



EVALUATION OF PERFORMANCE OF AFTER SALES SERVICE – A COMPARATIVE STUDY INVOLVING HOME APPLIANCES MANUFACTURING FIRMS

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ABSTRACT

After-sales services (ASS) are a key strategic tool in the consumer durable products market. They allow manufacturers and retailers to capture more sales and profit. This paper is intended to study the importance of SERVQUAL dimensions in contributing to ASS performance with special attention to case companies involved in home appliances business through a questionnaire based approach. Three leading home-appliances manufacturing firms in South India were considered in this study. The study also examined whether there is any significant difference, among the three firms involved in this business, with respect to the SERVQUAL dimension that influences their performance on ASS. The findings can help the firms to identify the areas that need attention to achieve better ASS quality.

Keywords: after sales service, service quality, SERVQUAL, ANOVA.

INTRODUCTION

After sale service (ASS) is regarded as an increasing and important concept in many industries for establishing good customer relationships that contribute to increased performance for sustainable results (Loomba, 1998). In recent years, more and more organizations focus their attention on retaining existing customers rather than attracting new ones. However, most of the business organizations are not aware about the ASS factors and its impact towards the customer satisfaction and productivity. Failing to realize the importance of the factors can lead to a disastrous and threatening business relationship. This may lead dissatisfied customers shift to a competitor or the company lose potential for new customers due to negative word-of-mouth effect. Hence, every business should know the objective and significance of having ASS and implement it to satisfy customers and make them loyal. According to Gaiardelli, *et al.* 2007 the challenge of ASS exists when the company gives ASS to the third party by outsourcing include; increased chances of pilferage, Risk of non-compliance of regulatory terms and conditions and discontent with the automation solution used by the service partner. Service quality is a measure of how well the service level delivered matches customer expectations and also a vital indicator for satisfaction. Paying attention to service quality can help the organization to achieve competitive edge (Boshoff and Gray, 2004). Researchers have identified five principal dimensions, namely reliability, responsiveness, empathy, assurance and tangible to judge service quality (Zeithaml and Bitner, 1985). Home appliances business is one of the most important business and customers of home appliances are more demanding nowadays and need high level of ASS support. There is room for growth as many marketers and product managers have not fully grasped and made use of the whole potential of ASS in general and particularly in home appliances sector. Based on this background, the

study has been carried out on three firms engaged in manufacturing different types of home appliances with a focus on identification of the most dominant service dimension that will impact their ASS performance.

RESEARCH BACKGROUND

Household appliances are one of the most consistent categories for customer satisfaction. Customers of home appliances are more demanding nowadays and need high level of ASS support. Household appliances are relatively expensive commodities and entail short and long-term financial consequences that most consumers may find difficult to deal with in terms of household budgets. Home appliances are durable products and are expected to be operational for a considerable period of time. From the financial perspective, home appliances are relatively expensive commodities and may necessitate short and long-term financial consequences that most consumers may find difficult to deal with in terms of household budgets. They also represent complex product category because relevant technology changes continually. Most consumers consequently find it difficult to keep up with; and fully grasp modifications to product categories (Erasmu *et al.* 2001).

This study is focused on the investigation on the performance of after sales operations of leading firms engaged in manufacturing home appliances such as LPG Stove, Water Purifier and Mixer Grinder in South India. These are the products that will need higher level of after sales support. The products selected for the case study possess almost similar ASS characteristics, but they differed in the kind of services offered. Among the three products, LPG Stove and Water Purifier need home visit service, which means that the service people make a visit to customer's home and repair the product even when there is a major repair. This is because the above mentioned products consists minor components. But in the



case of Mixer Grinder, the minor repair is carried out in the customer's home itself and for major repair, it has to be taken to the service center either by customer or service people, because of the reason that mixer Grinder consists of a comparatively heavy mechanical and electrical components.

LITERATURE REVIEW

Manufacturing and service operations have common characteristics, but most services are created at the customer interface. Looking at the performance of service quality, Parasuraman *et al.* 1985, 1988, postulated the service quality model that identified five key gaps that can give rise to problems in service delivery. Parasuraman *et al.* 1988 applied the ten dimensions comprised of physical/tangible features, reliability, responsiveness, competence, courtesy, credibility, security/safety, convenience, communication, and understanding the consumer on various service sectors such as banking, telephone companies, credit cards, and product repair and maintenance and developed the SERVQUAL scale which consists of 22 statements in five dimensions.

The five dimensions considered to be the most important to a buyer are (Heskett, *et al.* 1990; Griffin, 1995; Gitomer, 1998; and Parasuraman and Grewal, 2000) 1. Reliability – ability to perform the promised service, 2. Assurance – knowledge and courtesy of employees and their ability to convey trust and confidence, 3. Tangibles – physical facilities, equipment and the appearance of the personnel, 4. Empathy – caring and individual attention the firm provides its customers, 5. Responsiveness – willingness to help and provide prompt service. Despite criticism from other researchers, SERVQUAL remains the most commonly used diagnostic model for evaluating service quality and the development of service quality strategies.

RESEARCH METHODOLOGY

With this background this study considers three firms engaged in manufacturing home appliances and focuses on finding out whether all these three firms have the same level in performing SERVQUAL based ASS operations. Questionnaire based survey method is used in this research study. The list of attributes associated with ASS is developed after perusal of the relevant literature (Parasuraman, *et al.* 1985; Haywood-Farmer, 1988; Kasper and Lemmink 1989; Mersha and Adlakha, 1992; Birgelen *et al.* 2002, Seth *et al.* 2006; Zeithaml, *et al.* 2006; Soderlund, 2010; Pakdil *et al.* 2012; Saccani, *et al.* 2014) and conduct of focus group interviews with the company personnel and those involved in ASS and presented in Table-1. Then the data is collected based on these attributes through questionnaire survey from the customers of case companies. The descriptive analysis, one way analysis of variance (ANOVA) and post hoc tests were used to examine the significant differences of ASS attributes based on SERVQUAL dimensions among the three home appliance products. ANOVA, a technique used to test the differences between group means, is employed.

Post hoc tests were necessary in this case since there were three groups in the independent variable. Post hoc multiple comparison tests were run using Tuckey test which is deemed appropriate when variances are not equal across groups (Hair, *et al.* 2006). All analyses were carried out by using the SPSS 20 package and the results of the data analyses are presented.

Case companies description

In this study, the case companies under consideration are the leading home appliances makers located in South India, offering a wide range of models of LPG Stove, Water Purifier and Mixer Grinder. These are the different products that will need higher level of service support. Customers, on purchase of these products receive the ASS in the form of home visit and service center visit through authorised service centers of the companies. The products of case companies selected are almost same in ASS characteristics, but they differed in kind of service they offered. Among the three products, LPG Stove and Water Purifier need home visit service and in case of Mixer Grinder the customers have to take the product to the service center for major repair. The companies have a good range of service and call centers to handle the ASS operations.

Data collection

Questionnaire based cross sectional survey method is used for this research study. The questionnaire comprised questions about five customer satisfaction dimensions represented by 20 ASS attributes as shown in Table 1. These five dimensions, adopted from SERVQUAL, are tangibles, reliability, responsiveness, assurance and empathy (Parasuraman *et al.* 1988). The customers were asked to indicate their perceptions of performance of company on these ASS attributes. The questionnaire was structured so that each ASS attribute was rated using a 5-point Likert scale, ranging from 1 (= poor) to 5 (= excellent). To capture a wider range of respondents, the questionnaire was printed in two languages: English and Tamil (the local language). The questionnaire was pilot tested for Cronbach's alpha and revised into the final version for this study. The sampling method is disproportionate convenience sampling. The sample size was estimated with the confidence level 95% (Z-score = 1.96), margin of error 5% and standard deviation of 0.5 and was found to be 385. After discarding the non responses, incomplete and unusable responses, the final sample sizes were more than the sufficient level for each case company to reach more accurate results as suggested by Mendenhall, *et al.* (1993). The questionnaires were distributed in printed or electronic form and details of the response from the customers of case companies are presented in Table-2. The reliability of the questionnaire was assessed and the Cronbach's alpha values for each dimension of ASS ranged from 0.88 to 0.92. This shows that there is an internal consistency, since Cronbach's alpha values for each dimension is greater than 0.7 (Nunnally and Bernstein, 1994).



ANALYSIS AND RESULTS

Table-3 reveals that the dimension 'reliability' had the highest mean score among the five SERVQUAL dimensions on the service quality measure followed by the dimension 'tangibles'. The differences in means and

standard deviations were subjected to a one-way analysis of variance (ANOVA). The results of one way ANOVA are presented in Table 4. It indicates that a statistically significant difference exists at an alpha level of 0.05.

Table-1. SERVQUAL dimensions based ASS attributes.

S.No	SERVQUAL dimensions	Sub attributes	Description of sub attributes
1	Reliability (RL)	Consistency of service quality	Achieving uniformity and fairness in the service quality.
		Choice and range of service	Offering variety of services.
		Provision of needed spare parts	Availability of spare parts at the time of repairing without delay.
		Provision of service as promised	Attending and resolving compliant then and there as promised.
2	Responsiveness (RS)	Reasonable warranty policy	Warranty coverage for maximum number of parts of the product for a reasonable period.
		Responsiveness to customer complaints	Providing proper attention in receiving complaints and necessary follow up.
		Time taken for resolving the complaint	Total time taken between the customers lodged complaint and the complaint is resolved. (Turnaround time)
		Reasonable servicing cost	Availing service with nominal cost of spare parts and labour.
3	Assurance (AS)	Handling of customers	Establish the long term relationship and fulfill the requirements of customer.
		Professionalism of service people	Keeping commitments, doing high quality work, and behavior of service people.
		Technical competence of service people	Ability of service technicians to explain the problem. Proper diagnosing and servicing.
		Interpersonal behavior of service people	Healthy interpersonal relationship between service people and customers
4	Empathy (EM)	Accessibility of service people	Easy and feeling of convenience in approaching the service people.
		Easiness to contact service people	Feeling of comfortableness when the customer contacts the service people.
		Understanding the needs of customers	Understandings the needs, preferences and expectations of customers.
5	Tangible (TA)	Provision of service tools/equipments	Use of appropriate, adequate and modern service tools, equipments and technology.
		Accessibility of service centre	Location of service center nearby the customer.
		Complaint registration facilities	Facility for registration of complaints through online, phone and in person.
		Quality and availability of technical manuals / service documents	Availability of manuals with clear concise instructions
		Availability of information and advice at service centre	Providing appropriate information and advice about the features and functions of product.

Table-2. Collection of questionnaires.

Product	No. of questionnaires distributed		No. of questionnaires received		Total	Response rate [%]
	Printed	e-mail	Printed	e-mail		
LPG Stove	600	100	450	60	510	72.8
Water Purifier	1200	200	767	91	858	61
Mixer Grinder	600	100	463	49	512	73

**Table-3.** Descriptive statistics for one way ANOVA.

Service dimension	Product	N	Mean	Std. Deviation
RL	LPG Stove	510	3.25	1.087
	Water purifier	858	3.02	1.243
	Mixer Grinder	512	3.39	1.225
	Total	1880	3.17	1.176
RS	LPG Stove	510	3.18	1.035
	Water purifier	858	2.96	1.295
	Mixer Grinder	512	3.40	1.247
	Total	1880	3.13	1.214
AS	LPG Stove	510	3.11	0.998
	Water purifier	858	2.91	1.208
	Mixer Grinder	512	3.38	1.316
	Total	1880	3.08	1.231
EM	LPG Stove	510	3.12	1.128
	Water purifier	858	2.91	1.250
	Mixer Grinder	512	3.49	1.286
	Total	1880	3.12	1.270
TA	LPG Stove	510	3.14	1.045
	Water purifier	858	3.01	1.219
	Mixer Grinder	512	3.46	1.216
	Total	1880	3.15	1.185

which means that all the three firms are not the same on delivering the ASS performance based on the five SERVQUAL dimensions. The results of Post Hoc test are shown in Table 5, which indicates that there is a difference between all the groups based on five SERVQUAL dimensions. It is observed that there is a significant difference on the service dimensions 'reliability', 'responsiveness' and 'assurance' among the three products. It is also revealed that there is a significant difference on the service dimensions 'empathy' and 'tangibles' among the products, Mixer grinder and LPG stove. On the other hand, there is no significant difference

found on the service dimensions 'empathy' and 'assurance' among the products, LPG Stove and Water Purifier.

The order of priority associated with the five SERVQUAL dimensions as perceived by the customers of the different types of home appliances are also presented in Table 5. It is revealed that the dimension 'reliability' is identified as the top most dominant factor on ASS performance of case companies of LPG Stove and Water Purifier whereas this dimension is considered to be the fourth one for the product, Mixer Grinder.

Table-4. Summary of one way ANOVA.

		Sum of squares	df	Mean Square	F	Sig.
RL	Between Groups	73.004	2	36.502	27.040	.000
	Within Groups	2533.867	1878	1.350		
	Total	2606.871	1880			
RS	Between Groups	60.423	2	30.211	19.617	.000
	Within Groups	2890.717	1878	1.540		
	Total	2951.140	1880			
AS	Between Groups	74.349	2	37.175	25.184	.000
	Within Groups	2770.706	1878	1.476		
	Total	2845.055	1880			
EM	Between Groups	57.824	2	28.912	18.269	.000
	Within Groups	2970.438	1878	1.583		
	Total	3028.262	1880			
TA	Between Groups	85.006	2	42.503	29.139	.000
	Within Groups	2737.877	1878	1.459		
	Total	2822.883	1880			

**Table-5.** Ranking of SERVQUAL dimensions across three products.

Service Dimensions	Mean			F	Sig.	Post hoc test
	LPG Stove	Water Purifier	Mixer Grinder			
RL	3.25 (1 ^a ,B ^b)	3.02 (1,C)	3.39 (4,A)	27.04	< 0.001	1 >2 >3
RS	3.18 (2,B)	2.96 (3,C)	3.38 (5,A)	19.62	< 0.001	1 > 2 >3
AS	3.11 (5,B)	2.90 (5,C)	3.40 (3,A)	25.18	< 0.001	1 > 2 >3
EM	3.12 (4,B)	2.91 (4,B)	3.49 (1,A)	18.27	< 0.001	1 > 2 = 3
TA	3.14 (3,B)	3.01 (2,B)	3.46 (2,A)	29.14	< 0.001	1 > 2 = 3

Note: ^a ranking number (of the column) within the product; ^b ranking letter across different products (of the row) from ANOVA with Tukey post hoc tests. Same letter means no significant difference at $p < 0.05$ level while different letter means significant difference with $A > B > C$. 1 – Mixer Grinder, 2 – LPG Stove, 3 – Water Purifier

The dimension 'responsiveness' is considered to be the second most prominent factor for the product, LPG Stove whereas this dimension is identified as the third and fifth one for Water Purifier and Mixer Grinder respectively. The service dimension 'assurance' is identified to be the dimension of least prominence for the products LPG Stove and Water Purifier and considered as the third important one for the product, Mixer Grinder. The dimension 'empathy' is found to be ranked first in the case of Mixer Grinder and fourth one in the case of LPG Stove and Water Purifier. The dimension 'tangibles' is identified as the second most important factor in the case of Water Purifier and Mixer Grinder and this dimension is considered as the third most important factor for the product, LPG Stove. The study also found that there exist significant differences on the three dimensions, namely 'reliability', 'responsiveness' and 'assurance' among the three products. But, there is no significant difference on 'empathy' and 'tangibles' dimensions among the two products, namely LPG Stove and Water Purifier. Based on the analysis it is evident that, irrespective of products, the case companies are putting up very good performance with respect to the service dimensions 'reliability' and 'tangibles'. Perhaps the reason why the customers were more satisfied with reliability- and tangibles- based ASS attributes is that the case companies are good in delivering high performance with regard to achieving uniformity and fairness in the service quality, offering variety of services, replacing the spare parts at the time of repairing without delay, attending and resolving compliant then and there as promised, using appropriate, adequate and modern service tools, equipments and technology, having the service center nearby the customer, providing complaint registration facility through online, phone and in person, providing manuals with clear concise instructions and giving appropriate information and advice about the features and functions of product to the customer. It is also observed that the firms dealing with LPG stove and water purifier have to focus on 'assurance' and 'empathy' oriented ASS attributes while the firm

dealing with the product, Mixer grinder needs to focus on 'reliability' and 'responsiveness' based ASS attributes.

CONCLUSIONS

This study addressed the ASS practices in household appliances industry. Further, the study, after identifying a set of ASS attributes based on the well-known SERVQUAL dimensions, investigated whether there is any significant difference, among the three firms involved in this business, with respect to the SERVQUAL dimension that influence their performance on ASS. The results will help the organisations to identify their strong and weak areas of performance on account of ASS, as perceived by their respective customers and thereby to improve their performance.

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