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Identification and Ranking of Electronic Banking Services Based on Customer Satisfaction in a Branch of an Iranian Bank

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Abstract

The ever-increasing pressure of competitive business environment force the businesses to keep their competitive advantages through different strategies. Especially, service-providing businesses strive for keeping and increasing their market share through customer satisfaction monitoring and improvements. In this research, electronic banking services (EBSs), provided by a branch of an Iranian bank, are identified and ranked based on customer satisfaction. In order to achieve the goals of this research, the channels of electronic banking services are identified and a questionnaire is designed to measure the customer satisfaction level for the services for the summer 2015 time period. The data are analyzed by SPSS and Minitab software packages and the obtained results show that among six types of identified services, including Automated Teller Machines (ATM), Phone Banking (PB), Internet Banking (IB), Mobile Banking (MB), Web Kiosk (WK) and Point-of-Sales Terminal (POS), the customers were most satisfied by the ATMs and least satisfied by the WK. In order to facilitate decision making regarding these EBSs, some managerial implications and suggestions based on the results are also provided; however, this research was limited to the data of a branch of a bank and therefore, generalization of the results should be exercised with caution.

Keywords

Ranking, Electronic Banking Services, Customer Satisfaction

1 Introduction

In today's business world, the companies who manage to satisfy their customers may endure the competition. It is known that keeping current customers is significantly less costly than acquiring new ones. This is even more important in service-providing businesses. Satisfied customers may advertise their satisfaction [1]. In other words, rendering appropriate services results in loyalty of customers who may recommend the company to other potential customers who in turn may become new and even loyal customers. However, the reverse may occur more severely. In other words, unsatisfied customers are more likely to devaluate the company based on even a single experience. This can be a matter of survival for a company. Therefore, competing for service improvement has become a strategy for service-providing businesses. Organizations who render higher quality services, have identified customer satisfaction as a means for sustainable competitive advantage [2].

Satisfying customers is strenuous (if not impossible) in the absence of data and information regarding customer satisfaction level for each product/service. Therefore, a crucial activity in this regard, is customer satisfaction level measurement based on which the products/services may be ranked. Raking products/services provide the vital information for decision makers to focus on aspects in which their efforts are most efficient and effective. Banks, as service-providing business units, are no exceptions. With the capabilities of electronic banking, banks prefer to pursue their customer satisfaction strategies through EBSs. It is known that the efficiency of electronic services significantly increase the satisfaction and loyalty of customers [3]. Therefore, measuring customer satisfaction level regarding each of the EBSs is a critical in providing insight for strategy alignments.

In this research, the EBSs provided by a branch of Bank Melli Iran are identified and ranked according to level of customer satisfaction by using statistical methods including sign rank and Freidman tests. The results clearly indicate the services that need more attention and those with which the customers are satisfied. The rest of the paper is organized as follows. Section 2 presents a review of related literature. In Section 3, the service channels are discussed. The methodology and findings are presented in Section 4 and Section 5, respectively and Section 6 concludes the paper.

2 Review of Literature

Many researches have been conducted in the field of electronic services customer satisfaction. In a research by Hemati, et al. [4], the motives and barriers for using ATMs by the customers are identified in Garmsar, Iran. Their results indicate that the motives were accessibility of the ATMs, security of transactions are access to services of other banks and the barriers were ATM failures, low speed of transactions and lack of advertisements. Sivaraks, et al. [5] studied the effects of electronic customer relationship management (e-CRM) on the quality and outcomes of relationship between the bank and the customers for the case of Thailand. They proposed a model for combining the relationship quality and outcome and they utilized structural equation modeling to show that the implementation of e-CRM has a statistically

significant positive relationship with the quality and outcome of customer–bank relationships and with the customer-based service attributes as well as indirect effects.

Mohammadpourzandi and Najafi [6] Conducted a research to discover the effects of EBSs on customer satisfaction in Bank Shahr, Tehran, Iran. They realized that EBS promotions and advertisements, eliminating the flaws and problems of EBS infrastructures, proving responsibility in providing ENSs and facilitating the access to ATMs and POSs are the most important factors of attracting customers to EBSs. Khamisi and Khodamoradi [7] investigated the relationship between the EBS and customer satisfaction in Bank Tejarat, Ahvaz, Iran and reported that there is a direct relationship between EBSs development and customer satisfaction. In a research on customer satisfaction with banking services in Ghana, relational, core and tangible dimensions of banking services were identified, by factor analysis and regression, as positively associated with customer satisfaction [8]. In a recent research, the moderating effect of customer experience on the satisfaction with electronic banking was studied in a Spanish case [9]. Their results obtained from the analysis of survey data indicate that there was a relationship between the variables (accountability, ease of access and use and usefulness) and the moderate effect of electronic banking experience. In addition, in their research they focused on customer satisfaction with the services of the web-site and the results showed that organization of menus, web-site facilities, reliability and security are the most important features affecting new and current customers.

The brief review of literature reveals the importance of customer satisfaction measurement in connection with the electronic services in service-providing businesses, especially in banking industry. This has been a motive for the authors to identify and rank the EBSs based on customer satisfaction in a branch of Bank Melli which has not been conducted in any previously published researches.

3 Service Channels

In order to identify the channels through which the services are provided, some of the related published researches are studied. Specifically, in a research by Neslin, et al. [10] Internet, kiosks, ATMs, call centers, direct marketing, home shop-ping networks, catalogs and bricks-and-mortar stores, are now commonplace channels of providing goods and services. From another point of view, since there are different definitions for service channels, a general classification can be considered as personal (e.g. branches), electronic (e.g. Internet), written (e.g. fax and letter) and Phone (e.g. land line and mobile) [11]. Some researchers have introduced Internet, land line phone, mobile phone, interactive television, service kiosk, allied companies, sales personnel and after-sales personnel as channels [12]. In another research by Mocanu and Filip [13], Internet, branches and phone are identified as channels of interaction with bank customers. According to a more recent research by Hoehle, et al. [14], an increasing number of researchers have identified ATMs, telephone, Internet and mobile phone as well as multiple channels as their electronic banking channels. Figure 1 illustrates the data provided by their research for the number of publications on electronic banking channel adoption between 1984 and 2010.

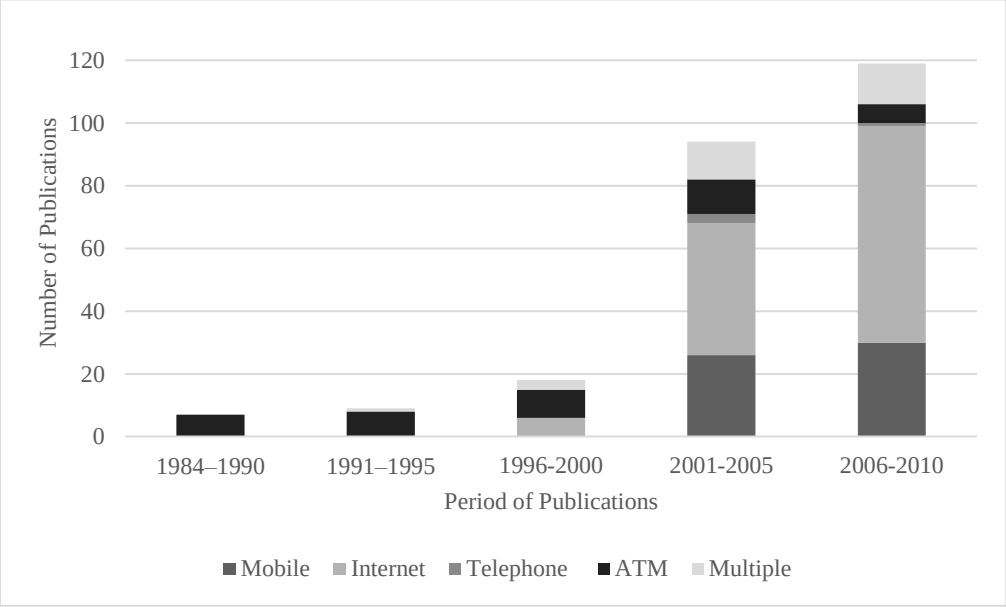

Figure 1. Research publications on electronic banking channels

According to what mentioned above, in this research, Automated Teller Machines (ATM), Phone Banking (PB), Internet Banking (IB), Mobile Banking (MB), Web Kiosk (WK) and Point-of-Sales Terminal (POS) are identified as EBS channels.

4 Methodology of Research

This is an applied research with a quantitative-qualitative nature according to data collected by means of a designed questionnaire validated by seeking experts' opinions. The reliability of the questionnaire is verified by Cronbach's alpha calculated based on an initial study on customers. In order to determine the sample size for obtaining a specific level of confidence, Cochran's Table is utilized [15]. In this research, the Likert scale is used to designed the questionnaire in which the demographic information of the participants including age, sex and level of education are also collected.

The collected data are analyzed by a series of correlation tests is SPSS® software package in order to study the relation between the EBSs and customer satisfaction and the demographic data. Using Minitab® software, a sing rank test is executed to estimate the customer satisfaction level for each service. By means of the same software package, the Friedman test is then utilized to investigate the difference between each pair of services and determine their ranks. The following steps describe the main methodology body of this research:

1. Design of questionnaire, ensuring its validation and reliability verification
2. Giving out the questionnaires to customers of the specified branch for data collection
3. Initial examination and descriptive analysis of collected data
4. Determine the relation between the demographic properties and customer satisfaction
5. Utilizing a sign rank test in order to determine the satisfaction level for each service
6. Performing a sensitivity analysis on the results of the sign rank test
7. Calculating the total satisfaction scores of the services
8. Ranking the services based on customer satisfaction level by using the Friedman test

5 The Findings

The reliability of the questionnaire is verified by Cronbach's alpha which was equal to 0.813 calculated based on an initial study on 30 customers. The sample size for obtaining 95% of confidence is determined by Cochran's Table as 96.

5-1 Descriptive Statistics of Demographic Data

The majority of the participants (more than 70%) were male. About 1% of the participants were under 20 years old while more than half (about 65%) were aged 20 to 40, 26% were 40 60 years old and 8% were above 60. The majority of the participants (about 49%) had a bachelor's degree, 36% were at high school and associate degrees and the remaining 15% had master's degree or philosophy degree.

5-2 Pearson Correlation Test

In order to investigate the relationship between the demographic properties of the participants and the satisfaction level for each service, a Pearson test is conducted and the following results are obtained. According to Table 1. The relationship between the demographic properties and satisfaction levels, except for the PB and Age, there is not sufficient evidence to conclude that there is a correlation between demographic properties and satisfaction level for any EBS. In other words, the results show that there is a weak negative correlation, i.e. -0.253, between age and satisfaction of PB service. It can be translate to the fact that younger customers are more satisfied with phone banking service.

Table 1. The relationship between the demographic properties and satisfaction levels

Demographic Properties	Pearson Correlation Test Criteria	EBSs					
		ATM	PB	IB	MB	WK	POS
Sex	Correlation Coefficient	0.113	0.028	0.042	0.013	0.080	0.078
	Significance	0.275	0.783	0.681	0.901	0.441	0.450
Education	Correlation Coefficient	0.040	0.107	-0.087	-0.038	0.186	0.025
	Significance	0.702	0.298	0.400	0.714	0.069	0.806
Age	Correlation Coefficient	-0.162	-0.253	-0.029	-0.072	-0.015	-0.051
	Significance	0.116	0.013	0.779	0.487	0.882	0.625

5-3 The sign rank test and sensitivity analysis

Without loss of generality we assume that in the Likert scale "1" means strongly satisfied, "2" means satisfied, "3" means neutral, "4" means dissatisfied, "5" means strongly dissatisfied. In this research, due to its limitations, we do not have sufficient evidence to be able to assume any specific distribution for the customer satisfaction data. Therefore, a sign rank test is applied on the data as the follows in which $\tilde{\mu}$ represents the median.

$$\begin{cases} H_0: \tilde{\mu} = 3 \\ H_1: \tilde{\mu} < 3 \end{cases} \quad (1)$$

The results of the sign rank test, presented in Table 2, indicate that at 5% significance level, the null hypothesis is rejected or all EBSs except the WB meaning that the customers are satisfied with all EBS except the web kiosk. Especially, the p-value for the WK provides evidence of dissatisfaction for this service.

Table 2. Sign rank test results

EBS	Sample Size	Below Median	Equal to Median	Above Median	Median	p-value
ATM	96	67	27	2	2	0.0000
PB	96	50	42	4	2	0.0000
IB	96	53	29	14	2	0.0000
MB	96	53	34	9	2	0.0000
WK	96	26	34	36	3	0.9188
POS	96	56	34	6	2	0.0000

Being strict on the concept of satisfaction, here we assume that only a score strictly below 3 indicates satisfaction and the following sign rank test is conducted to investigate the sensitivity of the results.

$$\begin{cases} H_0: \tilde{\mu} = 2.9 \\ H_1: \tilde{\mu} < 2.9 \end{cases} \quad (2)$$

The sensitivity analysis results of the above sign rank, presented in Table 3. The results of sign rank test for sensitivity analysis, show that at 5% significance level, the only service for which the null hypothesis is rejected is ATM showing that this is the only EBS that the customers are strictly satisfied with.

Table 3. The results of sign rank test for sensitivity analysis

EBS	Sample Size	Below Median	Equal to Median	Above Median	Median	p-value
ATM	96	67	0	29	2	0.0001
PB	96	50	0	46	2	0.3797
IB	96	53	0	43	2	0.1792
MB	96	53	0	43	2	0.1792
WK	96	26	0	70	3	1.0000
POS	96	56	0	40	2	0.0629

5-4 Calculation of satisfaction score for each EBS

Using a simple descriptive statistics approach, the satisfaction scores for each of the EBSs are calculated and presented in Table 4 which yields the fact that the customers are most satisfied with the ATMs and least satisfied with the web kiosks. In addition, the obtained score is 2018 from the total of 2880. In other words, the obtained score is about 70% of the total score.

Table 4. Customer satisfaction score of each EBS

EBS	Strongly dissatisfied	Dissatisfied	Neutral	Satisfied	Strongly Satisfied	Total Score
ATM	0	2	27	51	16	369
PB	0	4	42	40	10	344
IB	3	11	29	45	8	332
MB	0	9	34	39	14	346
WK	8	28	34	20	6	276
POS	2	4	34	41	15	351
Total						2018

5-5 Ranking of the EBSs

In this step, Friedman test is utilized and the results are used to rank the services. Based on what assumed regarding the Likert scale, used in this research, and according to table 5 the ATM has the highest rank and WK has the lowest which is in agreement with the results for the satisfaction scores.

Table 5. Ranking of the EBSs

EBSs	Estimated Median	Rank
ATM	2.88	1
PB	3.43	4
IB	3.56	5
MB	3.29	3
WK	4.61	6
POS	3.23	2

6 Conclusions and Future Works

In this research, customer satisfaction with the electronic banking services, provided by a branch of Bank Melli Iran, was measured and the services were ranked based on the extent to which the customers were satisfied with. The results showed no correlation between demographic properties of the participants except for the age and phone banking with a significant but weak correlation.

The results may provide insights for the decision makers to focus their efforts on WK, IB and PB in order to discover the underlying causes of customer dissatisfaction with these services. In addition, ATM, POS and MB can be used as competitive advantages for attracting more customers to provide the budget for the actions needed to be taken for improving the former three services with which the customers were dissatisfied with.

The obtained results should be generalized with caution since the research has some limitation including the time period during which the data were collected, and the population from which the data were collected. In addition, this study was limited to a specific branch Bank Melli Iran; this can also be a limitation of our study.

Despite the limitations, this research has potential to provide insight for further studies. More specifically, the aforementioned limitations may be alleviated for future studies in order to obtain a more generalizable results. In addition, further analyses using tools such as multi-criteria decision making, data mining, etc. are interesting subjects of future studies.

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