

A comparative Kano analysis on customer satisfaction based on customer and employment perspectives

Sakineh Noorinasab^{a*} and Mohammad Hemati^b

^aYoung Researchers Club, Semnan Branch, Islamic Azad University, Semnan, Iran

^bAssistant Professor, Management Department, Islamic Azad University, Semnan Branch, Semnan, Iran

ARTICLE INFO

Article history:

Received March 2, 2012
Received in Revised form
May, 8, 2012
Accepted 10 May 2012
Available online
May 14 2012

Keywords:

Customer satisfaction
Quality of products
Kano model
Analytical hierarchy process

ABSTRACT

These days, there is a tight competition among business units and all production units or service businesses attempt to use different techniques to increase their market shares. In such environment, customer normally says the last word, in fact, customer plays an important role and in many organizations, it is considered as part of their assets. The purpose of this paper is to propose a hybrid method to detect important criteria using Kano three-dimensional method and prioritize them using analytical hierarchy process. We implement the proposed model of this paper for one of Iranian banks called Bank Melli Iran. The study determines 25 different attributes, categorizes them in three different groups based on Kano model, and ranks them in terms of customers and employees' perspective. The results of the survey indicate that customer and employees mostly have similar views since there are 21 common attributes between them. However, the priorities of these 21 items are often different in terms of two groups of employees and customers.

© 2012 Growing Science Ltd. All rights reserved.

1. Introduction

These days, customer satisfaction plays an important role on success of business models and customers normally say the last words. During the past few years, there have been tremendous efforts on the role of different factors on customer satisfaction. Chi & Gursoy (2009) examined the relationship between employee satisfaction and customer satisfaction. They also investigated the impact of both on a hospitality company's financial performance utilizing service-profit-chain model as the theoretical base. Their findings recommended that while customer satisfaction had positive influence on financial performance, employee satisfaction had no direct influence on financial performance. Instead, there was an indirect relationship between employee satisfaction and financial performance, which was mediated by customer satisfaction.

Corresponding author.

E-mail addresses: noorinasab_negar@yahoo.com (S. Noorinasab)

Chen and Chuang (2008) proposed a new method by integrating the Kano model into a robust design approach to enhance customer satisfaction with product design. Arbore and Busacca (2009) presented the results of an extensive study on the determinants of customer satisfaction for a retail bank. The need for a revised methodology was prompted by the insights of the two- and three-factor theories of customer satisfaction, such as Kano's framework and the results from both a traditional and our revised approach were compared. While this approach could be implemented across various industries, it should not be assumed that the numerical results presented in the paper are applicable to contexts with substantially different underlying characteristics.

Fonseca (2009) implemented a new conceptual model for the modeling of customers' satisfaction, and provided an overall satisfaction index (OSI). The study evaluated customers' satisfaction of a certain public organization service, and argued that to estimate the global customers' satisfaction measure it is necessary to use the methodologies recognizing customer satisfaction as a latent variable.

Udo et al. (2010) investigated different perspectives of web service quality based on e-customer's, expectations and perceptions. They developed operationalized web service quality constructs, and analyzed their relationships with customer satisfaction in an e-business environment. The three identified dimensions of web service quality were perceived risk, web content and service, convenience. One of the major findings of this study was that although less perceived risk may lead to a favorable perception of web service quality, it did not necessarily translate to customer satisfaction, or positive behavioral intentions.

Jamal and Naser (2002) discussed that customer satisfaction is a critical issue for both academics and bank marketers. They explained that previous research had only identified service quality, expectations, disconfirmation, performance, desires, affect and equity as important antecedents of customer satisfaction. They performed a survey, which looked into the influence of service quality dimensions and customer expertise on satisfaction. They reported that both core and relational dimensions of service quality seemed to be linked to customer satisfaction. Findings also indicated that expertise was negatively associated with satisfaction.

Helgesen and Nasset (2007) investigated the relationships between student satisfaction, students' perceptions of the reputation of an educational universities and student loyalty; hypothesizing positive relationships between satisfaction and loyalty, reputation and loyalty, and between satisfaction and reputation. Their findings strongly supported the three hypotheses and the university college may be looked upon as being satisfaction-driven.

Ladhari et al. (2010) analyzed the impacts of culture and personal values on perceived service quality but collecting some necessary data from bank service quality from 509 Canadian and 216 French users. The results confirmed that power distance and uncertainty avoidance impact perceived service quality. Personal values such as self-fulfillment, self-respect, sense of accomplishment, and security also impacted perceived service quality. Li et al. (2009) proposed a new method to obtain the final importance of customer requirements (CRs) in product planning house of quality (PPHOQ). The proposed model used relative reduction and relative core in rough set theory and a decision system was built to acquire CRs in PPHOQ. Next, based on the relative positive field in rough set, the decision system was simplified and its corresponding new decision system was built to find the relative importance ratings of CRs. Finally, AHP method is used to calculate the importance rating of achieving the improvement ratio of satisfaction estimation of a CR. They also used a case study to illustrate the effectiveness of the presented method.

Martinez and Martinez (2010) investigated some past work in the conceptualization and measurement of perceived service quality and explained the most important frameworks proposed within the last 25 years. They summarized the shortcomings and contradictions of each model as well as conclusions reached so far by a certain consensus of researchers using various models. In order to provide a framework for understanding service quality models, they explained the service quality

paradigm from the realist and constructivist perspective along with the multidimensional nature of service quality implicit in the reflective versus formative debate. Finally, they reached a conclusion to recommend the development of more creative models of service quality, proposing various options for quantitative analysis, which minimize the limitations of the discussed models.

Naeen and Saif (2010) explained that employee empowerment is important in the modern management style. Empowered employees normally perform more efficiently as compared with those working in traditional or authoritarian organizational cultures. They performed a comparative investigation to examine the influence of employee empowerment on customer satisfaction. A multistage cluster sample of 644 bank officers was used from two banks operating in Pakistan where the first one was a foreign bank and employees were empowered. The second one was a local public sector bank with a traditional management style, where employees were not empowered. The results of their studies indicated that there was no relationship between employee empowerment and customer satisfaction in the Pakistani commercial banking sector.

During the past few years, Kano has become as one of most popular methods for analyzing the requirement of customer. However, some people argue about the details of the questionnaires and classification evaluation table conducted by Kano. Lee and Huang (2009) proposed a technique based on fuzzy concept to modify Kano's two-dimensional questionnaires. They also developed a mathematical calculation performance based on the quality classification of Kano's two-dimensional fuzzy mode and demonstrated the implementation of the service quality of a theme amusement park as an example.

According to Rivière et al. (2006) Kano's framework of satisfaction helps us to find a typology of product attributes to determine differences between those contributing solely to consumer satisfaction, those contributing only to consumer dissatisfaction and the ones contributing to both satisfaction and dissatisfaction. Rivière et al. (2006) presented a new preference mapping (PrefMap) technique called adaptive preference target (APT) to explore a given product category APT, using a sequential consumer exam, prioritizes products to be tasted by each consumer by taking into account his/her personal preferences. This helps enable the classification of the key sensory attributes impacting hedonic appreciation into "attractive", "must-be" or "performance" attributes and thus hierarchizes the tasks to reach the ideal product for new product development.

Pyon et al. (2010) introduced a technique based on intelligent service quality management system to analyze the causes and effects of VOC (Voice of Customer) variation and to forecast its occurrence based on the previous study in the service industry. In the competitive business environments, where customers play key role, there is a need to achieve the pro-activeness towards VOC to improve the quality of customer service based on scientific grounds. Pyon et al. (2010) introduced a three-phase system where the first system detects important variations, the pattern detection phase to generate VOC occurrence patterns, and the VOC forecasting phase. In the next step, internal factors such as product or service qualities are used as sources for creating regular patterns and in the last phase, the proposed method forecasts VOC based on the pre-defined pattern of VOC occurrence. They evaluated the proposed methodology by applying to the real VOC in a life insurance company.

Wassenaar et al. (2005) developed an approach to demand modeling, which is critical for evaluating the profit a product can bring under the Decision-Based Design framework. Although demand modeling models are available in market research, little work is devoted on demand modeling, which addresses the specific requirements of engineering design, particularly the ones, which facilitate engineering decision-making. Wassenaar et al. (2005) enhanced the use of discrete choice analysis (DCA) to demand modeling by considering a hierarchy of product attributes to map customer desires to engineering design attributes associated with engineering analyses. To improve the predictive capability of demand models, the Kano method was employed to provide the econometric justification when the shape of the customer utility function is selected.

Kano method is one of the most popular methods for analyzing customer's needs but it suffers from some issues. (Bhat, 2005) Xu, in an attempt to address the inherent deficiencies of traditional Kano method, presented an analytical Kano (A-Kano) technique with focus on customer need analysis. Kano indices in accordance with the Kano principles were used to incorporate quantitative tools into customer satisfaction. They provided two alternative mechanisms for decision support to product design, the first one uses Kano classifiers as tangible criteria for categorizing customer needs, and the second one is the configuration index used as a decision factor of product configuration design.

The magic of product configurations is justified using a Kano evaluator, which leverages upon both the customers satisfaction and the producers capacity. Xu used a case study of dashboard in automotive design and explained that the A-Kano model could efficiently incorporate customer preferences in product design, while leading to an optimal tradeoff between customers satisfaction and producers capacity.

Yap et al. (2007) explained the relative importance of the zone-of-tolerance (ZOT) as an innovative concept in the services marketing domain. The ZOT contains a wide range of service performance that a customer considers satisfactory and recognizes multiple expectation standards, specifically sufficient and highly desirable expectations. They tried to extend Zeithaml et al.'s examination in 1996 of the relationship between service quality and behavioral intentions across the ZOT by heeding Teas and DeCarlo's call in 2004 to investigate the relationship for specific dimensions. The results recommended a moderating role for the ZOT in the quality-key outcome relationship. It also implied that to maximize investments in service improvements, there should be a focus on increasing service quality beyond the adequate level.

Technique for Order Preference by Similarity to Ideal Solution (TOPSIS) is one of the most popular techniques, which has attracted substantial attention. The method attempts to find an ideal alternative by minimizing the distance with positive criteria and maximizing the distance with negative criteria and criteria are weighed using analytical hierarchy process (AHP). There are literally various applications of TOPSIS and AHP (Saaty, 1994; Ho, 2008) for ranking various alternatives. Yu et al. (2011), for instance, used this method to rank business to consumer websites in e-alliance.

The proposed model of this paper uses both Kano and AHP to measure the relative importance of different criteria in both customer and employees' perspectives. The organization of this paper first presents details of samplings as well as criteria in section 2. Section 3 shows details of results of the implementation of AHP method and finally concluding remarks are given in the last to summarize the contribution of the paper.

2. The proposed method

The proposed model of this paper uses the following formula to calculate the minimum number of sample size,

$$n = \frac{N \times z_{\alpha/2}^2 \times p \times q}{\varepsilon^2 \times (N - 1) + z_{\alpha/2}^2 \times p \times q}, \quad (1)$$

where N is the population size, $p=1-q$ represents the yes/no categories, $z_{\alpha/2}$ is CDF of normal distribution and finally ε is the error term. Since we have $\alpha = 0.05$, $\varepsilon = 0.08$, $p = 0.5$, $z_{\alpha/2} = 1.96$ and $N=136$, the number of sample size is calculated as $n=71$. We have distributed 200 questionnaires among customers and employees and collected 140 filled ones from customers and 67 filled questionnaires from employees.

Cronbach alpha (Cronbach, 1951) was calculated as 0.857, which certifies that the questionnaire qualification. Table 1 and Table 2 shows different criteria in terms of three categories of attractive, one dimensional and necessary requirements for employees and customers.

Table 1

Customer requirement in customer's perspective

Attractive requirements	One dimensional requirements	Necessary requirements
Possibility of paying governmental bills	Consulting services	Employee knowledge
Mobile SMS services for bill payment	Exclusive branches for specific purposes	Secrecy
Purchasing Insurance using ATM	High rate of profit for long term investment	Access control system
Opening new banking services	Card to Card transaction facilities	Telephone help desk
Exchange money using ATM	Fast loan assessment	Facilitating Sales
Baning transaction in other countries	Existence of toys for children	getting statement by email
Possibility of registering trips using online banking	Possibility of paying bills through ATM	Online money transfer
	High volume of money transfer possibility	Online money transfer between banks
		Transparency
		Booth allocation of credit to customers

Table 2

Customer requirement in employee's perspective

Attractive requirements	One dimensional requirements	Necessary requirements
Paying government bills using ATM	High ratio of profit payment	Consulting services
Receiving SMS notice for loan payment	Money transfer between two accounts by Card	Exclusive branches
Customer service	Fast loan assessment	Employee knowledge
Possibility of purchasing insurance	Existing of toys for children	Secrecy
Possibility of long term investment bank	Increase in money transfer limit	Access control system
Possibility of using banking services outside country		Fast loan approval
Possibility of registering for trips		Paying bills using ATM
		Bill statement using email
		Reliable money transfer
		Fund transfer between banks
		Transparency
		Special service for important customers

3. The results

In order to provide the priority of different attributes we use analytical hierarchy process (AHP) where there are 10 experts involved in our analysis. Table 3 shows details of our survey.

Table 3

The weights and ranking of different criteria in both customer and employee's perspectives

Requirements	Employee rank	Customer rank	Final relative importance rank in customer's perspective	Final relative importance rank in employee's perspective
Transparency on behalf of employees	1	1	0.094	0.101
Consulting services	2	15	0.029	0.076
The possibility of exchanging money from one bank to another	3	5	0.016	0.074
Special service for important customers	4	17	0.0253	0.069
Access control systems	5	18	0.024	0.065
Exclusive system for individual use	6	11	0.0364	0.063
The existing of high security service through SATNA service	7	8	0.043	0.062
Secrecy	8	3	0.063	0.056
The availability of toys for customers' children	9	6	0.053	0.053
High ratio of investment payment	10	2	0.065	0.049
The possibility of doing transaction in other countries	11	23	0.0198	0.045
The possibility of paying governmental bills through ATM	12	9	0.042	0.043
High level of employees' knowledge	13	7	0.0474	0.039
The possibility of exchanging money from ATM Card to another accounts	14	5	0.0545	0.038
Easy loan approval	15	16	0.028	0.037
Low time loan approval	16	4	0.058	0.036
Customer service by Telephone	17	14	0.031	0.035
The possibility of receiving bills using Mobil short message service (SMS)	18	19	0.023	0.034
The possibility of receiving bills using email services	19	21	0.021	0.03
The possibility of paying bills using ATM machines	20	22	0.02	0.029
The possibility of purchasing insurance	21	12	0.034	0.026
The possibility of increasing payment limit	22	10	0.04	0.023
The possibility of opening long term investment using floating interest rate	23	20	0.022	0.021
The possibility of registering different trips using online banking	24	25	0.01	0.019
The possibility of exchanging money	25	13	0.033	0.016

As we can observe, customers and employees both are mostly interested in similar objectives but with rather different relative importance. The results of the survey indicated that customer and employees mostly had similar views since there were 21 common attributes between both groups. However, the priorities of these 21 items were often different in terms of two groups of employees and customers. The results of our survey indicated that employees and customers disagreed on four items including the existence of consulting services, individual units for personal banking, the possibility of paying bills using ATM machines and a help desk to service customer and receive suggestions and complains.

4. Conclusion

In this paper, we have proposed a hybrid method to determine important criteria influencing customer satisfaction using Kano three-dimensional method and prioritize them using analytical hierarchy process. We implement the proposed model of this paper for one of Iranian banks called Bank Melli Iran. The study determined 25 different attributes, categorizes them in three different groups based on Kano model, and ranked them in terms of customer and employees' perspective. The results of the survey indicated that customer and employees mostly had similar views since there were 21 common attributes between both groups. However, the priorities of these 21 items were often different in terms of two groups of employees and customers. The results of our survey indicated that employees and customers disagreed on four items including the existence of consulting services, individual units for

personal banking, the possibility of paying bills using ATM machines and a help desk to service customer and receive suggestions and complains. According to our results, having transparent regulation was the most important item and the possibility of exchanging currency was considered as the least important factor. Having transparent regulation was the most important factor in both groups of customer and employees. Secrecy is among other important factors in both groups of employee and customers and the lack of confidence on secrecy could be an important factor for losing customers.

Acknowledgment

The authors would like to thank the officials of Bank Melli Iran in province of Semnan, Iran for providing support. We are also grateful for the comments made on earlier version of this paper, which made it more comprehensive.

References

- Arbore, A. & Busacca, B. (2009). Customer satisfaction and dissatisfaction in retail banking: Exploring the asymmetric impact of attribute performances. *Journal of Retailing and Customer Services*, 16(4), 271-280.
- Bhat M. A. (2005). Correlates of service quality in banks: an empirical investigation. *Journal of Service Resource*, 5(1), 77-99.
- Chen C.C., & Chuang, M.C. (2008). Integrating the Kano model into a robust design approach to enhance customer satisfaction with product design. *International Journal of Production Economics*, 114, 667-681.
- Chi, C. G., & Gursoy, D. (2009). Employee satisfaction, customer satisfaction, and financial performance: An empirical examination. *International Journal of Hospitality Management*, 28, 245-253.
- Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika*, 16(3), 297-334.
- Fonseca, J. R. S. (2009). Customer satisfaction study via a latent segment model. *Journal of Retailing and Customer Services*, 16, 352-359.
- Udo, G.J., Bagchi, K.K., Kirs, P. J. (2010). An assessment of customers' e-service quality perception, satisfaction and intention. *International Journal of Information Management*, 30(6), 481-492.
- Helgesen, O. & Nettet, E. (2007). What accounts for student's loyalty? some field study evidence. *International Journal of Educational Management*, 21(2), 126-143.
- Ho.W. (2008). Integrated analytic hierarchy process and its applications – A literature review. *International Journal Operational Research*, 174, 1553-1566.
- Jamal, A., & Naser, K. (2002). Customer satisfaction and retail banking: An assessment of some of the key antecedents of customer satisfaction in retail banking. *International Journal of Bank Marketing*, 20(4), 146-160.
- Ladhari, R., Pons, F., & Bressolles, G. & Zins, M. (2010). Culture and Personal values: How they influence perceived service quality. *Journal of Business Research*, 64(9), 951-957.
- Lee, Y.C., & Huang, S.Y. (2009). A new fuzzy concept approach for kano's model. *Expert System with Applications*, 36, 4479-4484.
- Li, Y., Tang, J., Luo, X. & Xu, J. (2009). An integrated method of rough set, kano's model and AHP method for rating customer requirements, final importance. *Expert System with Applications*, 36, 7045-7053.
- Martinez, J. A., & Martinez, L. (2010). Some insights on conceptualizing and measuring service quality. *Journal of Retailing and Customer Service*, 16, 29-42.
- Naeem, H., & Iqbal, S. M. (2010). Employee empowerment and customer satisfaction: Empirical evidence from the banking sector of Pakistan. *African Journal of Business Management*, 4(10), 2028-2031.

- Rivière, P., Monrozier, R., Rogeaux, M., Pagès, J., & Saporta, G. (2006). Adaptive preference target: contribution of Kano's model of satisfaction for an optimized preference analysis using a sequential consumer test. *Food Quality and Preference*, 17, 572–581.
- Saaty, T.L. (1994). Highlights and critical points in the theory and application of the analytical hierarchy process. *European Journal of Operational Research*, 1994, 426-447.
- Pyon, C.Y., Woo, J.Y., & Park, S.C. (2010). Intelligent service quality management system based on analysis and forecast of Voc. *Expert System with Application*, 37, 1056-1064.
- Wassenaar, H.J., Chen, W., Cheng, J., & Sudjianto, A. (2005). Enhancing discrete choice demand modeling for decision-based design. *ASME Journal of Mechanical Design*, 127, 514–523.
- Xu, Q., iao, R.J., Yang, X., Helander, M., Khalid, H.M., & Opperud, A. (2009). An analytical Kano model for customer need analysis. *Design Studies*, 30(1), 87-110.
- Yap, K. B. & Sweeney, J. C. (2007). Zone – of – tolerance moderates the service quality – outcome relationship. *Journal of Services Marketing*, 2(2), 137-148.
- Yu, X., Guo, S., Guo, J., & Huang, X. (2011). Rank B2C e-commerce websites in e-alliance based on AHP and fuzzy TOPSIS. *Expert System with Application*, 38, 3550-3557.