



## IMPACT OF CUSTOMER SATISFACTION ON THE PERFORMANCE OF ELECTRICAL MOTORS

**E.Sankaran\* Dr.K.S.Meenkshisundaram\*\***

*\*PhD Scholar, SCSVMV University, Kanchipuram, India.*

*\*\*Director-Centralized Academic Administration, Great Lakes Institute of Management, Chennai, India.*

### **Abstract**

*Every user in Domestic and Industry sectors expect that there should be trouble free performance of all their electrical equipments. Properly selected and rightly installed, periodically maintained motors will function effectively for a longer period with nominal maintenance. Further, regular care on them will also help to extend their life span in addition to obtain maximum energy efficiency out of them. In domestic sector the electrical motors are widely used for various household purposes such as Water Pump, Washing Machine, Grinder and Mixer etc., The main objective of this study is to determine the impact of customer satisfaction on the performance of electrical motors through service quality and to ascertain the dimensions of service quality which would have made the customers to be satisfied or not satisfied using SERVQUAL model. In this paper how the service quality of electrical motors serve for the customer's satisfaction have been discussed. For this, a survey was conducted using a well-structured interview schedule and 130 respondents were selected in Sholinghur town at Vellore District in Tamilnadu. From the results of this study, it is clear that all maintenance employees need to be trained to enrich their soft skills and to develop the customer loyalty which is very much essential for customer retention in order to survive in the competitive business environment.*

**Key words:** *Customer Loyalty, Customer Satisfaction, Electrical Motors Maintenance, Service Quality, SERVQUAL model.*

### **INTRODUCTION**

Service quality can be defined as “the collective effect of service performances which determine the degree of satisfaction of a user of the service”. Customer’s perception is the quality of a delivered service. Through service quality management, we view the monitoring and maintenance of end-to-end services for specific customers.

This research work is sought to access and analyze the impact of customer satisfaction with service quality of electrical motors. The objective of this study is to determine the impact of customer satisfaction on the performance of electrical motors through service quality and to ascertain the dimensions of service quality which have caused the customers to be satisfied or dissatisfied using SERVQUAL model.

Electric motors produce useful mechanical energy by converting electrical energy by means of running electrical current through a coil, resulting in the torque needed to turn a shaft.

Customer support following the purchase of a product or service is very important. In many cases, customer retention is treated as important as the initial purchase. By adapting customer retention process, one can create a pattern to follow, improve, streamline and replicate the successful maintenance contracts or work orders.

Customer satisfaction represents a measure of electrical motors performance according to customer needs. So a service quality measure can be achieved through the measurement of customer satisfaction. Customers state their opinions about the services on some service aspects.

We have conceptualized customer satisfaction as an individual’s feeling of pleasure or disappointment resulting from comparing a quality of service perceived in relation to his or her expectations about the maintenance of motors.



## STATEMENT OF THE PROBLEM

Electrical A.C. Induction motors are used worldwide in almost all residential, commercial, industrial, and utility applications. These motors transform electrical energy into mechanical energy.

These motors form major parts of pump, fan, grinder, conveyor or mixer.

As they run, motors can become less efficient because of wear and tear, heat rise in windings, poor lubrication, bearing failures, excessive vibration and mis-alignment. Good motor-maintenance practice helps to avoid these problems. Improper maintenance or a lack of maintenance can reduce a motor's energy efficiency and increase unplanned downtime. But scheduled maintenance is the best way to keep the motors to operate efficiently and reliably. Precision maintenance is achieved by well-trained people using precision methods and well-written procedures.

Customers deliver their opinions about the services by providing judgments on some service aspects. We have conceptualized customer satisfaction as an individual's feeling of pleasure or disappointment resulting from comparing a quality of service perceived in relation to his or her expectations about the maintenance of motors.

The statement of the problem is that there is a widespread dissatisfaction with the general quality service delivery from the maintenance employees though the recent developments in electrical engineering could not be attributed to customer satisfaction.

## NEED FOR THE STUDY

Currently there are large numbers of maintenance workshops are there for maintenance of electrical motors. The gap between the maintenance employees and the end users is high. End users are one of them to fill up this gap and they act as the source for further development of the business. They only know the taste and preferences of end users. So the maintenance company wants to know end users opinion without having any direct knowledge of retention.

## SCOPE OF THE STUDY

1. This study is mainly focused on the customer retention of existing electrical motors maintenance workshops.
2. This study could be instrumented for maintenance workshops to have future relationship with respondents.
3. To know the services rendered to the respondents.
4. To analyze the current state of the awareness level of respondents on maintenance of electrical motors in domestic sector.
5. To identify and study the reasons on which a customer should consider protecting electrical motors in domestic sector after the guarantee period if in case of lack of preventive maintenance.
6. To analyse the relationship between customer satisfaction and service quality of electrical motors. To do so, it starts out from the notions of service assurance, empathy, reliability, responsiveness, quality, satisfaction and loyalty.
7. To develop methodologies for educating respondents about the maintenance guidelines.

## OBJECTIVES OF THE STUDY

1. To determine the impact of customer satisfaction on the performance of electrical motors through service quality.
2. To ascertain the dimensions of service quality which have caused customers to be satisfied or dissatisfied using the SERVQUAL Model.
3. To know the overall satisfaction level of the customers towards service quality of electrical motors.
4. To ascertain whether or not customer satisfaction affects the individual customer in any way.
5. To provide the requisite recommendations for the improvement of electrical motor maintenance on the findings of the study.



## RESEARCH QUESTIONS OF THE STUDY

In order to attain the above set objectives of the study the following research questions were posed:

1. What is the impact of customer satisfaction on the performance of electrical motors after maintenance?
2. What are the dimensions of service quality which have caused customers to be satisfied or dissatisfied using the SERVQUAL Model?
3. What are the effects of customer satisfaction on the current work functions of electrical workshops?
4. Has customer satisfaction affected the individual respondent in any way?

## CUSTOMER SATISFACTION

Winning in today's marketplace entails the need to build customer relationship and not just building the products; building customer relationship means delivering superior value over competitors to the target customers (Kotler et al., 2002, p.391). Consumers can experience satisfaction when a product or service gives greater pleasure than anticipated. Satisfaction is a judgment of a pleasurable level of consumption related fulfillment.

According to Hansemark & Albinsson (2004) cited in Singh (2006:1), "satisfaction is an overall attitude towards a product provider or an emotional reaction to the difference between what customers expect and what they actually receive regarding the fulfilment of a need".

Kotler (2000) also define satisfaction as a person's feelings of pleasure, excitement, delight or disappointment which results from comparing a products perceived performance to his or her expectations.

## SERVICE QUALITY

Service quality is an approach to manage business processes in order to ensure full satisfaction of the customers & quality in service provided. It works as an antecedent of customer satisfaction (Router and Bloomer, 1995) If expectations are greater than performance, then perceived quality is less than satisfactory and hence customer dissatisfaction occurs (Parasuraman et al., 1985; Lewis and Mitchell, 1990).

SERVQUAL is a service quality frame work, developed in the eighties by Zeithaml, Parasuraman & Berry, aiming at measuring the scale of Quality in the service sectors. Service quality has received much attention particularly since Parasuraman et al. (1985) proposed their conceptual model of perceived service quality.

Parasuraman et al. developed a 22-scale instrument with which to measure customers' expectations and perceptions (E and P) of the five RATER dimensions. Four or five numbered items are used to measure each dimension.

Expectations are viewed as desires or wants of customers, i.e. what they feel a service provider rather than offer (Parasuraman et al., 1988). Although service quality has been perceived for a long time to be an outcome of customer cognitive assessment, recent studies confirm that service quality involves not only an outcome but emotions of customers. It is argued that "during the consumption experience, various types of emotions can be elicited, and these customer emotions convey important information on how the customer will ultimately assess the service encounter and subsequently, the overall relationship quality" (Wong 2004, p. 369).

## SERVQUAL MODEL

Service quality has received much attention particularly since Parasuraman et al. (1985) proposed their conceptual model of perceived service quality. One of the salient issues relating to service quality is the development of different measurement tools such as Parasuraman et al.'s (1988) SERVQUAL model. Although SERVQUAL has evoked contradicting theories (Carman, 1990; Cronin and Taylor, 1992; Brown et al., 1993), it has remained as the starting point of almost all theories about service quality. Customer satisfaction with services and its association with service quality is again a much discussed subject. Less attention has been devoted however to the investigation of the relationship between customer satisfaction and service quality of electrical motors. Some of the exceptions are the writings of Zeithaml (1988), Injazz et al. (1994) and Huber et al. (2001).



In the SERVQUAL instrument of measuring, service quality consists of dimensions of reliability, responsiveness, competence, courtesy, credibility, security, communication, and understanding the Customer (Parasuraman, Zeithaml and Berry, 1985, 1988).

According to Zeithaml *et al.* (1990), the various statistical analyses conducted in constructing SERVQUAL revealed considerable correlation among items representing several of the original ten dimensions for evaluating service quality. SERVQUAL methodology has come to dominate the literature in relation to the evaluation of the service quality construct. SERVQUAL has been applied over the years in a wide variety of sectors.

Zeithaml (2000) stressed that leveraging service quality has been shown to assist in both the retention and expansion of the existing customer base; thus in an attempt to establish a competitive advantage, marketing practitioners often seek to differentiate their service offering upon service quality.

Kotter (2000) pointed out that service firms may win by delivering consistently higher quality service than competitors by exceeding customers expectations. Customers compare the perceived service to find whether the service meets exceeds their expectations. What exceeds expense use the service provided again? A model is thus presented.

### **SIGNIFICANCE AND DRIVERS OF SERVICE QUALITY**

Delivering excellent service quality is widely recognized as a critical business requirement (Voss *et al.*, 2004a; Vilares and Coehlo, 2003). It is “not just a corporate offering, but a competitive weapon” (Rosen *et al.*, 2003) which is “essential to corporate profitability and survival” (Newman and Cowling, 1996). Many authors agree that in today’s dynamic market place and market space, organization no longer compete only on cost but more importantly on service/product quality In a competitive marketplace where businesses compete for customers, delivering quality service is seen as a key differentiator and has increasingly become a key element of business strategy (Heskett, J.L., *et al.*, 1997; Kotler 2006).

On the drivers of service quality, the most widely used model is the Service-Profit Chain (SPC), first proposed by Heskett *et al.*, (1994). It provides one of the most powerful and widely supported perspectives on this issue. Overall, the SPC sees organizational internal features as driver of employee satisfaction, which drives service quality which is also identified as an antecedent of customer satisfaction which in turn drives customer loyalty and retention that eventually leads to profitability and growth.

### **SAMPLING DESIGN**

In this study the following research sampling design techniques were used.

**Population:** It covers the end users of electrical motors in Vellore District at Tamilnadu State in India.

**Sampling Unit:** The sampling unit is Sholinghur town in Vellore District.

**Sample Size:** The authors selected 130 samples from Sholinghur town in Vellore District.

**Sampling Technique:** Convenient sampling method was adopted for collecting the primary data. In this sampling, items for the sample are selected consciously by the author concerning the items remains supreme.

**Contact Method:** Respondents were directly contacted and interviewed by the researcher.

**Data Collection Tool:** The researcher used questionnaire and observation for data collection.

**Tabulation:** All data were classified and recorded in a master table. This table was immense help to analyze the data using statistical tools.

**Period of Study:** This study was conducted for the period of 90 days.



### METHOD OF ANALYSIS

In this study to analyze the result we use the SERVQUAL- model statements (Parasuraman et al, (1990). That means that we measure customer expectations and customer perceptions and make a comparison between different areas of service.

To be able to analyse the different answer options we gave each option different points, this method is called Likert scale.

The expectations and perceptions are evaluated through 30 statements and the answer options are rated through five point Likert scale. The result is also linked with theory to identify which areas the maintenance employees should improve.

We used Microsoft Excel to transform the raw data from the questionnaires into diagrams and tables that are easier to facilitate.

### INTERPRETATION OF THE STUDY AND RESULTS

In this study, with reference to the questionnaire feedback received from the 130 respondents. The data received from both male and female respondents were classified. The answer options which were rated through the 5 point Likert scale was put in MS-Excel file.

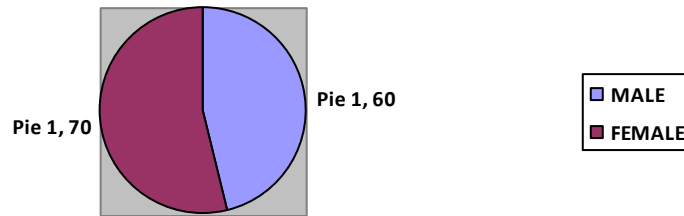
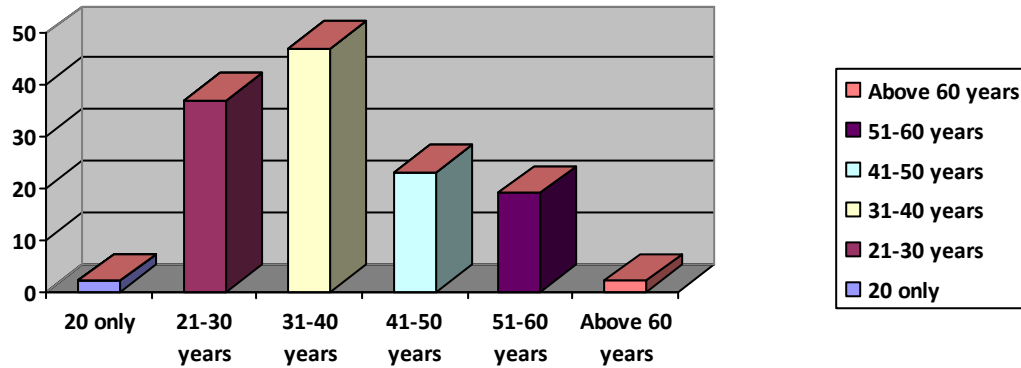


Figure 1.1 Chart showing gender of the Respondents

Table 1.1: Age Group of Respondents

AGE	No. of respondents	%	MALE	FEMALE
20 only	2	1.5	1	1
21 to 30	37	28.5	16	21
31 to 40	47	36	18	29
41 to 50	23	17.8	12	11
51 to 60	19	14.7	13	6
61 and above	2	1.5	0	2
Total	130	100	60	70

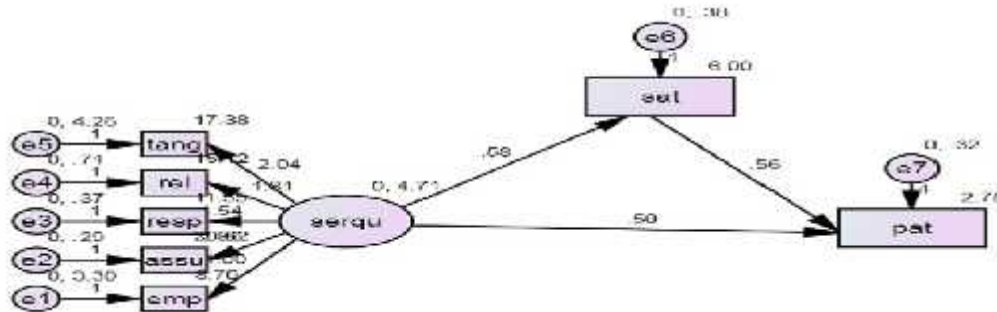


**Figure 1.2 Classifications of Respondents Age Group**

In this study we have used **Structural equation modeling (SEM)**, a procedure for estimating a series of dependence relationships among a set of concepts or constructs represented by multiple measured variables and incorporated into an integrated model. The software **SPSS** was used to bring out the results.

**Steps in SEM**

- Step 1: Define the Individual Constructs
- Step 2: Specify the Measurement Model
- Step 3: Assess Measurement Model Reliability and Validity
- Step 4: Specify the Structural Model
- Step 5: Assess Structural Model Validity
- Step 6: Draw Conclusions and Make Recommendations



TANG = Tangibility; REL= Reliability; RESP = Responsiveness; ASSU = Assurance; EMP = Empathy

**Fig 1.3: Structural Model for Service Quality used in this study indicating the values obtained**

Cut-off criteria for model fit (Bentler et.al 1983 &Thompson, 2000) were used to assess the goodness-fit of the model of Service quality, SERVQUAL. Using cut-off criteria, the values of CFI, IFI, NFI and TLI should be equal or greater than 0.90 whereas the values of RMSEA should be less than 0.08. In the current study, structural model reveals the following values of these indices. IFI=.927, CFI=.927, NFI= .921, TLI=.930, and RMSEA=.050. Using cut-off criteria, model fit results shows that the structure model of service quality model is good.





The respondents felt that maintenance employees' actions fail to give confidence to them and also the safety they feel was less in transactions with maintenance employees. This study results provide the input that the need for soft skill training to the maintenance employees to have the noteworthy trust from the end users of Electrical Motors.

### IMITATIONS OF THE STUDY

1. This study is applicable to Sholinghur town only.
2. The data for the study was collected from the limited number of respondents.
3. Minors and large number of senior citizens were not approached for interview as they were not considered for the present study.
4. Service attitude was not taken into account.
5. Time was a major constraint of this study.
6. Psychological factors may affect the response.

### CONCLUSION

From the above study we could find that Electrical Motors Maintenance Department has to deal with many external customers and render various types of services to its customers and if the customers are not satisfied with the services provided by the Electrical maintenance department then they will defect which will impact the profit of the workshop and play an important role in the economy of a country, also it is very costly and difficult to recover a dissatisfied customer.

One of the strategic aspects for organizational success is through customer satisfaction and loyalty. Customer satisfaction once achieved leads to loyalty and retention of customers. A good experience means a happy customer and a happy customer is every business's best asset. Customer's satisfaction is a major area of business that makes it important to carefully and correctly assess its effectiveness and efficiency.

In the present aggressive global market it is viewed as important to build loyalty in consumers by increasing their satisfaction to win market share and developing sustainable competitive advantage.

This study will be helpful to draw up further maintenance guidelines for improving customer satisfaction within the domestic sector and act as a secondary data for further research.

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