2006), classically, the majority of the existing studies researched on customer satisfaction by employing the cumulative satisfaction concept. According to (Oliver, 2006), if the performance of the offered service/product is below expectation, then the customer will feel discontented. (Reichheld, 1993) on the other hand reported that satisfied customers are more likely to recommend that particular bank to others. Loyalty / Patronage: Customer loyalty is conceptualised as a customer's continuing patronage of a particular bank over a period of time. The customers who are satisfied will show their patronage to the particular bank. Patronage – which is also referred to loyalty, is defined as the support given by the customer to a specific business entity. According to (Baumann, Elliott, & Hamin, 2011), loyalty has been discussed in the existing studies which includes behaviour and loyalty. The behaviour/loyalty pertains to the customers' behaviour to repurchase, ie. Consistency of purchasing as well as the proportion of purchase. On the other hand, the deciding factor which affects the customer to repurchase is the emotional and psychological state of that customer which refers to loyalty. Hence, the customer loyalty is an intended behaviour which coincides with a service/product. In the study by (Oliver, 2006) loyalty is defined when a customer is profoundly committed to a product or service irrespective of any influences of leaving he brand and continues to repeat the purchases.

Critical Review of Key Theories/Models

SERVQUAL Model: (Parasuraman et al., 1985) developed SERVQUAL which is an advanced model fit to measure service quality. There are five dimensions in SERVQUAL which consists of tangibles, reliability, responsiveness, assurance and empathy. Based on these five dimensions, tangibles refers to the physical facilities, equipment and the appearance of the personnel; empathy is associated to being concern with the needs of the customers; reliability discusses on aptitude to deliver the service accurately, responsiveness refers to the inclination of the personnel in assisting customers and finally

assurance refers to the competence, as well as the security of the system. At present, a number of studies have employed the SERVQUAL model to gauge the service quality especially the banking industry. (Kumari & Rani, 2012; Wang, Lo, & Hui, 2003). To add on, (Angur, Natarajan, & Jahera, 1999) suggested that the SERVQUAL model is useful in providing diagnostic information due to its great variability across banks. No doubt, SERVQUAL model has been looked upon when referenced to service quality, it has also been criticised. (Carman, 1990) suggested that SERVQUAL needed to be customized by editing the words. According to (Babakus & Boller, 1992), SERVQUAL has defects as it suffers from methodological and measurement flaws. (Newman, 2001) claims that the SERVQUAL model is not holistic and doubt there is any service quality in it. Based on the above, there are existing studies which utilized modified SERVQUAL chiefly to gauge the service quality in financial institutions. For example, (Høst & Knie-Andersen, 2004) added the price dimension to gauge the service quality in financial institution. (Guo et al., 2008) employed four dimensions such as reliability, human capital, technology and communication to measure the service in the Chinese banking sector. In a different study (Kassim & Asiah Abdullah, 2010) employed the dimensions of human skills, online banking, tangibles and empathy to measure the service quality in Qatari Islamic banks.

It is however critical to highlight that the findings from the existing studies thus far indicated that the service quality (SERVQUAL) model is constantly transforming to benefit different countries. Critically, the five dimensions to the service quality such as tangibles, reliability, responsiveness, assurance and empathy developed by (Voss et al., 1998) seems to be less universally applicable according to (Gilmore, 2003). With regards to the above, (Bahia & Nantel, 2000) developed a bank service quality model which consists of 6 dimensions such as effectiveness (and assurance), access, price, tangibles, service portfolio and reliability. In contrast, (Guo et al., 2008) proposed four dimensions which consists of reliability, human capital, communication and technology emphasizing on the service quality of Chinese banking sector. Hence, it is evident that the dimensions of service quality varies between one sectors to the other, as well as between one countries to the other. Considering the competitiveness of the banking environment, typically, any bank that aims to sustain has to seriously consider the retention of their customers by providing service that may result in a high level of customer satisfaction (Caruana, 2002).

Theory of planned behaviour (TPB): This model is useful in explaining and predicting individual behavioural intention and acceptance of IT. TPB is an attitude-intention-behaviour model which posits that an individual's behaviour is determined by perceived behavioural control and intention. (Johnson & Hall, 2005) found that an individual's viewpoint on the act, subjective norms, as well as perceived behavioral control have an ability to impact their intention to carry out an act. As per (Hsu, Yen, Chiu, & Chang, 2006), perceived behavioral control indicates an individual's outlook on the availability of resources that are required to perform a behavior. The technology acceptance model (TAM): This model is very useful in predicting and making sense of information technology acceptance among users. The aim of TAM is to describe what regulates computer acceptance capability of describing user attitude across a wide range of end-user computing technologies and user populations in an economical and theoretically justified manner. TAM is a powerful user-friendly way to find factors that determine acceptance of IT among users while also predicting their level of satisfaction and behavioral intention. Perceived ease of use (PEOU) can be defined as the extent to which

an individual believes that using a specific system would be effortless. On the other hand, the extent to which an individual believes that a particular system would improve their performance is termed as Perceived usefulness (PU) (Sukkar & Hasan, 2005). TAM serves as a very useful tool for information system developers and senior managers who are in charge of offering and developing banking products on line to help them predict users' behavioral intentions. This eventually leads to a change in perception of the internet banking technologies. (Shaikh, Karjaluoto, & Chinje, 2015) stated that the information obtained enables information system developers to come up with a system that is user-friendly while also serving as a useful tool to enable banking and technology experts to develop new methods to meet the expectations and needs of the customers.

Critical Review of the Researches

According to (Alsajjan & Dennis, 2006), internet is an efficient way to increase its customer base. Furthermore, (Simpson, 2002) acknowledged that the advantages of Internet Banking includes Competitive advantage, customer retention and attraction, increased revenues and reduced costs. Based on a performed study among the customers from a large European retail bank, (Niklas, Boehm, & Strohmeier, 2011) reported that internet banking has a greater connection with customer retention as compared to the traditional means of delivery. It is apt to maintain high profile customers' through the innovation of internet banking services. Besides the above, (Acharya, Khandwala, & Sabri Öncü, 2013) in his study highlighted that the US community banks which have higher presence of online services recorded better profit efficiency. In conjunction to the lesser processing costs of utilizing internet banking transactions, customers can enjoy the savings (Lee, Kwon, & Schumann, 2005). According to (Bradley & Stewart, 2002), despite a number of studies have evaluated the customers' acceptance towards internet banking, the attention towards the factors that might impede the customers from using such innovation are scare According to (Szmigin & Foxall, 1998), there are three types of resistance to innovation. Firstly is postponement which refers to post-poners who intends to adopt the innovation within a year. Secondly is the opposition which refers to opponents who intends to adopt the innovation but indecisive. Thirdly is the rejection which refers to rejecters who do not intent do adopt the innovation. (Laukkanen & Pasanen, 2008) in a study reported that the above classifications is applicable for the prospective adoption of internet banking services by customers from Finland. Besides, discomfort and insecurity were highlighted as the main inhibitors in preventing the adoption of technological innovations by (Parasuraman et al., 2005).

In the study by (Kesharwani & Bisht, 2012), the authors determined the service quality of online banking at non-metro cities in India, as well as identified the important parameters for service quality from the customer's view. The authors also in the same study extended their research by exploring the importance of parameters across the demographic profile of the respondents. (Sathye, 2002) carried out empirical investigations on Australian bank customers and found that the main obstacles in the implementation of internet banking were the concerns over security issues, as well as a lack of clarity on its potential advantages. The study brought to light several potential obstacles, with the first being a lack of awareness towards the services that were being offered. It was postulated that customers would only seek the offered services if they were well educated about the available services and how they would be economical. Bankers

should play an active part in educating potential customers on these services and how they differ from competitors.

Conceptual Framework

The conceptual framework as shown in Fig 1 exhibits the relationship between the different variables. Based on it, patronage or also known as customers' loyalty could be obtained through high level of customers' satisfaction achieved from the rendered banking services. For this study, five dimensions which consist of the reliability, responsiveness, communication, access and security were employed to gauge the customers' satisfaction. This framework is to suggest that the five Service Quality dimension leads to Customer Satisfaction and which ultimately leads to Customer Loyalty or Patronage. It is material to note that globalization and liberalization are affecting the economies of all nations. There seem to be a change in organizations' focus from profit maximization to profit maximization through customer satisfaction. The pressure from stiff competition compels the organization to emphasize on the way the processes are delivered. Owing to factors such as increase in use of IT services and increase in customer knowledge and awareness – it becomes a necessary to deliver the services to suit customer needs. Therefore, service quality needs a refreshed understanding in present scenario. This study would certainly assist in minimising the research gaps and provide benefits to practicing organizations.

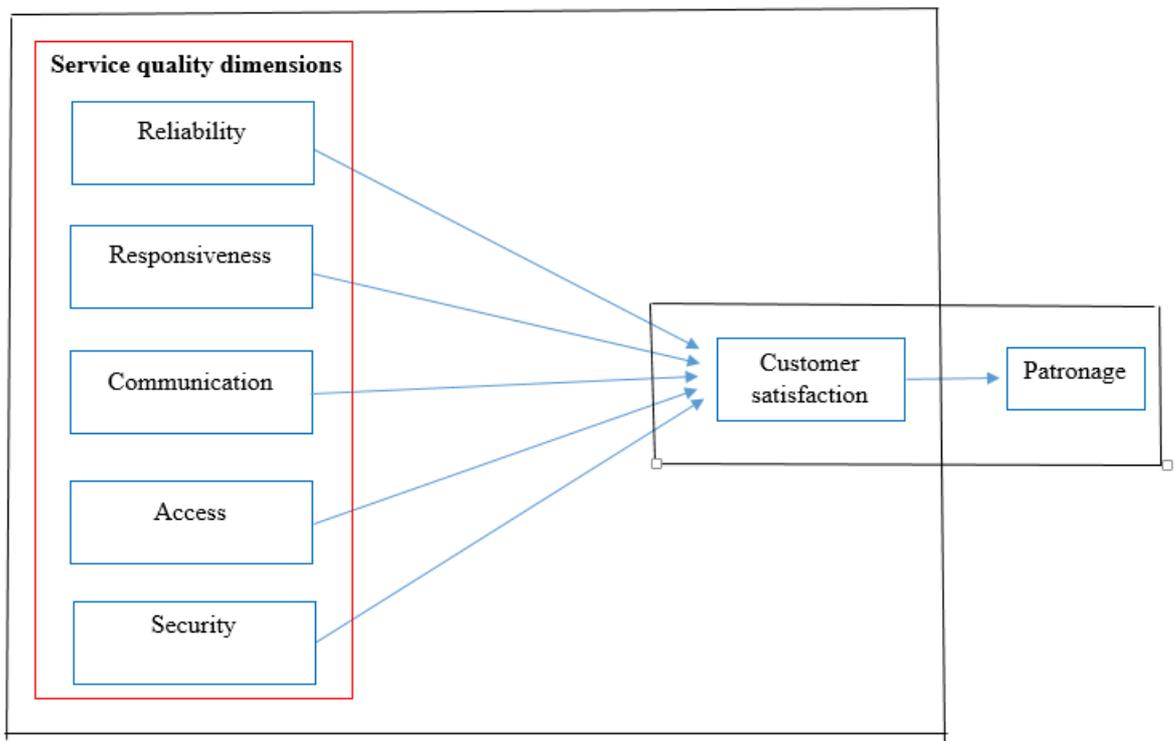


Figure 1: Conceptual framework

The hypotheses for this study are:

H₁: *Reliability dimension has a significant and positive influence towards customer satisfaction.*

H₂: *Responsiveness dimension has a significant and positive influence towards customer satisfaction.*

H₃: *Communication dimension has a significant and positive influence towards customer satisfaction.*

H₄: *Access dimension has a significant and positive influence towards customer satisfaction.*

H₅: *Security dimension has a significant and positive influence towards customer satisfaction.*

H₆: *Customer satisfaction has a direct relation with customer loyalty/patronage.*

Research Methodology

Positivism paradigm is used and quantitative research method is employed. Empirical data is collected using a self-administered questionnaire. The targeted respondents are banks' customers who has utilized and may utilize the online banking service. For this study, the convenience sampling method is employed to collect the required data as it was almost not possible to obtain the socio-demographic data from all bank customers. A total of 202 responses from the questionnaire were finally used for the analysis, a combination of response from Non-Users and Users of Internet Banking. Google form is used to generate the questionnaire, and the link was subsequently mailed to the respondents. The mailing of questionnaire technique enabled the researcher and respondents to come in contact with each other.

Two separate questionnaires were distributed to the bank customers in Malaysia – User of Internet Banking Services and Non-User of Internet Banking Services. This is to gauge the User's feedback on the service quality. As for the non-users, they were requested to complete the questionnaire to understand the reason they are yet to adopt to the Internet Banking. In general, the first part of the questionnaire aims to achieve a much clearer understanding from the customers' perspective on the offered service quality. Considering that a few of the evaluated service quality parameters are partially related to e-services, the questionnaire was distributed to computer-literate people and hence chose for an email based survey. In addition, the questionnaire was distributed to a wide range of samples ranging from first-degree and second-degree network. Besides the above, second-degree network also disturbed to their network which is considered as the three-degree network in this study. The second part of the questionnaire was designed aimed to understand the attitude of bank customers towards internet banking. This is inclusive from the perspectives of both internet banking users and non-users. Based on the results obtained, it is possible to determine the reasons why the users and non-users react differently towards a common service. The questionnaires were distributed to bank customers ranging from first, second and third degree network as described earlier. The questionnaire was distributed to the Non-Users of Internet Banking to understand the

reason they do not use Internet Banking services and other contributing factors which would be useful in this study.

Tools utilized in this study were adapted from the existing literature by ensuring its suitability of determining the bank customers' response upon the rendered service. The questionnaire was divided into two parts in which the first part emphasizes on the respondent's demographic variables such as age, gender, salary as well as other personal related information. For the second part, the respondents were accessed in terms of their agreement to the provided statement related to the 5 dimensions of concern in this study. The dimensions such as security and reliability were adapted from (Bahia & Nantel, 2000), and (Høst & Knie-Andersen, 2004). Concerning the responsiveness and communication dimensions, it were adapted from (Kumar et al., 2009). Finally for the online banking dimension, it was adapted from (Kassim & Asiah Abdullah, 2010). In determining the customer's satisfaction, the customers were requested to highlight their satisfaction with the bank as well as their overall satisfaction towards the rendered service by the bank. The loyalty/patronage to a particular bank over a period of time is conceptualized as the consumer's continuing loyalty and trust based on the overall satisfaction achieved. Additionally, the patronage here also demonstrates the customers' confidence in the quality and reliability of the services offered by the bank. In this study, the Likert scale was used to find the agreement or disagreement with regards to the study parameters ranging from a high degree of disagreement to a high degree of agreement.

For analyzing the data, the descriptive statistics of the questionnaire was acquired from SPSS in order to determine the normality of the questionnaire based on the skewness as well as the kurtosis statistics. The reliability test, validity test, correlation, regression and sample adequacy were determined using SPSS in analysing the data collected for this study. The above would be used to determine if the participants agree to the online banking services as well as the quality of online banking service in Malaysia.

Findings & Discussion

Impact on E-Banking Adoption

A total of 100 responses were received for the Non-Users of Internet Banking questionnaire. The demographics of the respondents includes the follows: The majority of the non-users are from the student category or just started working after completion of their studies, age 18-29years old. It can be highly assumed that due to their non-income generation, they do not use the Internet Banking services. A significant of 19.2% of the respondents are over 50 years old – this could mean they are not IT-literate and thus prefer walking in to a physical bank to get their banking done. 36.5% of the respondents are completing or completed their Pre-University or Diploma, and 34.6% of the respondents have or completing their undergraduate studies, which co-relates to the fact that they are mostly students and don't feel the need to use the Internet Banking yet. 55.8% of the respondents are female and 17.3% (pie chart on Profession above) of them happens to be house managers. It can be highly assumed that they do not generate an income, thus don't really have the need to use the Internet Banking services.

One of the questions asked in the questionnaire are the reasons these respondents do not use the Internet Banking services : Based on the results above, regardless of the age category, ‘trust’ seem to be an issue, it almost forms half of the percentage (42.9%) of the respondents’ reasons of the why they do not use the Internet Banking services. The respondents rather walk in to a physical bank and do their transaction manually rather than do it via Online Banking services. When asked if would the respondents consider using the Internet Banking services in the near future should the service quality of the internet banking improves and if it becomes further user friendly, 82.7% responded affirmative: Respondents were further probe by asking if they would consider using the Internet Banking services if the service quality of Internet Banking improves and if it’s easier to use the Banking portal – user friendly. More than $\frac{3}{4}$ of the respondents – 82.7% choose the option ‘Yes’. This indicates that based on these respondents feedback, they feel the service quality could be better improved. And being user friendly would definitely be an added advantage. In an open feedback column, some of the respondents stated that the system lags often, highly due to the server, especially if the portal is used after midnight. Also, the other reason is, the system is difficult to be used, not friendly enough – too many steps to perform a simple transfer of funds. To add on, classifying non-users as per (Laukkanen & Pasanen, 2008), 82.7% of the respondents are actually ‘postponers’ since they anticipate to adopt Internet Banking in the near future. This would enable the banks to capture these potential customers fairly easily – they just need to be convinced that it is easy and secure. Thus to conclude, there are certain flaws in the Internet Banking services as per the response from the questionnaire. Trust seem to be a vital issue – this scenario would certainly change if the users are adequately educated and they can be assured that the transaction are through a secured channel. It is also noted that the older the age group is, the more they hesitate to use Internet Banking services, they are fearful to use the portal claiming it is difficult to use and worried of their account being hacked. The easiest way to solve this problem is perhaps to come up with a simplified manual for the older group of people, to ease their understanding of the whole process. Students should also be equally educated with the simplicity, speed and convenience of using the Internet Banking services – especially when they come to open an account with the Bank. This would definitely save their time and they would not need to find transportation and go all the way and queue up just to perform a simple transaction in a physical Bank. Providing potential customers with a demonstration may encourage and cajole them to actually adopt Internet Banking.

Impact on E-Banking Satisfaction & Patronage

A total of 102 responses were received for the Users of Internet Banking questionnaire. The demographics of the respondents includes the below: The majority of the respondents are young, 18-29 years which comprises of students and adults who just starting a career. This totals to more than half of the respondents – 56%. It is to be noted that the population comprise of literate respondents, who at least definitely have a undergraduate degree. More than half of the respondents seem to work in corporate – private firm: 51.5%. Female respondents are slightly higher than the male respondents, by 3%, totalling to 51.5%. But the respondents are taken as equally spread between male and female for the purpose of this study.

Duration of using Internet Banking: Majority of the respondents been using Internet Banking services for the duration of 1-5 years. This is in line with the respondents' age group, mostly being young adults between 18-29 years old. It is to be noted that 60.2% of the respondents are using the Internet Banking services for the duration of 1-5 years – which means they users are indeed satisfied with the services or they would discontinued the usage. Frequency of Internet Banking usage per month: The respondents typically use the Internet Banking services between 1-5 times. Do they trust banks that only operate online? Almost half of the respondents were indecisive and choose 'somewhat', in regards to if they trust banks that online operates online. This indicates that a physical bank is definitely needed. Do they trust the security of online banking services? Again, the respondents were indecisive and choose 'somewhat' when asked their level of trust in regards to the security of online banking services. Service Quality: The responses which were obtained in respect of each service quality dimension are shown in below vertical charts. The possible responses were presented along a 5-point mapping scale - 1 being strongly agree and 5 being Strongly Disagree, where a 'Strongly Agree' response indicates high service quality and vice-versa. It is to be noted that most responses fell in the ambit of 'Strongly Agree'/'Agree' category, indicating that Users perceive an overall high service quality.

Descriptive Analysis

Descriptive statistics are used to describe the primary characteristics of the data in a study while providing basic summaries on the sample and measures. When coupled with simple graphic analysis, they form the foundation of almost every quantitative analysis of data. (Areepattamannil & Khine, 2017) stated that data normality is guaranteed if the absolute value is within (<0.1) or ($<.001$) – in a multivariate analysis. Kurtosis measures how peaked or flat a distribution is. A normal distribution will have a value of 3 while a value > 3 indicates a sharp peak with heavy tails closer to the mean (leptokurtic). A kurtosis < 3 would indicate a flat top (platykurtic). For the Kurtosis analysis, except for Loyalty and Communication, its all below 1.0 which is good. Skewness is a measure of the symmetry of the distribution to determine if the mean is at the centre of the distribution. For a normal distribution, the Skewness value is +1, the table befits the benchmark as for all the dimensions. A negative value represents a skew to the left, with the left tail being longer than the right tail. A positive value represents a skew to the right with the right tail being longer than left one.

Table 1: Descriptive Statistics

Variables	N	Mean		Std. Deviation	Variance	Skewness		Kurtosis	
		Stat.	Std. Error			Stat.	Std. Error	Stat.	Std. Error
Reliability	102	1.987	0.102	1.015	1.031	1.133	0.244	0.984	0.483
Responsiveness	102	1.987	0.102	1.013	1.026	1.028	0.244	0.450	0.483
Communication	102	1.900	0.101	1.003	1.006	1.272	0.244	1.287	0.483
Access	102	1.960	0.102	1.011	1.022	1.074	0.244	0.496	0.483
Security	102	1.969	0.108	1.077	1.160	1.106	0.244	0.557	0.483
Cust._Satisfaction	102	2.058	0.098	0.978	0.957	.955	0.244	0.550	0.483
Loyalty	102	1.959	0.097	0.967	0.936	1.190	0.244	1.001	0.483

As it is highly unlikely to be able to gather information on an entire population, the objective of many statistical analyses is to utilize the data from the sample to come up with inferences for the population of interest. In practice, parameters are estimated by the quantities that are derived from the sample. For instance, the Normal distribution is distinguished by the population mean (μ) and population standard deviation (σ) which are estimated using the sample mean and sample standard deviation respectively. Statistics are used to observe the response across a sample, a wide range of statistics can be used, such as mean, median, mode, etc. However, sampling is done to obtain an estimate for the population that was sampled from.

Central Tendency. Central Tendency refers to the estimate of the “centre” of a distribution of values. A measure of central tendency alone is inadequate to describe a frequency distribution. There are various measures of dispersion like mean and standard deviation. The most commonly used method to describe central tendency is the Mean or average. It is calculated as the sum of all observations divided by total observation number and each observation contributes to the mean value. Consequently, it is sensitive to the behaviour of the outlying data and as the greatest value increases, the mean value also increases and conversely, the value of the smallest observation decreases as the value of the mean decreases. The ‘mean’ here is average, not too much nor too little. The skewness helps describe the way the data is piled-up. Data that is skewed is asymmetrical and negatively skewed data have a long left-hand tail at lower values with a peak at higher values. Positively skewed data on the other hand have a peak at lower values and a long tail at higher values. There are no fixed rules about which should be used. However, when the distribution is not skewed, the mean is popularly used. Also, data that are symmetrically distributed will have a similar mean and median.

Standard deviation is commonly used to measure the spread of the data and is used together with the mean to provide an overview of the differences of each observation from the mean value. The standard deviation obtained from the table denotes a small value, which is good. Along with the measures of location, it is necessary to know if the data is skewed or not when deciding which measure of spread to present. This will also influence how the data will later be analysed. In order to sum up numerical data, the mean and standard deviation should be used, or if the data have a skewed distribution, the median and range, or inter-quartile range should be utilized. It is crucial to state the total number of observations on which they are based for all the calculated quantities. For categorical data on the hand, both the frequencies and percentages may be used. If percentages are used, it is crucial that the denominator is stated. Numerical precision should remain consistent throughout and summary statistics like mean and standard deviation should not have more than one decimal place or significant figure when compared to the raw data. False precision should be avoided but when some measures are to be used in further calculations, a greater precision may sometimes be validated (Altman, 1996). Standard deviation is usually used when the distribution is not skewed but if data is indeed skewed, it is advisable to use the range or interquartile range.

Multicollinearity

Table 2: Collinearity Diagnostics

Dimensions	Eigenvalue	Condition Index	Variance Proportions					
			(Constant)	Reliability	Responsiveness	Communication	Access	Security
1	5.704	1.000	.00	.00	.00	.00	.00	.00
2	.164	5.896	.95	.00	.00	.01	.00	.01
3	.050	10.665	.00	.11	.11	.03	.34	.00
4	.040	11.869	.01	.06	.06	.10	.01	.52
5	.024	15.283	.01	.82	.82	.01	.06	.46
6	.017	18.529	.03	.01	.01	.85	.59	.01

a. Dependent Variable: Cust. Satisfaction

When choosing a predictor variable one should select one that might be correlated with the criterion variable, but that is not strongly correlated with the other predictor variables. The term multicollinearity (or collinearity) is used to describe the situation when a high correlation is detected between two or more predictor variables. Such high correlations cause problems when trying to draw inferences about the relative contribution of each predictor variable to the success of the model. However, based on the results derived from the table, the figure satisfies the variance proportion which depicts the 5 service quality – Reliability, Responsiveness, Communication, Access and Security.

Normality of Dependent Variable

It appears somewhat normally distributed but slightly negatively skewed. This could be analysed as continuous data but reporting the frequencies rather than the measured of central tendency or dispersion may be more suitable for this variable. It could potentially mean that it is not a nice ‘bell’ shape perhaps due to the fact that the respondents are from various age groups, and it is generally assumed that the older generation are yet to adopt Internet banking services, while the students don’t really use Internet Banking services as they don’t really have an income flow. It’s the working adults who do use Internet Banking – the ones who have an income.

Multiple Regression Analysis

Model summary

Table 3: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.733a	.537	.532	.66191

a. Predictors: (Constant), Cust_Satisfaction

The above table shows that R is 0.733, R square is 0.537 and adjusted R is 0.532, meaning that 53.2% of the variance of Internet adoption can be predicted by the independent variables of the service quality – Reliability, Responsiveness, Accessibility, Communication and Security. This is not a perfect model, but it is very slightly above

50%. The correlation seen in our example would be between the customer contentment due to service quality which has an impact on internet banking. This serves as a measure of how good an estimation of the criterion variable we would be able to make by knowing the predictor variables. R square does however, tend to over-estimate the success of the model when it is applied in a real world settings. Therefore, an adjusted R square value is calculated by taking into account the number of variables in the model and the number of participants the model is based on. This adjusted value serves as a useful measure of the success of the model.

Anova

Table 4: ANOVA

Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	48.777	1	48.777	111.330	.000b
Residual	42.060	96	0.438		
Total	90.837	97			
a. Dependent Variable: Loyalty					
b. Predictors: (Constant), Cust. Satisfaction					

ANOVA and multiple regressions seek to account for the variance in the observed scores. ANOVA enables us to directly manipulate factors and measure the change that occurs in the dependent variable. Multiple regressions involves the measuring of naturally occurring scores on a range of predictor variables and attempts to establish which of the observed variables can give rise to the best prediction of the criterion variable. Hence, it acts as a fairly specific tool and restricted example of the general approach used in multiple regressions. ANOVA is a global test of whether the means differ in any of the groups and is based upon the concept that you can partition the variability in a set of data into varying sources.

Testing Hypothesis (Coefficients)

Table 5: Coefficient's

Coefficients a					
Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
1 (Constant)	.467	.156		2.986	.004
Cust. Satisfaction	.725	.069	.733	10.551	.000
a. Dependent Variable: Loyalty					

Standardized Beta Coefficients serve as a gauge of the contribution of every variable to the model. If the unit change in this predictor variable has a huge effect on the available criterion, the coefficient will have a large value. T and Sig (p) values provide a rough indication of the significance of each predictor variable- a big t value and small p value would suggest that a predictor variable has a large impact on the criterion variable.

Tolerance values serve as a measure of the relationship between the predictor variables and may range between 0 and 1. The closer the tolerance value is to 0, the stronger the correlation between this and other predictor variables. We should be concerned if a variable has a extremely low tolerance. SPSS will not include a predictor variable if it has a tolerance value of < 0.0001 . In order to set higher standards, predictor variables with tolerance value of < 0.01 should not be included in SPSS. VIF is an alternative collinearity measure and large value indicate a strong relationship between predictor variables.

Table 6: Correlation

		Cust. Satisfaction	Loyalty
Cust. Satisfaction	Pearson Correlation	1	.733**
	Sig. (2-tailed)		.000
	N	98	98
Loyalty	Pearson Correlation	.733**	1
	Sig. (2-tailed)	.000	
	N	98	98
** Correlation is significant at the 0.01 level (2-tailed)			

Table 7: Correlation Coefficients

Coefficients							
Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	.425	.127		3.342	.001		
Reliability	.135	.125	.141	1.084	.281	.187	5.346
Responsiveness	-.133	.132	-.138	-1.012	.314	.169	5.913
Communication	.076	.160	.078	.474	.636	.118	8.505
Access	.429	.132	.443	3.251	.002	.170	5.899
Security	.328	.119	.361	2.746	.007	.182	5.488
a. Dependent Variable: Cust. Satisfaction							

Table 8: Casewise Diagnostics

Casewise Diagnostics				
Case Number	Std. Residual	Cust. Satisfaction	Predicted Value	Residual
57	3.222	3.00	1.2590	1.74102
98	3.222	3.00	1.2590	1.74102
a. Dependent Variable: Cus. Satisfaction				

Beta value measures how strongly all the predictor variables influence the criterion variable. Beta is measured in units of standard deviation and a beta value of 2.5 would mean that a change of just one standard deviation in the predictor variable will cause a change of 2.5 standard deviations in the criterion variable. Therefore, the higher the beta

value, the larger the implications of the predictor variable on the criterion variable. If only one predictor variable is present in a model, the beta is equivalent to the correlation coefficient between the predictor and criterion variable. This analysis done via SPSS makes sense as the situation involves the correlation between two variables. If more than one predictor variable is present, the contribution of every predictor variable cannot be compared by merely comparing the correlation coefficients. Such comparisons can be made and strengths of relationships between each predictor variable to the criterion variable can be assessed using the beta regression coefficient. The null hypothesis is that the correlation coefficient is zero. The correlation coefficient associated with the linear fit to the probability plot data is a measure of how good the fit is. To conclude, the correlation here is healthy, the right variables used.

Conclusion

From the responses received, the two most looked upon dimensions of service quality are Accessibility and Security – which goes hand in hand with customer satisfaction. As for the Non-Users of Internet Banking, for the set of questionnaire which focuses on their perceptions towards Internet Banking, non-adopters of Internet Banking are rather sceptical about the overall security of Internet Banking. This is an indication that the Banks should go all out and devote further effort and time to educate the customers and convince them that online services are secure enough. Another concern of these non-users is the technical hitches in using Internet Banking. The majority of respondents fall under the ambit of elderly citizens and it would be safe to assume that they do not use the computers much or at all. The other category of non-users is students. However, this tendency would certainly be less prominent in the future should they become familiar with how to use a computer and be convinced of the user friendly and security of Internet Banking. We can highly speculate this is because they do not earn and thus do not have any income, thus no real reasons to use Internet Banking; majority would widely use the Automated Teller Machine - ATM's only. We conclude by recommending some plausible directions for future research. According to (Alsudairi, 2012), the association between online service quality with impacts on customer satisfaction are laudable of enhanced consideration. (Patsiotis, Hughes, & Webber, 2012) further added that it is of great importance to investigate on non-adopters of Internet Banking with intentions of the banks to target this group meritoriously. Furthermore, Internet Banking services can be personalized as this would inadvertently build customer loyalty. Service quality with regards to users of various classes should be given thought to when designing a web portal. This would create a one-to-one feeling as the portal is not generalised for everyone but instead custom made. Ultimately, this leads to user-friendly as the portal is personalised

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