

Analyzing the Relationship between Customer Satisfaction and Loyalty in the Software Industry - With a Case Study in Isfahan System Group

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Abstract

The purpose of this article is to analyze the relationship between customer satisfaction and loyalty in the software industry. The traditional view about the relationship between customer satisfaction and loyalty indicates a direct relationship; that is to say by increasing customer satisfaction, their loyalty increases too. In this survey, this traditional view has been assessed. By studying related researches, the dimensions of software quality have been recognized. 108 financial managers of organizations, who used financial software of Isfahan System Group, have been considered for sampling. Then their satisfaction and loyalty ratios have been assessed by questionnaire; and finally by using Pearson correlation coefficient, the relationship between customer satisfaction and loyalty has been analyzed. T test and ANOVA have been used to analyze the data. The results of this survey show that there is no significant relationship between satisfaction and loyalty, which is incompatible with the traditional view. In addition, by investigating the relationship between customer satisfaction and loyalty, as separate dimensions of loyalty, the results indicate that the relationship between satisfaction with motivational, emotional, and trust dimensions are direct, and it has no relationship with other dimensions such as behavioral, attitudinal, cognitional, and commitment. The obtained results are different regarding the size of organizations.

Keywords: Customer, Satisfaction, Loyalty, Service, Software, Quality, Dimensions.

1. Introduction

It is generally known that there is a positive relationship between customer loyalty and profitability. Reichheld and Sasser (1990) found that when a company retains just five percent more of its customers, profits increase by 25 percent to 125 percent. Their study caught the attention of both practitioners and researchers, arousing a great interest in customer loyalty. Gould (1995) helped consolidate the interest in loyalty through his research that supported Reichheld and Sasser's work. Today, marketers are seeking information on how to build customer loyalty. For many years customer satisfaction has been a major goal of business organizations, since it has been deemed to affect customer retention and companies' market share (Hansemark and Albinsson, 2004). Traditionally, satisfied customers have been thought of as less price sensitive, less influenced by competitors, buying additional products and/or services and staying loyal longer (Zineldin, 2000). Yet, in 1991 the Xerox Corporation made a surprising – and disquieting – discovery. It was found that “satisfied” customers were not behaving the way they were expected; they were not coming back to Xerox to repurchase (McCarthy, 1997).

Merely satisfying customers, who have the freedom to make choices is not enough to make them loyal. Jones and Sasser (1995) observed in their own analysis of the Xerox study that the only truly loyal customers are totally satisfied customers. Hence, the Xerox study shed new light on what had previously been relatively unexplored territory, i.e. the link between customer satisfaction and customer loyalty. Loyalty of customers is considered to be a function of satisfaction (Fecikova, 2004) and loyal customers contribute to company's profitability by spending more on company's products and services, via repeat purchasing, and by recommending the organization to other consumers.

Customer satisfaction has attracted very much attention in all areas of manufacturing. In an increasingly competitive and dynamic environment, greater attention continues to be paid on customer relationships and satisfied customers. For companies, customer satisfaction is an effective way to differentiate themselves from the competitors as well as one of the key issues in their efforts towards improving quality. A high quality software system is one of the essential attributes of high confident computer systems. Any malfunction of the software systems can cause great inconvenience, even a disaster to the users. A high confidence system is a system which meets the standard of software quality. Software quality assurance plays an essential role in the development of such software systems. Measurement of the software quality includes the measurement of in-house developments and a selection of vendors' products (Yuen and Lau, 2011). In the following, the dimensions of software quality as effective indicators of customer satisfaction are introduced, and then these dimensions are assessed by using the questionnaire of customer satisfaction and loyalty, and finally the relationship between customer satisfaction and loyalty is surveyed, discussed and major conclusions are made.

2. Customer loyalty

Loyalty has been defined as repeat purchase behavior led by favorable attitudes or as a consistent purchase behavior resulting from the psychological decision-making and evaluative process. According to Walsh et al. (2008), three popular conceptualizations of loyalty exist as an attitude that leads to a relationship with the brand; as expressed in terms of revealed behavior; and as buying moderated by individual characteristics, circumstances, and/or the purchase situation. Oliver (1997), defined loyalty as a deeply held commitment to re-buy or re-patronize a preferred product or service consistently in the future, which causes repetitive same-brand or same-brand set purchasing, despite any situational influences and marketing efforts that might cause switching behavior. Customer loyalty has been defined as a construct that measures the probability that the customer will return and is ready to perform partnering activities such as referrals (Cater and Cater, 2009). Sudhahar et al. (2006) addressed the SERVLOYAL constructs into seven dimensions for scale construction process as behavioral dimension; attitudinal dimension; cognitive dimension; conative dimension; affective dimension; trust dimension; and commitment dimension.

3. Customer satisfaction

Customer satisfaction is mainly derived from the physiological response with the perceptual difference gap between expectation before consumption and practical experience after consumption of service or products. It implies an accumulated temporary and sensory response. Therefore, under such a specific consumption setting, it frequently influences the overall attitude and decision-making when customers purchase products or service (Lee et al., 2010). Anderson and Srinivasan (2003) assessed consumer satisfaction categorized into five dimensions of overall satisfaction, customer favorite, customer loyalty, customer recommendation and priority option. Understanding customer satisfaction will facilitate companies to maintain customer satisfaction to products or services. As such, inferior products or services can be improved to allow customers with wonderful impression. (Anderson and Srinivasan, 2003)

4. Software quality

IEEE (1991) defined software quality as the degree to which a system, component, or process meets specific requirements; and the degree to which a system, component, or process meets customer or user needs/expectations. IEEE (1991) defined software quality assurance as a planned and systematic pattern of all actions necessary to provide adequate confidence that an item or product conforms to actions necessary to provide adequate confidence that an item or product conforms to established technical requirements; and a set of activities designed to evaluate the process by which the products are developed or manufactured.

There are various quality models. Khan et al. (2006) and Khosravi and Gueheneuc (2004) reviewed the hierarchical and non-hierarchical models of software quality attributes such as Factor–Criteria–Metric's Model, McCall's Model, Boehm's Model, FURPS and Dromey's Model.

Issac et al. (2006) in their studies, made an attempt to identify the critical factors of software quality from the perspective of customers. These factors are described in the following:

a. Functionality

- Correctness: Degree to which the software is error-free.
- Security/Integrity: Extent to which unauthorized access to the software is prevented.
- Instrumentation: Extent to which the program can identify errors that occur.
- Installability: Ease with which the software can be loaded on the machine.

- b. Reliability
 - Error Tolerance: Ability to prevent (or minimize) damage, when an error is encountered during the execution of a program.
- c. Usability
 - User-friendliness/learnability: Ease with which the usage of the software can be learned on your own.
- d. Efficiency
 - Availability: The degree to which the software is operational for its intended use.
 - Resource Consumption: The memory-space requirement for loading the software.
- e. Maintainability
 - Expandability: Ease with which the software can be upgraded.
 - Modifiability: Ease with which changes can be made in the event of a failure or occurrence of error.
- f. Portability
 - Portability: Ease with which the software can be operated on different operating systems.
- g. Documentation
 - Extent to which all processes are standardized and documented by the developers.
- h. Service
 - Extent to which right services are provided at the right time, as promised, by the software supplier.
- i. Aesthetics
 - The degree to which the software is appealing (attractive) to the customer.

5. Various aspects of the relationship between satisfaction and loyalty

According to literature review, performed studies on satisfaction and loyalty are divided into three categories. The first category is derived from service management and study on the satisfaction and loyalty relationship is performed generally and in organizational level. Satisfaction is the background of loyalty that impacts on organizational profitability. The second category has concentrated on personal level and has studied maintaining customer based on second time buying intention. These factors have an important failure because of the existing difference between one's desire and his/her behavior. The second category claims that loyalty is affected by satisfaction even if their relationship is not logical. The third category that forms a few, concentrates on satisfaction and loyalty relationship in personal level based on real buying data. Their findings indicate a weak or unimportant relationship between repeated buying behavior (loyalty) and satisfaction (Bodet, 2008). Davis et al. (2007) suggest that the behavioral relationship between satisfaction and loyalty is not a linear one and has two levels of crises threshold. Figure 1 shows that when satisfaction reaches above the level of certain threshold (trust zone), buying behavior increases rapidly. When satisfaction decreases to lower threshold (defection zone), buying behavior decreases rapidly. Between threshold levels (consideration zone), buying behavior is constant. They believe that satisfaction should be high enough to stimulate behavioral loyalty, or it should be low enough to reduce it.

6. Research methodology

In this survey, in order to identify software quality dimensions associated literature has been reviewed. These dimensions are used as the most important indicators and factors of software quality to assess customer satisfaction. By studying theoretical texts, the most important dimensions of loyalty have been identified and have been used by the researcher. By using standard questionnaire, customer satisfaction ratio is assessed based on each of the software quality dimensions, and to assess customer loyalty ratio in this respect, standard questionnaire has been used. Statistical population of this survey includes 153 financial managers of organizations that have used products and services of Isfahan System Group (ISG), i.e. financial software. Regarding statistical population under survey and according to the Krejcie and Morgan's Table, the desired sample is determined as 108 people. Because of dissimilarity of population the sampling method is classified as probable sampling. Thus, regarding the fact that in the desired population, 25 small organizations, 81 medium organizations, and 46 large organizations exist, the samples include 17 small organizations, 58 medium organizations, and 33 large organizations (altogether 108 people), respectively. The organizational size is also based on the number of staff of organization, i.e. organizations with under 50 people is considered as small, with between 50 to 500 people is considered as medium, and with more than 500 people is considered as large. Selecting financial managers as the representatives of organizations is because of their impacts on choosing and buying the software.

However, satisfaction assessment questionnaire along with loyalty ratio assessment questionnaire are distributed to these 108 people. In these questionnaires, Likert's five scale in which 1 means completely disagree and 5 means completely agree, has been used. Demographic variables of questionnaires include number, age, academic degree, and working experience of staff of the organization. To review and analyze satisfaction and loyalty relationship, Pearson correlation coefficient has been used. Also, for comparing the mean value of one population, one sample t-test and for comparing the mean values of several populations ANOVA have been used.

6.1. Research assumptions

In this survey, one major hypothesis together with 12 sub hypotheses are determined as follows:

- 1) There is no significant relationship between customer satisfaction and customer loyalty in ISG;
- 2) There is no significant relationship between satisfaction and loyalty of major customers of large size organizations;
- 3) There is no significant relationship between satisfaction and loyalty of major customers of medium size organizations;
- 4) There is no significant relationship between satisfaction and loyalty of major customers of small size organizations;
- 5) There is no significant relationship between satisfaction and behavioral loyalty of customers of ISG;
- 6) There is no significant relationship between satisfaction and attitudinal loyalty of customers of ISG;
- 7) There is no significant relationship between satisfaction and cognitive loyalty of customers of ISG;
- 8) There is no significant relationship between satisfaction and conative loyalty of customers of ISG;
- 9) There is no significant relationship between satisfaction and affective loyalty of customers of ISG;
- 10) There is no significant relationship between satisfaction and trust loyalty of customers of ISG;
- 11) There is no significant relationship between satisfaction and commitment loyalty of customers of ISG;
- 12) The mean difference of loyalty between customers of large, medium, and small organizations is not significant; and
- 13) The difference of loyalty dimensions between customers of large, medium, and small organizations is not significant.

7. Findings

Pearson correlation coefficient is used to assess existence of relationship between customer satisfaction and loyalty. Table 1 shows the results. As it is observed, the significant level is higher than the error level ($p\text{-value} < 0.05$) and therefore, the first hypothesis, which is the major one is approved. This analysis is repeated for large, medium, and small organizations. Table 2 addresses the correlation coefficients of customer satisfaction and loyalty variables of customers of ISG for each of the large, medium, and small organizations. As it is observed, there is only a significant relationship between customer satisfaction and loyalty in medium organizations. In the following, the research hypotheses related to the relationship between satisfaction and each of the customer loyalty dimensions are investigated. In Table 3, the result of investigating the relationship between satisfaction and loyalty dimensions are addressed by Pearson correlation coefficient.

Regarding the results, only motivational, emotional, and trust dimensions of loyalty have significant relationship with customer satisfaction of ISG, and the rest of loyalty dimensions do not have significant linear relationship with customer satisfaction. In Table 4, the mean values of loyalty variables with respect to organizational size are compared and analyzed using ANOVA. As it is observed, the mean values of groups in all loyalty dimensions are different from each other and it is only the total loyalty that is equal in all of the three groups. In order to find the place of difference, the Tukey post hoc test is used. The results of this test for loyalty dimensions are presented in Tables 5 to 11. Regarding the results of Table 5, it can be mentioned that emotional loyalty of large and medium organizations does not have significant difference and their values are less than small organizations.

Regarding Table 6, the results of motivational loyalty are similar to emotional loyalty; the motivational loyalty of large and medium organizations does not have significant difference and motivational loyalty of small organizations is higher than the mentioned groups.

According to Table 7 in behavioral loyalty, large and medium organizations have the highest scores and difference of their values is not significant; on the other hand, small organizations significantly has less behavioral loyalty.

The results in Table 8 indicate direct relationship between organizational size and attitudinal loyalty. Small organizations have lower attitudinal loyalty, while large and medium organizations have higher level of attitudinal loyalty. Regarding the results of Table 9, it is clear that cognitive loyalty of large and small organizations is located in one group and has higher value than small organizations. With respect to the results of Table 10, in trust dimension a significant difference can be seen in all of the three groups of large, medium, and small organizations and it can be stated that trust has a reverse relationship with organizational size, so that large organizations have the lowest level of trust, and small organizations have the highest level of trust. Regarding the results of Table 11, for the commitment dimension, large organizations have higher score than two other groups and their commitment mean value is significantly higher than that of medium and small organizations.

8. Discussion and conclusions

The aim of this survey was to analyze the relationship between customer satisfaction and loyalty. The results show a significant relationship between satisfaction of customers of ISG and their loyalty. Even after analyzing these results, regarding organizational size, only in organizations with medium size a weak significant relationship was observed, and in large and small organizations there were no linear relationship between the two variables. This result is compatible with the results of the investigation of Davise et al. (2007), Kotler and Armstrong (2010), and Jones and Sasser (1995). In this respect, this survey can be classified as the third category of classification of Henning-Thurau and Klee (1997), in which a weak/unimportant relationship between satisfaction and repeated buying behavior (loyalty) was been observed.

As the results indicate, customer satisfaction has significant relationship with some of the loyalty dimensions. These dimensions include emotional, motivational, and trust dimensions. As the nature of these dimensions indicates, they are due to customer satisfaction of products, services, and organization. Other loyalty dimensions that include attitudinal, behavioral, cognitive, and commitment are somehow indicators of customer understanding and recognition of products, services, and organization that results in creating customer commitment and repeated buying. These dimensions do not have significant relationship with customer satisfaction. Thus, it can be said that satisfaction impacts on customer's feelings towards an organization and its products, but it cannot be a factor that makes customers loyal and committed towards organization.

The results show that in small organizations, emotional, motivational, and trust loyalty have more suitable condition than large and medium organizations, but in other dimensions the case is reverse. Thus, it can be argued that customers' concept of the services they take from ISG, regarding the organizational size is different. It should be mentioned that the ratio of taken services (i.e. observing and occurrence of error in the system) in small organizations is greatly lower than large and medium organizations, and the time for solving occurred problems in these organizations regarding less complexity and more simplicity of their processes is greatly lower than other organizations; this can be an effective factor on customer's feelings towards organization and staff of ISG. The large and medium organizations in other dimensions have more suitable condition than small organizations, and this means that these organizations consider ISG as a valid and reliable organization for meeting their future needs and perhaps as a commercial partner. But as the results of investigating satisfaction and loyalty dimensions relationship denote, in order to improve loyalty of large and medium organizations in motivational, trust and emotional dimensions, ISG should improve its relationship with these organizations. It can solve the problems of these organizations by allocating time and devoting more energy to improve and consolidate its relationship with these organizations.

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Table 1. Pearson correlation coefficient between customer satisfaction and loyalty

Hypothesis	Confidence level	P-Value	Pearson correlation coefficient
1	0.95	0.059	0.183

Table 2. Pearson correlation coefficient between customer satisfaction and loyalty variables regarding organizational size

Hypothesis	Error level	P-Value	Pearson correlation coefficient	Organizational Size
2	0.05	0.836	0.037	Large
3	0.05	0.012	0.327	Medium
4	0.05	0.518	0.168	Small

Table 3. Pearson correlation coefficient between satisfaction and loyalty dimensions

Hypothesis	Error level	P-Value	Pearson correlation coefficient	Loyalty dimensions
5	0.05	0.624	0.045	Behavioral
6	0.05	0.062	0.180	Attitudinal
7	0.05	0.096	0.161	Cognitional
8	0.05	0.000	0.363	Motivational
9	0.05	0.033	0.205	Emotional
10	0.05	0.001	0.309	Trust
11	0.05	0.062	0.180	Commitment

Table 4. Test results of ANOVA

Loyalty Dimensions		Sum of Squares	D.f.	Mean Square	F	Sig.
Emotional	Between Groups	7.706	2	3.853	11.409	.000
	Within Groups	35.457	105	.338		
	Total	43.163	107			
Motivational	Between Groups	16.751	2	8.375	20.729	.000
	Within Groups	42.424	105	.404		
	Total	59.175	107			
Behavioral	Between Groups	7.527	2	3.764	7.293	.001
	Within Groups	54.185	105	.516		
	Total	61.712	107			
Attitudinal	Between Groups	15.682	2	7.841	12.433	.000
	Within Groups	66.223	105	.631		
	Total	81.905	107			
Cognitional	Between Groups	7.418	2	3.709	5.490	.005
	Within Groups	70.938	105	.676		
	Total	78.356	107			
Trust	Between Groups	16.066	2	8.033	11.465	.000
	Within Groups	73.567	105	.701		
	Total	89.633	107			
Commitment	Between Groups	23.275	2	11.638	13.554	.000
	Within Groups	90.153	105	.859		
	Total	113.428	107			
Loyalty	Between Groups	.306	2	.153	.317	.729
	Within Groups	50.689	105	.483		
	Total	50.995	107			

Table 5. The results of Tukey post hoc test for emotional loyalty

Size	N	Subset for alpha = 0.05	
		1	2
Large	33	2.8333	
Medium	58	3.2008	
Small	17	3.6503	
Sig.		.050	1.000

Table 6. The results of Tukey post hoc test for motivational loyalty

Size	N	Subset for alpha = 0.05	
		1	2
Large	33	2.8837	
Medium	58	2.9657	
Small	17	4.0128	
Sig.		.879	1.000

Table 7. The results of Tukey post hoc test for behavioral loyalty

Size	N	Subset for alpha = 0.05	
		1	2
Small	17	2.8529	
Large	33		3.3724
Medium	58		3.6051
Sig.		1.000	.446

Table 8. The results of Tukey post hoc test for attitudinal loyalty

Size	N	Subset for alpha = 0.05	
		1	2
Small	17	2.3637	
Medium	58		3.3057
Large	33		3.5108
Sig.		1.000	.598

Table 9. The results of Tukey post hoc test for cognitional loyalty

Size	N	Subset for alpha = 0.05	
		1	2
Small	17	2.5860	
Medium	58		3.3514
Large	33		3.5997
Sig.		0.066	.495

Table 10. The results of Tukey post hoc test for trust loyalty

Size	N	Subset for alpha = 0.05		
		1	2	3
Large	33	2.3871		
Medium	58		2.9921	
Small	17			3.5370
Sig.		1.000	1.000	1.000

Table 11. The results of Tukey post hoc test for commitment loyalty

Size	N	Subset for alpha = 0.05	
		1	2
Small	17	2.6636	
Medium	58	3.2406	
Large	33		4.0179
Sig.		.055	1.000

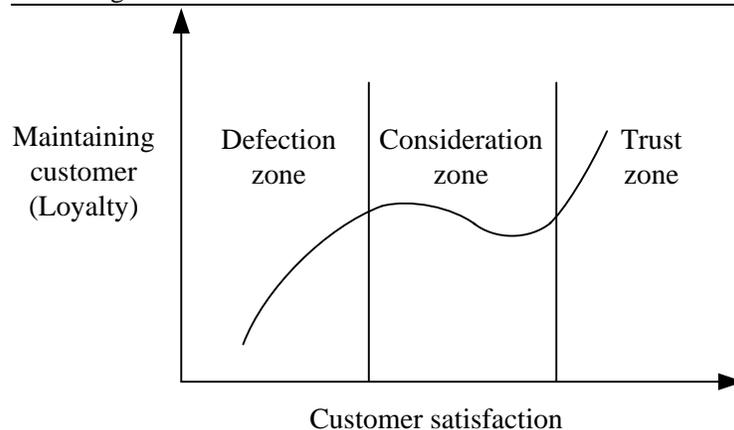


Figure 1. The relationship between satisfaction and buying behavior (Davis et al., 2007)