FIFTH INTERNATIONAL CONFERENCE ON MARKETING AND RETAILING

(5TH INCOMaR) 2015

Customer Satisfaction on Reliability and Responsiveness of Self Service Technology for Retail Banking Services

Iberahim, H. [b]*, Mohd Taufik, N.K. [a], Mohd Adzmir, A.S.[a] & Saharuddin, H.[a]

[a]Arshad Ayub Graduate Business School, Universiti Teknologi MARA, 40450, Shah Alam, Selangor, Malaysia
[b]Faculty of Business & Management,Universiti Teknologi MARA, 40450, Shah Alam, Selangor, Malaysia

Abstract

Self Service Technology (SST) is a required feature in retail banking industry. The interface facilitates communication between human and machine is important in our daily lives as a result of the swift technology advancement. Automated-Teller Machine (ATM) has been one of the best options for Self Service Terminal in catering retail banking services. The purpose of this study is to examine the current level of ATMs service quality at one of the main ATM service points of a Malaysian bank. The objective of the study is to investigate the relationship between the reliability and responsiveness of ATM services with customer satisfaction and verify the determinants for service enhancement. Data was collected through questionnaire survey of 271 respondents and observations at the service point. Data was analysed using SPSS. Result of survey suggests the relationships of three out of four elements of service quality dimensions (consistency, dependability and timeliness) are important to maximising customer satisfaction.

Keywords: ATM; Service Quality: Customer Satisfaction

1. Introduction

Changes in technology and government regulations have become the contributing factors towards the need for service quality improvement in banking industry. Abdullah et al. (2010) reviewed that the increasing demand for higher quality of service through better product offering and value-added services has become the reasons for most financial institution to realign their current business practices to include new technology.

_____

* Corresponding author. Tel.: +60-355444742; fax: +60-355444695
E-mail address: hadijah6553@salam.uitm.edu.my

Self Service Technology (SST) is opted as an alternative for banks to cater withdrawal and deposit of cash, besides over the counter transactions. The emergence of Automated Teller Machine (ATM) and other new forms of banking have accelerated banks' requirement to dwell with service quality for customers' satisfaction and retaining loyalty. In response to the dynamic business environment, Malaysian banking industry experiences the revolution in technology in financial services provision. In 1980, the Malaysian banking industry has evolved because of information technology and telecommunication, in particular, offers variety of transaction modes to customers. In 1981, Malaysia introduced ATMs which is as crucial as Tele-banking, PC-banking and internet banking. Hence, ATM remains as a vital banking service point despite the increasing usage of other banking services in Malaysia. ATMs evolve and upgrade to become a more efficient mode of transaction. Malaysia Electronic Payment System (MEPS) provides the retail electronic clearing and settlement of system for local banking institutions with the usage of chip based cards from magnetic stripe cards. This step also made Malaysia the first country to implement it in Asia in 2003. MEPS allows several new payment systems such as Payment Multipurpose Card (PMPC), payment gateway for supporting internet transaction, Interbank Giro, and MEPS cash e- money scheme by ATM. Retail banking industry sustains the growth along with increase in number of ATM machines installed in the past 10 years.

According to the World Banks (2014), the number of ATMs available (per 100,000 adults) in Malaysia has increased from 26.01 in 2004 to 53.38 in 2012. This indicates the sizeable capacity and accessibility of ATM services provided. The variation of services reflects the significant attention and potential growth in ATMs services.

There are two issues that affect the services quality of ATMs. First, reliability of ATM is associated to the situation where the ATM runs out of cash due to large number of customer usage or late replenishment. The screen will appear "out of services" and machines broke down due to malfunction in mechanical parts which caused the screen to appear "system under maintenance". These issues are classified as inconsistency in operations. Reliability of the ATM services focuses on consistency and dependability, whereby consistency is focusing on how much money is being replenish and downtime for repair or maintenance requirement of ATM. This problem often happened during public holiday or at night where the employees in-charge are not willing to back up due to the requirement of the bank policy which need a few staff members to attend and execute the refill operations during that particular time. Customers would have to wait for system recovery during normal operations hours. For dependability aspect, ATM may breakdown due to lack of maintenance or heavy usage during peak time. Dependability also highlights cases such as customers` accounts were credited while the machine did not dispense or transfer the amount entered, fake notes were dispensed, receipt and mini statement were not printed. The malfunctions commonly happen during peak time when customers need to use the ATM services urgently. For example, frequent appearance of "Out of Service" on the screen of ATM and printing of receipt was not able to be done due to in availability of printing papers or the printing service is jammed. Second, responsiveness of ATMs service focuses on timeliness and technology. Timeliness is about handling customer complaints on ATMs services within timeframe. There are cases where ATM returns the customers card prematurely or cards stuck for some technical reasons or any kind of problems related to ATM. Finally, technology refers to the user-friendly system provided by the ATM such as touch panel display or language and steps to completing a transaction. While some frequent users may find the system as an easy transaction mode to be used, others may need some assistance. Dissatisfaction among customers can be identified from customer complaints reports.

Considering the importance of SST in retail banking industry and the practical issues as well as some theoretical gaps in providing efficient and effective banking services of high quality, this paper aims to examine the determinants for service quality for customer satisfaction, in particular, reliability and responsiveness of the ATMs services. Thus, the paper is divided into five main sections. The review of the literature on dimensions of service quality and customer satisfaction extends the understanding on past studies. Subsequently, the following section looks into factors associated with customer satisfaction. Section 3 describes the research context, the development of the survey instrument and the data collection process. Subsequently, the survey results are presented and discussed in Section 4. The closing section discusses the theoretical and managerial implications of the analysis. It concludes with the limitations of the study and suggestions for future research.

2. Literature Review

2.1. Customer Satisfaction and Service Quality

In marketing term, customer satisfaction is described as a measure on how product or services supplied by organization meet customers' expectation. This is one of the important keys to ensure business is successful because customers' satisfaction will determine the market growth of the organization in the future. Satisfaction is measured through the level of product quality, quality of service provided, location where the product or service is purchased, and price of the product or service. Shen, Tan and Xie (2000) stated that quality whether it is satisfying or exceeding customers' needs and expectation depends on the customers who use the services and judge the quality of the product or services provided. The key to achieve customers' loyalty by providing excellent service quality is the primary goal of business organizations because of the advantage of customer retention (Ehigie, 2006). When banking industry introduced ATM machine, the banks perceived ATM to be able to reduce the unnecessary traffic in the banking hall, offer customers quick access to their accounts and make life convenient to a certain level. Similarly, it is essential for a Self Service Terminal to have adequate number of machines, convenient and secure location of the machines, user friendly system based high in speed, minimum errors, high uptime, and cash backup, low cost and with various services coverage (Al-Hawari & Ward, 2006; Dillijonas et al., 2009). Tuli, Khatri and Yadav (2012) analysed the important factors that can influence customer satisfaction are; convenience in use and availability of ATM. Mahony, Pierce and Tiwari (1997) reminds that customers would switch to other service provider or prefer other banks because of location of ATM, number of ATM and broad service offering are associated with ATMs.

2.2. Reliability in Service Quality

Reliability refers to the ability to deliver expected standard at all time, how the organization handle customer services problem, performing right services for the first time, providing services within promised time and maintaining error free record. In regards to ATMs services, Jay and Barry (2014) noted that the reliability of machine parts or product parts is considered as consistently good in quality or performance which is able to be treated at any time. For ATM environment condition and technical reliability are equated to reliable design that is functional. Stiakakis and Georgiadis (2009) found reliability as fundamental criterion of superior electronic service quality. Yang and Fang (2004) stated that reliability consists of accurate order of fulfilment, accurate record, accurate quote, accurate billing, and accurate calculation of commissions which keep the service promising to the customer. There are the two important factors that give effects to the banking service; consistency and dependability.

First, consistency refers to uniformity or compatibility between things or parts. This means that the quality is always the same, doing things in the same way and having the same standards. Frei et al. (1999) suggest that service quality should include uniformity of service output around an ideal target value determined by customers. Banks need to address the changing needs in predictable and consistent manner. Second, dependability refers to the assurance of providing services as expected. Trust is another key factor influencing the adoption of various types of service in electronic banking (Rexha et al., 2003). For that reason, ATM security has been considered as one of major concerns for financial institutions. While ATM dominated the machine-customer interaction, expectation of occurrence for errors during employee-customer interaction at bank premises can be minimised. For that reason, ATMs should provide accurate transaction such as correct details of customers, routine transaction records, and receipt printing. Information accuracy and order accuracy is another critical dimension in providing online service quality (Collier & Bienstock, 2006).

2.3. Responsiveness in Service Quality

Responsiveness is defined as the ability to respond to customer requirements timely and flexibly. Mariappan (2006) stated that revolution of information technology has brought astonishing changes in business environment which no other sector has been influenced by advancement in technology as much as banking and financial institution. Banks have to adopt technology to deliver their services and at same time reduce cost due to creation of value added services for customers (Zhu, Wymer and Chen, 2002). It is crucial for banks to better understand the

changing customers' needs and adopt the latest information technology system in order to compete more effectively with global organizations (Malhotra & Mukherjee, 2004). Through technology, banks are able to perform consistently and respond quickly in line with customers' requirement that will bring up the level of customers' satisfaction. Shariq and Tondon (2012) argued that customers prefer to use ATM services rather than e-banking services due to the adaptation of new technology that customers need to be ensured in term of security. Subsequently, timeliness can be defined as the quality or habit of arriving or being ready on time or punctual. Timeliness is occurring at a suitable time, seasonable, opportune and well-time. The establishment of speed in operation that reduces waiting time is an important factor of ATM services quality (Mobarek, 2007). Dilijonas et al. (2009) identified that elements which contributed to timeliness in banking services are speed, high uptime, errors, cash backup, and quality service at reasonable cost.

While past studies look into many other factors such as strategic location, accessibility and convenience.Taking into consideration that the ATMs have been located in strategic locations with enough number of machines, this study attempts to investigate determinants of customers' satisfaction in regards to good service operations; being responsive and reliable. Based on literature review, this study explores the relationships between four elements of two dimensions of service quality. A set of four hypotheses are as follows:

- H_1: ATM services consistency is positively related to customer satisfaction.
- H_2: ATM service dependability is positively related to customer satisfaction.
- H_3: ATM service timeliness is positively related to customer satisfaction.
- H_4: ATM service technology is positively related to customer satisfaction.

3. Methodology

The research is designed to assess significant relationship between identified aspects of service quality which eventually brought about customer satisfaction. The research was designed to illustrate a cross-sectional study that applied a minimal degree of interference of researchers. The primary data is collected using observation at site and questionnaire survey. The selected Self Service Terminal where the ATMs were located, representing one of the main distribution centers for the Self Service Terminal in Klang Valley. The center has an estimated 2,000 ATM users walk in per day. Investigation was conducted in a month from the April to May 2015.

Questionnaires were distributed to customers that have used the ATM services using convenience sampling to purposely address the experiences of frequent users. The sample size is estimated as 322 ATM users. Out of 322 targeted responses only 271 responses were valid and completed to be used for the purpose of this research. The amount is considered adequate to represent the population (Zikmund, 2010). The study adopted probability sampling as the technique is found rationale in getting fair feedback, with each user would have fair probability to be chosen as a respondent. According to Sekaran (2010), the technique helps in reducing cost, leverage the probability of biasness in feedbacks. The questionnaire was divided into six sections. Section A clarifies the demographic profile, Section B is to discover the consistency aspect, Section C addresses the dependability, D checks the timeliness and E refers to technology aspect, finally Section F assesses the level of customer satisfaction. The scale of response is 5 Likert Scale and the questions are adopted from Singh (2011), Barun, Sureka and Shitika (2014), Kumbhar (2011), Al-Hawari and Ward (2006), Collier and Bienstock (2006), Wolfinbarger and Gilly (2003), Joseph and Stone (2003), Lee and Lin (2005), Mobarek (2007) and Yee-Loong Chong et al. (2010). Some of the questions were modified to suit the nature of the operations in its environment and few questions were added in consideration of the reliability and validity.

4. Results and Discussions

This section presents the results of statistical analysis techniques used to investigate the four relationships and determine the critical elements of service quality that affect customer satisfaction in the provision of ATMs services..

4.1. Demographic Profile

Demographic profile of 271 respondents reflects a fair collection of sample for targeted population of 2000

ATMs users. Out of 271 respondents, 154 (57%) of the respondent are male and 117 (43 %) were female. The biggest group of ATM users were from age ranged from 31 to 40 years old (101 or 37 %), 73 (27 %) were at the age between 21 to 30 years, 64 (24 %) were aged between 41 to 50 years, 22 (8%) were above 51 years old, and 11 (4 %) of the respondents were below 21 years old. 175 (65%) were married, while 96 (35%) still single. As for the level of education, majority were at graduate level which consist of 163 respondents (60%), while others were 76 respondents (28%), undergraduate level were 21 respondents (8%), the lowest was at post-graduate level with 11 respondents (4%). With regards to occupation, majority of respondents were government servants consisting of 132 respondents (49%), while 65 respondents (24%) were working at private sector. Table 1 provides the detailed description ATM usage frequency. The largest group used ATM at no specific time which consists of 166 respondents or 61%. Other respondents group has frequency of 1-3 times a week for 77 respondents or 28% and 23 respondents or 8% are in the category of using ATM every 2 weeks. 5 respondents (2%) used ATM. The group is using ATM twice a month. This profile implies low frequency of usage but high expectation of service quality due to the nature of opting ATM as an ad hoc solution.

Table 1: Demographic Profile of Respondents

Profile	Description profile	Number of respondent	Percentage (%)
Frequency of using ATM	1 – 3 times a week	77	28
	Every two weeks	23	8
	Twice a month	5	2
	When necessary, no specific time	166	61

4.2. Reliability

Reliability analysis has been done to examine and investigate the reliability of the data obtained in this study and to assess the degree of consistency on multiple measurements of variable. Table 2 shows the overall Cronbach's Alpha for the variables. This table shows that the values are all above 0.70 which is considered as acceptable. The consistency perspective of ATM services has the highest Cronbach's Alpha with 0.949. This represents excellent reliability. Even though customer satisfaction scored the lowest (0.808), it is considered having a very good consistency level. From this result, the variable factors have high level of internal consistency reliability.

Table 2: Reliability Analysis

Variable	Number of item	Cronbach's Alpha
Consistency	5	0.949
Dependability	5	0.911
Timeliness	4	0.801
Technology	4	0.898
Customer satisfaction	3	0.808

4.3 Correlation

The results in Table 3 explain relationships between independent variables (consistency, dependability, timeliness and technology) and dependent variable (customer satisfaction). With p value less than 0.05, it shows all the variables are positively correlated with the customer satisfaction.

Table 3: Correlation on customer satisfaction

	Customer Satisfaction	Consistency	Dependability	Timeliness	Technology
Customer Satisfaction	1				
Consistency	.918**	1			
Dependability	.851**	.906**	1		
Timeliness	.892**	.906**	.761**	1	
Technology	.916**	.977**	.925**	.907**	1

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

4.3. Multiple Regression

A multiple regression analysis was done to test H1 to H4 and the result is presented in Table 4. The model is significant with value of R square is 0.873 or 87.3%. This indicates that dependent variable - customer satisfaction - can be explained by the four independent variables in this study (consistency, dependability, timeliness, and technology). Table 4 also shows the adjusted R square is 0.871. The adjusted R square shows that 87.1% of the variance in customer satisfaction has significantly explained by 1% changes in the four independent variables. This is almost the same value between R square and adjusted r square that indicates high model fit. Meanwhile, the remaining 12.9 % variation in customer satisfaction is explained by other variable which is not included in this model.

Table 4: Multiple Regression Analysis, Model Summary

Model	R	R Squared	Adjusted R Square	Std. Error of the Estimate	Statistic Change				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.934[a]	.873	.871	.18444	.873	456.059	4	266	.000

a. Predictors: (Constant), technology, timeliness, dependability, consistency
b. Dependent variable: customer satisfaction

Table 5 shows the coefficients for each model tested. Notice that all models are statistically significant with P value less than .05 ($p < .05$) the meaning of that every single predictor variable has contribution in the outcome variable. It is obvious that there is no significant influence of technology on customer satisfaction on the ATM services with P value is 0.857. The beta for standardized coefficient for technology is 0.023. Thus, H4 is not supported. However, consistency, dependability and timeliness were positively related to customer satisfaction of ATM services. This gives support for H1, H2 and H3.

Table 5: Multiple Regression Results for Service Quality versus Customer Satisfaction

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	.248	.162		1.531	.127
Consistency (B)	.232	.083	.297	2.814	.005**
Dependability (C)	.231	.064	.243	3.626	.000**
Timeliness (D)	.395	.058	.417	6.774	.000**
Technology (E)	.024	.134	.023	.180	.857

Dependent Variable : Customer Satisfaction. ** $p < .05$

5. Conclusions

This study was designed to examine four elements of service quality which are the consistency, dependability, timeliness and technology, based on two popular dimensions, which are the reliability and responsiveness and its influence of customer satisfaction. The results are encouraging to help managers to improve the ATM services at Self Service Terminal, in particular, in the expansion and enhancement plan of retail banking services. This research has rendered more understanding on the practical issues in offering ATM services among leading banks in Malaysia. Focus needs to be placed to the consistency, dependability and timeliness of ATMs services in tandem with the development and introduction of other types of banking services and variation in transaction modes. This research contributes to improve the knowledge of how ATM service quality dimension may influence customers' satisfaction. The research proposes for further exploration on the applicability of the determinants in related services industry.

References

Abdullah, F., Andrew, J. V., &Ho, V. B. 2010. Identifying and validating dimensions of service quality for the banking industry in Malaysia. *Journal of Global Business and Economics*, 1(1), pp 79-98.

Al-Hawari, M., & Ward, T. 2006.The Effect of Automated Service Quality on Australian Banks' Financial Performance and the Mediating Role of Customer Satisfaction.*Marketing Intelligence & Planning*, 24(2),127-147.

Barun, K. J., Sureka, S., & Shitika 2014. Customer's Satisfaction for ATM Services in Bihar, India.*International Journal of Interdisciplinary and Multidisciplinary Studies (IJIMS)*, 1(4), 42-49.

Collier, J. E., &Bienstock, C. C. 2006.Measuring Service Quality in E-Retailing.*Journal of Service Research*, 8(3), 260-275.

Dilijonas, D., Kriksciunien, D., Sakalauskas, V., &Simutis, R. 2009. Sustainability Based Service Quality Approach for Automated Teller Machine Network. *International Vilnius Conference EURO Mini Conference: Knowledge-Based Technologies and Methodologies for Strategic Decisions of Sustainable Development*, 241-246.

Ehigie, B. O. 2006. Correlates of Customer Loyalty to Their Bank: A Case Study in Nigeria. *International Journal of Bank Marketing*, 24(7), 494-508.

Frei, F. X., Kalakota, R., Leone, A. J., & Marx, L. M. 1999. Process Variation as a Determinant of Bank Performance: Evidence from the Retail Banking Study. *Management Science*, 45(9), 1210-1220.

Jay, H. & Barry R. 2014. Operation Management: Sustainability and Supply Chain Management.11th Edition.

Joseph, M., & Stone, G. 2003. An empirical evaluation of US bank customer perceptions of the impact of technology on service delivery in the banking sector. *International Journal of Retail & Distribution Management*, 31(4), 190-202.

Kumbhar, V. M. 2011. Customers' Satisfaction in ATM Service: An Empirical Evidences from Public and Private Sector Banks in India. *Management Research and Practice*, 3(2), 24-35.

Lee, G. G., & Lin, H. F. 2005.Customer Perceptions of E-Service Quality in Online Shopping.*International Journal of Retail & Distribution Management*, 33(2), 161-176.

Malhotra, N., & Mukherjee, A. 2004. The Relative Influence of Organisational Commitment and Job Satisfaction on Service Quality of Customer: Contact Employees in Banking Call Centres. *Journal of Services Marketing*, 18(3), 162-174..

Mariappan, V. 2006.Changing the Way of Banking in India.*Journal of Economics and Behavioural Studies*. 26(2), 26-34.

Maybank . 2015.www.maybank2u.com.my.

Mobarek, A. 2007. E-Banking Practices and Customer Satisfaction: A Case Study in Botswana. *In 20th Australasian Finance & Banking Conference*.

Mahony, D., Peirce, M., &Tiwari, H. 1997.7 Electronic Payment Systems.

Rexha, N., Kingshott, R. P. J., & Shang Shang Aw, A. 2003.The Impact of the Relational Plan on Adoption of Electronic Banking. Journal of Services Marketing, 17(1), 53-67.

Sekaran, U. (2000). Research Methods for Business: A Skill –Building Approach. New York: John Wiley & Sons. Inc, 308-313.

Shariq, M. & Tondon R. 2012. A study of ATM usage in Banks in Lucknow, Kanpur &Varansi.*International Journal of Engineering & Management Sciences*, Vol.3, 34- 40.

Shen, X. X., Tan, K. C., & Xie, M. 2000.An Integrated Approach to Innovative Product Development Using Kano's Model and QFD.*European Journal of Innovation Management*, 3(2), 91-99.

Singh, S. 2011.The Impact of ATM Services on Customer Satisfaction in Indian Banks. *International Journal of Financial Services Management*, 5(2), 177-196.

Stiakakis, E., &Georgiadis, C. K. 2009. E-service Quality: Comparing the Perceptions of Providers and Customers. *Managing Service Quality: An International Journal*, 19(4), 410-430.

Tuli, R., Khatri, A., & Yadav, A. 2012.A Comparative Study of Customer Attitude towards ATM of SBI and ICICI Bank.*International Journal of Marketing and Technology*, 2(8), 463.

Wolfinbarger, M., & Gilly, M. C. 2003. E-Tail: Dimensionalizing, Measuring and predicting e-tail Quality. *Journal of Retailing*, 79(3), 183-198.

World Bank 2014.The World Bank Annual Report.www.worldbank.org/en/about/annual-report.

Yang, Z., & Fang, X. 2004. Online Service Quality Dimensions and Their Relationships with Satisfaction: A Content Analysis of Customer Reviews of Securities Brokerage Services. *International Journal of Service Industry Management*, 15(3), 302-326.

Yee-Loong Chong, A., Ooi, K. B., Lin, B., & Tan, B. I. 2010. Online Banking Adoption: An Empirical Analysis. International Journal of Bank Marketing, 28(4), 267-287.

Zhu, F. X., Wymer, W., & Chen, I. 2002. IT-Based Services and Service Quality in Consumer Banking. *International Journal of Service Industry Management*, 13(1), 69-90.

Zikmund, W. G. 2003. Business Research Methods, 7th edition, Thomson/ South-Western.