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An investigation into the determinants of customer satisfaction

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A B S T R A C T

During the past few years, there have been an increasing competition among auto producers. Customers have experienced emissions misrepresentation activities from well-known auto producers such as Volkswagen and Mitsubishi, and have increased their expectations, accordingly. This paper designs a questionnaire to measure factors influencing on customer satisfaction in Likert scale, and distributes it among 210 randomly selected people who purchased a product from an Iranian Auto maker named SAIPA. The questionnaire was validated by some experts and it was also verified using Cronbach alpha ($\alpha = 0.83$). Using structural equation modeling with Varimax rotation, the study has detected four groups of factors including car specifications and options, before sales services, after sales services and payment policy, which influence the most on customer satisfaction.

1. Introduction

During the past few years, there have been an increasing competition among auto producers. Customers have experienced emissions misrepresentation activities from well-known auto producers such as Volkswagen and Mitsubishi, and have increased their expectations, accordingly. People now expect auto makers to provide good customer relationship management (CRM) to handle car users' interests. Ahearne et al. (2007), for instance, explained that in spite of uncertain achievements and the frequent resistance among salespeople to information technology (IT) interventions, IT acceptance in fact has a positive impact on sales performance. This happens because salespeople using IT extend their knowledge and may gain improved targeting capabilities, presentation skills, and better call productivity. Dong et al. (2007) presented an extended model of customer equity for measuring the optimal allocation of marketing resources through acquisition and retention activities. During the past few years, multichannel strategies have come to the fore in business-to-business marketing and help firms reach customers in multiple ways, increasing the firms' productivity (Sharma & Mehrotra, 2007).

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Gensler (2007) analyzed the performance of its main channels over time, and examined for differences in channel performance among various product categories offered by the firm, as well as between various customer segments. According to King and Burgess (2008), Customer Relationship Management (CRM) systems may assist firms to manage customer interactions more efficiently. CRM has been supported by vendor hype and stories of failure. Efforts on critical success factors (CSFs) have to encourage more suitable implication practices; nevertheless several CSF studies end with a list of issues but give little further guidance. Therefore, there is a necessary for more theoretical models of CRM innovation process implemented by managers to learn better the underlying causes of success and failure. King and Burgess (2008) adopted a method to this problem by developing a conceptual CRM innovation and changed this model into a dynamic simulation technique and gave suggestions for how managers could possibly counteract potential innovation failure.

Law et al. (2003) analysed three aspects on CRM developed and highlighted that an evolutionary change in the concept of CRM was necessary. They reported three key results. First, customers ought to be the major concentration, and firms are actually dealing with customer-managed relationships (CMR) and claimed it was not just a one-to-one relationship pattern. Finally, a co-creative method ought to be implemented to integrate the CRM and CMR concepts to help customers participate in corporate strategy formulation and to encourage firms cooperate with third parties in serving customers (Fornell et al., 1996).

Lee-Kelley et al. (2003) provided some evidence of how to help planning for customer management by examining a conceptual model of the process by which the implementation of electronic (e-CRM), can enhance loyalty. While constructing the research framework, price sensitivity was detected to be a primary confounding parameter on loyalty and was inserted in the study for control. They reported that e-retail companies must consider customers' perceptions of relationship marketing efforts, as they are necessary to enhance customer loyalty. Liew (2008) introduced the idea of strategic integration of knowledge management (KM) and CRM. The integration is considered as a strategic concept that has strong ramifications in the long-term competitiveness of firms and it is not limited to CRM. In fact, the concept has been implemented to supply chain management, product development management, enterprise resource planning and retail network management and give various perspectives into knowledge management adoption.

Lindgreen et al. (2006) developed a conceptual model to question, identify, and prioritize critical characteristics of CRM by identifying key areas in CRM and studying how the chosen case organization could be managed each of these key CRM areas over a broad range of business-customer relationships. Finally, they acknowledge that several firms simultaneously have various kinds of business customers. Sin et al. (2005) validated, through an empirical investigation, the long-held belief that CRM has been a critical success factor for business performance. Most organizations attempting to improve their relationships with customers have to constantly monitor their behavioral and internal processes.

According to Taylor and Hunter (2002), e-service is an essential strategic marketing consideration for many organizations, based on the promise of more cost-effective techniques of self-service relative to large call centers for technical support and customer service. E-CRM industry offers the primary tools for using e-service. Interestingly, the e-CRM industry encounters the same challenges and strategic marketing considerations as their organizational customers, because they have to deliver exceptional service and support to the firms purchasing/using e-CRM software. Terziovski (2006) examined the strength of the relationship between quality management practice and two key operational performance measures; namely productivity improvement and customer satisfaction and reported that multiple quality management practices maintained a positive effect on productivity improvement and customer satisfaction.

2. The proposed study

This paper designs a questionnaire to measure factors influencing on customer satisfaction in Likert scale and distributes it among some randomly selected people who purchased a car from an auto maker named SAIPA. The firm is the second largest Iranian auto manufacturer established in sixties with 75% Iranian ownership, to assemble Citroëns under license for the Iranian market. The population of the survey includes people who have already purchased a car from SAIPA group. The sample size is calculated as follows,

$$N = Z_{\alpha/2}^2 \frac{p \times q}{e^2}, \tag{1}$$

where N is the sample size, $p = 1 - q$ represents the probability, $z_{\alpha/2}$ is CDF of normal distribution and finally ε is the error term. For our study, we assume $p = 0.5, z_{\alpha/2} = 1.96$ and e=0.05, the number of sample size is calculated as N=210. The questionnaire of the survey consists of 40 questions, which were distributed among the sample size of the survey. The questionnaire was validated by some experts and it was also verified using Cronbach alpha (α = 0.83). The main question of the survey is to determine the factors influencing on customer satisfaction for products offered by SAIPA group. Fig, 1 demonstrates personal characteristics of the participants in this survey.

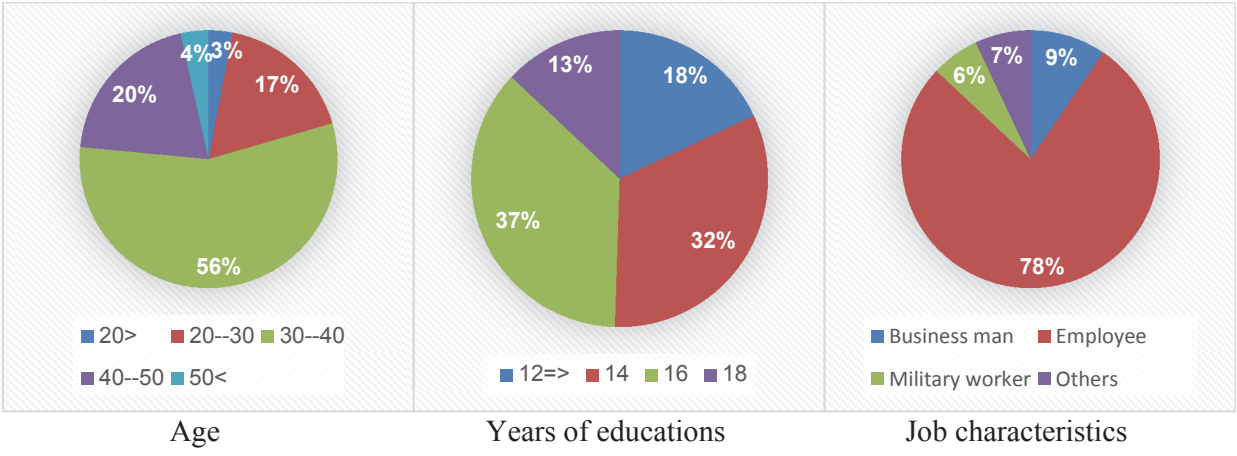


Fig. 1. Personal characteristics of the participants

As we can observe from the results of Fig. 1, most participants were middle aged regular employees of mostly governmental agencies with good university educations. Table 1 presents KMO and Bartlett's test. In addition, Table 2 shows the results of total variance.

Table 1
The results of KMO and Bartlett's tests

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.69	DF=231
Bartlett's Test of Sphericity	Approx. Chi-Square	1291.2427	Sig. = 0.000

Table 2
Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.374	20.829	20.829	4.374	20.829	20.829	2.498	11.896	11.896
2	2.064	9.83	30.66	2.064	9.83	30.66	2.314	11.02	22.916
3	1.914	9.115	39.774	1.914	9.115	39.774	1.971	9.385	32.301
4	1.73	8.238	48.012	1.73	8.238	48.012	1.953	9.299	41.6
5	1.513	7.206	55.218	1.513	7.206	55.218	1.775	8.451	50.051
6	1.156	5.507	60.725	1.156	5.507	60.725	1.719	8.184	58.235
7	1.106	5.264	65.989	1.106	5.264	65.989	1.628	7.754	65.989

Table 3
Rotated Component Matrix

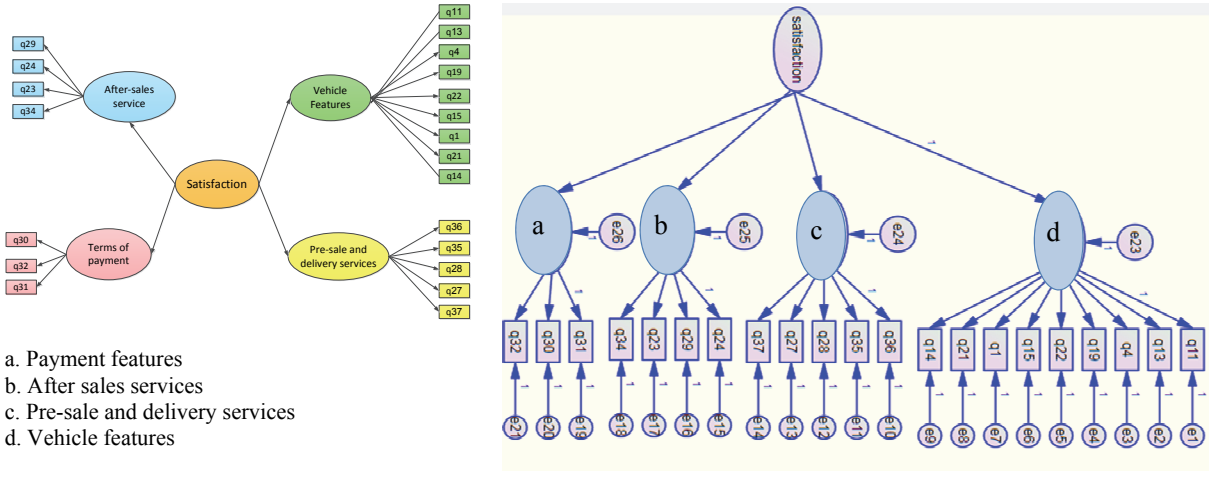
Q.	Component	Components						
		1	2	3	4	5	6	7
q19	Vehicle appearance	0.786						
q15	Engine performance	0.722						
q11	Power and traction engine	0.674						
q13	Speed and acceleration	0.591					0.355	
q4	Heating and cooling system	0.448	0.422				0.394	
q1	Brake system		0.811					
q22	Driver's field of vision		0.729					
q21	Capability of driver to control the car		0.665					
q36	Completeness of documents			0.838				
q28	Speed the sales process			0.663				
q35	Correctness of documents	0.354		0.537				
q27	Accuracy in the process of selling		0.413	0.534				
q29	Flexibility to supply accessories				0.831			
q23	The frequency of auto repair specialists				0.762			
q24	Availability of spare parts				0.582			
q31	Amount of down payment					0.869		
q30	Payment options					0.849		
q14	Fuel consumption						0.793	
q32	The amount and timing of installments						0.66	0.372
q37	Delivery date based on the date indicated in the document							0.716
q34	Agency hospitality							0.684

According to the results of Table 3, we may extract four factors influencing on customer's intention for purchasing a product from the SAIPA group. Table 4 demonstrates the summary of the results. The first factor, car specification, includes Power and traction engine, Speed and acceleration, Heating and cooling system, Vehicle appearance, Driver's field of vision, Engine performance, Brake system, Capability of driver to control the car and Fuel consumption. The second factor, before sales services, includes five factors. In our survey, Completeness of documents is the most important factor followed by Correctness of documents, Speed the sales process, Accuracy in the process of selling and Delivery date based on the date indicated in the document. After sales services is the third factor, which includes four items including Flexibility to supply accessories, Availability of spare parts, The frequency of auto repair specialists and Agency hospitality. Finally, Payment options is the last factor in our survey, which includes three items including Amount of down payment, Payment options and The amount and timing of installments.

Table 4
The results of structural equation modeling after Varimax rotation

Item	Factor	α	Q.	Description	Factor loading
1	Car specification	0.89	q11	Power and traction engine	0.754
2			q13	Speed and acceleration	0.753
3			q4	Heating and cooling system	0.728
4			q19	Vehicle appearance	0.548
5			q22	Driver's field of vision	0.523
6			q15	Engine performance	0.498
7			q1	Brake system	0.494
8			q21	Capability of driver to control the car	0.455
9			q14	Fuel consumption	0.45
10	Before sales services	0.78	q36	Completeness of documents	0.752
11			q35	Correctness of documents	0.63
12			q28	Speed the sales process	0.624
13			q27	Accuracy in the process of selling	0.564
14			q37	Delivery date based on the date indicated in the document	0.423
15	After sales services	0.83	q29	Flexibility to supply accessories	0.82
16			q24	Availability of spare parts	0.668
17			q23	The frequency of auto repair specialists	0.617
18			q34	Agency hospitality	0.371
19	Payment	0.72	q31	Amount of down payment	0.792
20			q30	Payment options	0.705
21			q32	The amount and timing of installments	0.67

After detecting the main factors, we have tried to use structural equation modeling (SEM) to examine the effects of four factors on customer satisfaction. Fig. 2 shows the structure of the proposed study.



a. Payment features
b. After sales services
c. Pre-sale and delivery services
d. Vehicle features

RMSEA = 0.025 Chi-Square/df = 1.15

Fig. 2. The structure of the proposed study

The results of SEM are statistically significant and we conclude that four mentioned factors influence the most on customer satisfaction. In our survey, car specifications has maintained the highest effect (β = 0.661 Sig. = 0.000), followed by after sales services (β = 0.624 Sig. = 0.012), pre-sales services (β = 0.380 Sig. = 0.01) and payment options (β = 0.283 Sig. = 0.025).

3. Conclusion

In this survey, we have presented an empirical investigation to determine different factors influencing on customer satisfaction. The study designed a questionnaire in Likert scale and distributed among some people who purchased cars from SAIPA group. The implementation of structural equation

modeling using Varimax rotation has detected four factors including car specifications and options, before sales services, after sales services and payment policy. In our survey, car specifications has determined to be the most important factor followed by after sales services. The results of this survey are somewhat consistent with findings published in the literature (e.g. Singh et al., 2015; Shahrouzi Fard & Hosseini, 2015).

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References

Ahearne, M., Hughes, D. E., & Schillewaert, N. (2007). Why sales reps should welcome information technology: Measuring the impact of CRM-based IT on sales effectiveness. *International Journal of Research in Marketing*, *24*(4), 336-349.

Churchill Jr, G. A., & Surprenant, C. (1982). An investigation into the determinants of customer satisfaction. *Journal of Marketing Research*, *19*(4), 491-504.

Dong, W., Swain, S. D., & Berger, P. D. (2007). The role of channel quality in customer equity management. *Journal of Business Research*, *60*(12), 1243-1252.

Fornell, C., Johnson, M. D., Anderson, E. W., Cha, J., & Bryant, B. E. (1996). The American customer satisfaction index: nature, purpose, and findings. *The Journal of Marketing*, *60*(4), 7-18.

Gensler, S., Dekimpe, M. G., & Skiera, B. (2007). Evaluating channel performance in multi-channel environments. *Journal of Retailing and Consumer Services*, *14*(1), 17-23.

King, S. F., & Burgess, T. F. (2008). Understanding success and failure in customer relationship management. *Industrial Marketing Management*, *37*(4), 421-431.

Law, M., Lau, T., & Wong, Y. H. (2003). From customer relationship management to customer-managed relationship: unraveling the paradox with a co-creative perspective. *Marketing Intelligence & Planning*, *21*(1), 51-60.

Lee-Kelley, L., Gilbert, D., & Mannicom, R. (2003). How e-CRM can enhance customer loyalty. *Marketing Intelligence & Planning*, *21*(4), 239-248.

Liew, C. B. A. (2008). Strategic integration of knowledge management and customer relationship management. *Journal of Knowledge Management*,*12*(4), 131-146.

Lindgreen, A., Palmer, R., Vanhamme, J., & Wouters, J. (2006). A relationship-management assessment tool: Questioning, identifying, and prioritizing critical aspects of customer relationships. *Industrial Marketing Management*, *35*(1), 57-71.

Shahrouzi Fard, S. & Hosseini, S. M. (2015). Performance measurement of the after-sales service network: Evidence from the automotive industry. *Management Science Letters, 5*(10), 927-932.

Sharma, A., & Mehrotra, A. (2007). Choosing an optimal channel mix in multichannel environments. *Industrial Marketing Management*, *36*(1), 21-28.

Sin, L. Y., Tse, A. C., & Yim, F. H. (2005). CRM: conceptualization and scale development. *European Journal of marketing*, *39*(11/12), 1264-1290.

Singh, B., Grover, S., Singh, V & Attri, R. (2015). An analytic hierarchy process for benchmarking of automobile car service industry in Indian context. *Management Science Letters, 5*(6), 543-554.

Taylor, S. A., & Hunter, G. L. (2002). The impact of loyalty with e-CRM software and e-services. *International Journal of Service Industry Management*, *13*(5), 452-474.

Terziovski, M. (2006). Quality management practices and their relationship with customer satisfaction and productivity improvement. *Management Research News*, *29*(7), 414-424.