“Quality Service Delivery – A case study of Bengaluru Metropolitan Transport Corporation”

1 INTRODUCTION

The objective of this chapter is to give a theoretical overview about concepts like Quality, Service, Quality Management, Service Management and Quality Service Delivery.

1.1 INTRODUCTION TO SERVICE QUALITY MANAGEMENT

1.1.1 Meaning of Quality

With the growing competition among business organizations to attract new markets and retain existing customers in the globalized world, one of the most important differentiating factors could be the Quality of products and services that the organization offers. But what does one understand by the term Quality? The definition and perspective of quality may vary from person to person and from situation to situation. In addition to being elusive, quality means different things to different people. A producer’s understanding of Quality would be different from that of a consumer’s / customers. While nearly everyone recognizes the pervasive impact of quality, everyone at the same time, seem to have difficulty grasping its many dimensions. With goods it is not that difficult, which by nature are tangible and hence defining many dimensions of quality attributes of it is possible; but defining quality in services is especially difficult because of the intangible nature of the service offering (Brown and Stephen Walter, 1991).

Cooper Procter (1887), grandson of the founder of Procter & Gamble pointed at the three critical issues to managers of Manufacturing and Service organizations – Productivity, Cost
and Quality. According to him, quality of products and services that create customer satisfaction contribute to profitability and success or failure of the organization in the long run. High quality reduces cost due to return, rework / repair and scrap and increases productivity and profit. It is probably in this context that a vice president of United Auto Works went on to say “No quality, no sales. No sales, no profit. No profit, no jobs.”

Toyota, a leading automobile company has its punch line as Quality Revolution and its catch line in an advertisement as Our Quality comes from putting our Customer First in everything we do.¹ When such is the importance of quality, it becomes more important to understand the concept of quality from various perspectives.

Defining Quality in itself is a difficult task because it is a relational notion. Hence quality will have no specific meaning unless it is related to a specific function and in relation to which it is annexed to an object. Quality is a perceptual, conditional and somewhat subjective attribute. One of the earliest definitions of Quality is Goodness of the product (Walter Shewhart, 1931). A survey among managers of 86 companies in United States indicated following attributes to explain Quality.²

- Perfection
- Consistency
- Elimination of waste
- Speed of delivery
- Compliance with policies and procedures
- Providing a good, usable product
- Doing it right the first time
• Delighting or pleasing customers
• Total customer service and satisfaction

Most of the above attributes are included in one or the other definitions of quality during 20th century. Several of these definitions are given below:

- ISO 9000: “Degree to which a set of inherent characteristics fulfills requirements.”[i] The standard defines requirement as need or expectation.
- Six Sigma: “Number of defects per million opportunities.”[ii]
- Subir Chowdhury: “Quality combines people power and process power.”[iii]
- Philip B. Crosby: “Conformance to requirements.”[iv][v] The requirements may not fully represent customer expectations; Crosby treats this as a separate problem.
- Joseph M. Juran: “Fitness for use.”[vi] Fitness is defined by the customer.
- Noriaki Kano and others present a two-dimensional model of quality: “must-be quality” and “attractive quality.”[vi] The former is near to “fitness for use” and the latter is what the customer would love, but has not yet thought about. Supporters characterize this model more succinctly as: “Products and services that meet or exceed customers’ expectations.”
- Robert Pirsig: “The result of care.”[vii]
- Genichi Taguchi, offers two definitions of quality:
  - “Uniformity around a target value.”[viii] The idea is to lower the standard deviation in outcomes, and to keep the range of outcomes to a certain number of standard deviations, with rare exceptions.
  - “The loss a product imposes on society after it is shipped.”[ix] This definition of quality is based on a more comprehensive view of the production system.
American Society for Quality: “A subjective term for which each person has his or her own definition. In technical usage, quality can have two meanings:

- The characteristics of a product or service that bear on its ability to satisfy stated or implied needs
- A product or service free of deficiencies.”[^v]

Peter Drucker: “Quality in a product or service is not what the supplier puts in. It is what the customer gets out and is willing to pay for.”[^x]

W. Edwards Deming: concentrating on “the efficient production of the quality that the market expects,” and he linked quality and management: “Costs go down and productivity goes up as improvement of quality is accomplished by better management of design, engineering, testing and by improvement of processes.”[^xii]

Gerald M. Weinberg: “Value to some person.”

Madhavan Karthikeyan: “Quality is Common Sense”.

From the list mentioned above and from many more different sources one could list a large number of definitions of quality (Garvin, 1984), but technology-driven and production-oriented definition according to which quality is conformance to requirements (Crosby, 1984) and market-driven and customer-oriented definition fitness for use (Juran, 1982) are of importance. The first definition emphasizes on the fact that in order to achieve quality a company must establish requirement specifications, and once these are established, the quality goal of the various functions of the firm is to comply strictly with these specifications. This is quality management: Do things right! The second definition focuses on customer utility and satisfaction. The two definitions can be united in the concept of customer-perceived
Quality: that is quality is in the eye of the customer. Quality—therefore is a combined effect of Tangible (physical) variables and Intangible (value) variables.

\[ \text{Quality} = \text{Tangible} + \text{Intangible} \]

1.1.2 Development of the concept of Quality Management

Although Quality Management does not have a formal definition, most agree that it is an integration of all functions of a business to achieve high quality of products through continuous improvement efforts. Achieving high quality is a continuous process, and therefore quality management emphasizes on the ideas of working constantly toward improved quality. Recognizing the importance of a comprehensive approach to quality, A.V. Feigenbaum\(^4\) (1950) coined the term *Total Quality Control*. With the significant publication of J.M. Juran’s *Quality Control Handbook* and pioneering work in the area of quality control by W. Edward Deming, Walter A. Shewhart, Philip B. Crosby and others, companies started realizing and adopting their quality philosophies. The concept of Total Quality Management (TQM) developed as a Japanese approach to quality improvement and management became popular with businesses in US during 1980s. TQM involves every aspect of the company—processes, environment and people, the whole workforce from the CEO to the line worker must be involved in a shared commitment to improving quality. Total Quality is a description of the culture, attitude and organization of a company that aims to provide, and continue to provide, its customers with products and services that satisfy their needs. The culture requires quality in all aspects of the company’s operations, with things being done right first time, and defects and waste eradicated from operations. TQM has a customer-first orientation. Customer satisfaction is seen as the company’s highest priority. A TQM company is sensitive to customer requirements and
responds rapidly to them. In the TQM context, being sensitive to customer requirements goes beyond defect and error reduction, and merely meeting specifications or reducing customer complaints. The concept of requirements is expanded to take in not only product and service attributes that meet basic requirements, but also those that enhance and differentiate them for competitive advantage. Japanese companies were among the first to seriously apply quality as a fundamental concept. The emphasis on quality gave Japan the competitive advantage that led to tremendous national development and offered a host of quality notions, which Japanese management offered to the world of management.

1.1.3 Importance of Quality

Jan Carlzon\textsuperscript{5} emphasizes on the importance of quality for achieving commercial success. According to him a quality culture that permeates the entire company constitutes the competitive edge in the present-day business world.

Robert E. Allen, Chairman of the Board of AT&T, says “Quality does all. It saves. It sells. It satisfies.”\textsuperscript{6} Quality contributes to customer satisfaction, market strength, and profitability. Studies show that customers are often willing to pay higher prices for what they perceive to be higher quality.

Studies conducted by various organizations to identify the impact of quality on the performance of the product / services and therefore the business unit support the argument that customers’ perception of quality influences products / service performance in market. A study conducted by Strategic Planning Institute\textsuperscript{7} has found that market share, return on investment,
and asset turnover are all closely linked to the perceived quality of the company’s goods and services. This study also concludes that in the long run, the single most important factor affecting a business unit’s performance is the quality of its goods and services, relative to those of its competitors. *Profit Impact of Market Strategy* 8 studies on the co-variation between quality and profits support the conclusion that quality pays. “There is no doubt that relative perceived quality and profitability are strongly related . . . business with a superior product / service offering clearly outperform those with inferior quality” (Buzzell and Gale, 1987). 9 High-quality service providers earned an average return on investment of eight percentage points above low-quality service providers (Allio and Patten, 1991). Quality affects all the variables that constitute the profit formula: *revenue*, *cost*, and *capital* investment. Quality improvements affect revenue through an *improved image, increased sales, economy of scale*, and *decreased price competition*. They affect cost through *diminished costs for rework, scrap, warranty, and product liability*. Finally, *work-in-progress* and *inventory* are reduced, and orders can be filled and invoiced earlier, leading to *faster payment*. Consequently, *capital is freed for alternative investment*. All these improve *productivity* and eventually the *bottom line*. (The italicized are the variables that quality affects. A closer look at the variables would make clear the importance of the notion of quality).

Quality, productivity, and profits are interrelated, and Gummesson 10 argues that when the customer notices a difference in quality, the ultimate effect will be seen in the corporate bottom line. The perception by the customer that a firm’s products and services are of high or highest attainable quality may be the only effective competitive weapon the firm possesses. 11 Statements like *Quality is free* 12 (Phillip B Crosby, 1979) and *Higher quality costs less* 13 (J.J
Juran, 1982) suggest that, well-designed processes, which can produce defect free products / services, in the long run lead to reduction in the cost and increase in profitability. An eminent Japanese statistician, Taguchi, says that there is an incremental economic “loss” for each deviation from customer “target requirements”, which has a flow-on effect to society as a whole (Taguchi and Clausing, 1990). On the other hand, high quality producers can charge premium price. To ensure high quality products/services, organizations need to ensure improved quality of design and quality of conformance which in-turn result in increased market share and lower manufacturing cost.

All of the benefits that quality bring in to goods and services and thereby to business organisations could be summed up in the following flow chart.

**Fig 1.1 Quality and Profitability**

1.2 CONCEPT OF SERVICE AND SERVICE QUALITY

1.2.1 Defining Service

Services are intangible and labor intensive acts. Services are activities or benefits that one party can offer to another that are essentially intangible and do not result in ownership of anything. One of the definitions of Service is “The one which includes all economic activities whose output is not a physical product or construction, is generally consumed at the time it is produced, and provides added value in the firm that are essentially intangible concerns of its first purchase”. Services are deeds, processes and performances.

Service organizations provide services as their Core products, whereas manufacturing units offer Customer service. Customer service is the service provided in support of a company’s core products. In one of the articles Steve Vargo and Bob Lusch argue that all products and physical goods are valued for the services they provide and not for the product itself. This is termed as Derived service. Going by this assertion all goods have service attributes. However, if services are to be analysed for their quality attributes it is essential to differentiate services from goods. Services are different from goods because of the following reasons:

- Intangibility – services are deeds, processes and performances (Zeithaml & Bitner, 2000). Services yield psychological experiences more than they yield physical possessions (Schneider & Bowen, 1995).

- Heterogeneity – services are processes which are delivered and consumed simultaneously. The human element in the process often results in variation in service delivery and the perception of service quality.

- No Inventory – services cannot be produced and stored as they are activities in which service provider and consumer are involved at the same time.
No transfer of ownership – Robert Judd\textsuperscript{19} defined services as \textit{a market transaction by an enterprise or an entrepreneur where the object of the market transaction is other than the transfer of ownership of a tangible commodity.}

According to Regan,\textsuperscript{20} services represent either intangibles yielding satisfaction directly (transportation, hospitals), or intangibles yielding satisfaction jointly when purchased either with commodities or with other services (credit, delivery).

Regan’s definition indicates that there is an element of service attached to tangible products. There are very few ‘pure services’ and ‘pure products’. The companies involved in the production of tangible, physical products also provide customer service. Levitt suggested that, with almost every tangible core physical product, an intangible service product is associated. According to Gronroos (2000), firms now compete on the basis of services, and not on the basis of physical products. The global marketplace has compelled every industry to transform itself into a truly customer-oriented, service-focused enterprise, irrespective of the products and services it sells. Therefore, everybody is in service. In this context, it is important that every organization succeed in achieving customer satisfaction by providing services with the quality as perceived by customers.

\textbf{1.2.2 Service Quality and Service Management}

Service quality represents value judgments about results, impacts and outcomes of what organizations do or provide. These qualities might be intended by management in the form of a specification or standard, or they may be a subjective assessment by customers, clients, or other recipients of products or services. Subjective assessments are arrived at by comparing the
service level that consumers / customers expect from the organization with the service levels that the organisations are intending to deliver or perceived to be delivering.

In the field of marketing, service quality is defined as the consumer’s judgment about a firm's overall excellence or superiority, similar in many ways to the consumer's general attitude toward the firm (Parasuraman, Zeithaml, and Berry, 1988; Zeithaml, 1987; Bitner, 1988). But customers’ perceptions of service quality are not based on a single variable, rather on a complex set of variables including their own direct experiences and relationships with the firm or other explanations, published information read or heard about the firm. Researchers have captured these elements in proposed models of service quality (Gronroos, 1988; Parasuraman, Zeithaml, and Berry, 1985). Also, customer perceptions of service quality are also influenced indirectly by much broader managerial issues such as organizational structure, philosophy, and corporate culture (Schneider, 1986; Bowen and Schneider, 1988; Gronroos, 1984; Lovelock, 1988; Heskett, 1987; Zeithaml, Berry, and Parasuraman, 1988). Service quality is a matter of knowing customers, designing services to meet customers’ needs, and finally managing the service production and delivery process to the customers’ satisfaction.

Quality is especially difficult to define, describe, measure and therefore manage in services. While quality and quality control measures have long existed for tangible goods, few such measures have traditionally existed for services. In essence, quality is determined by imprecise individual factors viz., perceptions, expectations and experiences of customers and providers, and, in some cases, additional parties such as public officials (Brown, Stephen Walter, 1991). Continuous attempts are made by both manufacturing and service organizations to deliver quality service to their customers. Service companies spend substantial time and resources on
measuring and managing customer satisfaction, customer loyalty and service quality. Some companies, such as KFC, link employee rewards to customer satisfaction targets and achievements. Early 1980s saw the development of Scales to measure customer satisfaction and service quality. The comparison of customer’s expectations with his perceptions of a service became a major focus of attention in the measurement of service quality. Buttle (1996) asserts that measuring service quality (using service quality dimensions) has been adopted by many industries.

Because services are intangible and usually cannot be experimented with prior to purchase, customers look for tangible evidence of what they are about to experience in a given service encounter (Shostack, 1977; Berry and Clark, 1986; Langeard et al., 1981; Zeithaml, 1981). Even when a consumer has had considerable past experience with a service provider, variations and contextual cues will affect the consumer’s expectations of the immediate service encounter (Mary Jo Bitner, 1988).

Assessment of quality of service delivery involves both tangible and intangible dimensions of service delivery. Physical facilities, credit facilities, appearance of staff etc, have more tangible elements where as Individual customer service, responsiveness, competence etc have more intangible elements. Figure 1.2 represents the variation in the proportion of tangible elements to intangible elements in various dimensions of service delivery.
Fig. 1.2  Tangible and intangible dimensions of service delivery

Dimensions of Service quality: One approach to understanding quality in a service is to list those characteristics essential in assessing the quality of a service. In one model, customer-perceived service quality is viewed as the result of two generic types of quality: technical (or output) quality and functional (or process) quality (Gronroos, 1984; Lehtinen, 1985). This idea indicates how important it is for service managers to create good ‘functional’ quality as well as ‘technical’ quality and so contribute to the overall image of the service package and service company. Gronross proposed that a service firm, in order to compete successfully, must build quality to its services and it must first define how the customers perceive service quality and then, determine in what way service quality is influenced. According to him, Functional quality is more important than the Technical quality of a service. Therefore, improving functional quality is important in enhancing customer satisfaction. Parasuraman, Zeithaml and Berry (1985) identified Ten determinants of service quality that may relate to any service viz., reliability, responsiveness, competence, access, courtesy, communication, credibility, security, understanding / knowing the
customer and tangibles. Later these were boiled down to five: Tangibles, Reliability, Responsiveness, Assurance and Empathy (Parasuraman, Zeithaml and Berry, 1988). Gronroos (1988) has suggested six criteria, five of which coincide with those previously listed, whereas the sixth adds an essential dimension recovery.21

There are two different perspectives in relation to Service Management and Delivery. Services are often evaluated from the consumers’ perspective in terms of their expectations, perceptions and overall satisfaction with a service. From a managerial perspective, however, services are to be assessed in terms of how efficiently customers are served and moved through the service process, how they are managed, and how competently service staffs deliver the service. The image of a company depends on the nature and the way in which it provides services. That means effective and efficient quality service delivery calls for a well designed and coordinated system which is managed appropriately. Companies are therefore introducing different techniques to continuously improve their Quality Service Delivery.

1.2.3 Quality in Transportation Industry

Measuring quality in service lacks rigidity as services are intangible. Measurements attached to perceptions on some intangible dimensions and measurements on tangible dimensions of service by individuals who receive services lead to a measure of quality from customers’ perspective, whereas service providers’ measure quality by considering dimensions which are, in their view, critical to the service.

Similar challenges are true with the transportation sector, one of the important components of service sector. Opinion on both tangible and intangible dimensions leads to perception of
quality in transportation. Quality within the transportation industry encompasses a number of
different dimensions, depending upon perspective. Shippers tend to view quality primarily in
terms of the level of service provided and transportation cost; transportation companies view
quality from a much broader perspective including the areas of customer service, administration, maintenance, storage, and information; finally, government tends to view transportation quality from a safety, economic, and consumer welfare perspective.

1.2.4 Role of Service sector in Economy

According to a report by Ministry of Finance, the service sector's share in India’s Gross
Domestic Product (GDP) has grown from 43.69 per cent in 1990-91 to 51.16 per cent in
1998-99. In contrast, the industrial sector's share in GDP has declined from 25.38 per cent to
22.01 per cent in 1990 – 91 and 1998 – 99 respectively. The agricultural sector's share has
fallen from 30.93 per cent to 26.83 per cent in the respective years. Data for the financial year
2006 – 07 indicate that the share of services, industry, and agriculture in India's GDP are 55.1
per cent, 26.4 per cent, and 18.5 per cent respectively.

The various sectors that combine together to constitute service industry in India are:

- Trade
- Hotels and Restaurants
- Railways
- Other Transport and Storage
- Communication (Post, Telecom)
- Banking
Within the services sector, the share of trade, hotels and restaurants increased from 12.52 per cent in 1990 – 91 to 15.68 per cent in 1998 – 99. The share of transport, storage and communications has grown from 5.26 per cent to 7.61 per cent in the years under reference. The share of construction has remained nearly the same during the period, while that of financing, insurance, real estate and business services has risen from 10.22 per cent to 11.44 per cent.

**Table 1.1 Contribution of Various Sectors in GDP (in percentage)**

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**Source:** http://www.tradechakra.com/indian-economy/gdp.html

India holds the 72nd rank in the world with a contribution of 62.60% from service industry in the GDP as per Central Intelligence Agency – CIA, World Fact book 2010.
Nations, including India, have gradually begun to understand the vital importance of the service sector. In many countries, up to 70 per cent of all employees work in services. Net increase in the number of jobs in many economies is mainly from service organizations, both in private businesses and governmental bodies (according to Jan Carlzon, President, Scandinavian Airlines System –SAS).

1.3 RESEARCH PROBLEM
Transportation is one of the major components of service sector. Quality of transportation is an indicator of economic development and quality of life in a geographical area (Curt Carnemark, 1979). Therefore it is essential that the governments support delivery of quality transport by the authorities concerned / designated.

In Karnataka, the public Road Transport Services are owned by the state government. Some private players do operate transport services, but their share in terms of quantum of population that they cover is very marginal /negligible. Bangalore (Bengaluru) Metropolitan Transport Corporation (BMTC) caters to the ever growing transportation needs of Bangalore, the capital of Karnataka. A large population depends on BMTC services for their transportation needs. Also, BMTC provides employment to a large population. 

• Bengaluru (formerly Bangalore) is the 5th largest city in India and one of the fastest growing cities in the world. As per 2001 census report, the population is about 62 lakh and the city covers about 531 sq. km and is expected to touch 800 sq. km area under greater Bengaluru project. BMTC is trying to satisfy its customers (commuters) with many initiatives. Third Citizen’s Report Card (initiated in 1993 and repeated in 1999) on Bengaluru’s public service
brought out by Public Affairs Centre places BMTC at the top (amongst other services like BWSSB, BDA, BESCOM, RTO etc.)

- The ever growing number of registration of vehicles in Bangalore is an indicator to the fact that people prefer to use personalized mode of transportation over public transportation. One of the reasons (among others like affordability, variety of brands, increasing purchasing power etc) for this trend could be the satisfaction level of commuters with the public transport services.

- The opinions expressed by commuters about BMTC services on web sites and articles published in various leading Dailies in the city also leads to a perception that Bangaloreans do have some disappointing experiences with the services.

- In the recent past, many changes were introduced in BMTC services and there is no evidence of any type of study being conducted to comprehend the results of these initiatives and overall commuter satisfaction.

- Being employment provider for a large population, it is critical to meet the expectations of employees and keep them satisfied and motivated to ensure better service which in-turn leads to the satisfaction of commuters.

In the context of above-mentioned circumstances, it is pertinent to ask a few questions such as,

- What do commuters expect from a state owned public transport provider like BMTC?
- Are commuters satisfied with the services delivered by BMTC?
- What efforts are made by the organization to deliver quality services?
- Do demographic factors influence commuters’ perception of quality service delivery?
- How do commuters rate BMTC services on various parameters?
- What is the expectation, perception and satisfaction level of employees?
Both in the context of the importance of public transport system for one of the fastest growing cities such as Bengaluru, and the significance of the questions raised in the context of the importance of public transportation for one of the fastest growing cities such as Bangalore, the study proceeds with the following objectives.

1.4 OBJECTIVES OF THE STUDY

- To identify ‘Critical to Quality’ (CTQ) parameters in public transportation carrying passengers
- To appraise the existing quality improvement measures in BMTC, their effectiveness and scope for improvement
- To measure customers expectation, perception and level of satisfaction with the services of BMTC
- To measure level of job satisfaction among the employees of BMTC
- To measure the influence of select factors (based on SERVQUAL) on the Overall satisfaction of Commuters with the services
- To measure the influence of select factors (based on JSS) on the Overall satisfaction of employees with their job
- To suggest potentially successful Quality Management practices to improve Customer Satisfaction and Cost Reduction

1.5 RESEARCH METHODOLOGY

Research can be defined as a scientific and systematic search for pertinent information on a specific topic. Research in common parlance refers to a search for knowledge. It is not just a
process of gathering information; rather, it is about answering unanswered questions or creating new knowledge or things which do not currently exist. In other words, research is an art of scientific investigation. Redman and Mory define research as a ‘systematized effort to gain new knowledge.’ According to Clifford Woody, research comprises defining and redefining problems, formulating hypothesis or suggested solutions; collecting, organising and evaluating data; making deductions and reaching conclusions; and at last carefully testing the conclusions to determine whether they fit the formulating hypothesis.

According to Leedy, research is ‘a systematic quest for undiscovered knowledge’ (Lee, 1989). Good research is ‘systematic’ in the sense that it is planned, organized and has a specific goal. Broadly research can be either Pure research or Applied research. Pure research is the research performed for the single goal of gaining knowledge, or, in other words, for gaining ‘knowledge for the sake knowledge’. The applied research is the one which is performed to solve a specific practical problem.

Research methodology is a way to systematically solve a research problem. It may be understood as a science of studying how research is done scientifically. A research design is the structure, or an outline of research that guides the process of research from the formulation of the research questions and hypotheses to reporting the research findings. Research methodology explains the research methods used in the context of research study and explains why a particular method or technique is opted over others so that research results are capable of being evaluated either by the researcher himself or by others. Why a research study has been undertaken, how the research problem has been defined, in what way and why the hypothesis
has been formulated, what data have been collected and what particular method has been adopted, which technique of data analysis has been used and a host of similar other questions are usually answered when we talk of research methodology concerning a research problem or study. Whereas research methods means all those methods which are used by the researcher during the course of studying his research problem. Based on the nature of research, purpose of research, research questions, sample selection, data collection methods, and data analysis techniques the research designs can be classified into one of three broad categories: (1) Quantitative research designs, (2) Qualitative research designs, and (3) Mixed-research designs.

Figure 1.3 gives a quick look at the methodology used to conduct the study and collect data for commuters. Figure 1.4 gives a quick look at the methodology used to conduct the study and collect data for employees.

Both the figures indicate various steps to be included in research methodology and methods / techniques available under each step. The methods adopted at each step while conducting this study are highlighted in the figures and the relevance of these methods is explained under research methodology.

A comparison of figure 1.3 and figure 1.4 indicates the variation in the sampling technique used to identify sampling units from commuters and employees. Sample commuters are selected using non probability sampling method whereas probability sampling is used as first step to select depots while collecting data from employees.
Fig 1.3  Research Design at a glance – Commuters’ satisfaction survey

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**Fig 1.4  Research Design at a glance – BMTC Employees’ satisfaction survey**

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1.5.1 Type of Research

In the present study, to measure the satisfaction level of customers and satisfaction level of employees of BMTC, Descriptive and Analytical research method is used. Descriptive or ‘case-study’ research is research in which a specific situation is studied either to see if it gives rise to any general theories, or to see if existing general theories are borne out by the specific situation. Descriptive research may be used when the object of the research is very complex. For example, in trying to study the effectiveness of service delivery systems, a researcher might undertake an in-depth case study of one or a selected number of service providers in a selected geographical area and then analyze and compare them to see if any general trends emerge.

Descriptive research involves describing a problem, context or a situation. The questions are more structured, reliant on prior ideas and methods. A case study is a descriptive research where statistics and numerical data can also be used to describe. The study includes surveys and fact-finding enquiries of different kinds. The major purpose of descriptive research is to narrate the state of affairs as it exists at present. The main characteristic of descriptive research is that the researcher has no control over the variables; can only report what has happened or what is happening, however researchers use descriptive research to discover causes even when they cannot control the variables. Most ex post facto research projects are used for descriptive studies in which the researcher seeks to measure such items as, frequency of an event, preferences, expectation and perception of people, or similar data. In analytical research, on the other hand, the researcher has to use facts or information already available, and analyze these to make a critical evaluation of the corresponding facts and information. A descriptive study employs simple tools like Averages and Percentages for analysis where as an Analytical
study employs tools like Correlation, Regression, Multivariate analysis and other advanced statistical techniques.

1.5.2 Research Philosophy

Positivism and Phenomenology are the two philosophies about research process. Positivism was the outcome of scientific discoveries of 18th and 19th century, and it was clear that, a body of knowledge existed independent of whether people knew it or not. The aim of scientific research was to discover this knowledge. This led to the development of tools and techniques to collect and analyze data objectively.

Since, numerical measures, as it exists, are obtained for different variables used in the current study, and various statistical techniques are applied to analyze the data, the philosophy employed here is positivism.

1.5.3 Research Strategy and Approach

This study is a Quantitative and Deductive research study as it aims at arriving at conclusions about some research questions based on the analysis of numerical data obtained from a sample to arrive at conclusion about the population under study.

Quantitative and Qualitative

Quantitative research gathers data that are in numerical form. The original data can be in non-numerical form such as statements that are re-coded on some specific numerical scale which can categorized based on their measurement type – nominal (e.g., gender), ordinal (e.g., university rank), interval (e.g., degrees Fahrenheit), and ratio (e.g., height in inches). This
involves the generation of data in quantitative form which can be subjected to rigorous quantitative analysis in a formal and rigid fashion.

This approach can be further sub-classified into \textit{inferential}, \textit{experimental} and \textit{simulation approaches} to research. The purpose of \textit{inferential approach} to research is to form a data base from which it is possible to infer characteristics or relationships of population. This usually means survey research where a sample of population is studied (questioned or observed) to determine its characteristics, and it is then inferred that the population has the similar / same characteristics.

Qualitative research, on the other hand, is concerned with qualitative phenomenon, i.e., phenomena relating to or involving quality or kind. Qualitative approach to research is concerned with subjective assessment of attitudes, opinions and behavior. Research in such a situation is a function of researcher’s insights and impressions. Such an approach to research generates results either in non-quantitative form or in the form which are not subjected to rigorous quantitative analysis. Qualitative data are generally non-numerical but have a greater variety of sources.

Induction is the formulation of general theories from specific observations, as opposed to deduction, which is the derivation of a new logical truth from existing facts. Deduction is a process of applying a generally accepted principle to a specific case falling under the general principle. A deductive theory-based research process focuses primarily on testing theories and specific research hypotheses that consider finding differences and relationships using numeric...
data and statistical methods to make specific conclusions about a given case. This method is appropriate for addressing specific problems or objectives.

In the present study, to arrive at conclusions about satisfaction levels of commuters and employees of BMTC, and to test various hypotheses, numerical data is collected in a systematic order. The data is analysed and interpreted to draw conclusions about hypothesis. Figure 1.5 represents the flow of steps involved in a deductive research.

**Fig 1.5 Process in Deductive research**

1. Theory
2. Hypothesis
3. Data Collection
4. Analysis and Findings
5. Hypothesis accepted or Rejected
6. Revision of Theory

### 1.5.4 Research Method

*Case study* is an in-depth examination and intensive description of a single individual, group, and organization based on collected information from a variety of sources, such as observations, interviews, documents, participant observation, and archival records. The goal of
the case study is to provide a detailed and comprehensive description, in narrative form, of the case being studied.

In the present study, survey method is employed. To collect primary data both for Commuters and Employees of BMTC, respondents are sampled and the required data is collected using a structured questionnaire.

1.5.5 Time Horizon

Cross sectional and Longitudinal: In cross sectional study a group of study units are studied at a point of time whereas in a longitudinal study a select group of individuals are observed or studied over a period of time. The changing values of the variable under study are noted and analysed.

The present study is a Cross sectional study as the data/opinion of a group of sampled individuals is collected in the time period between June 2010 and January 2011. Their demographic data and opinion about BMTC is viable to change with time.

1.5.6 Sampling Scheme

In a research based on survey it is not feasible to study a population and collect data, especially when it is very large, due to constraints like time, money, access etc., but a researcher has to collect data to conclude about research questions. A sample can be considered for the study using any of the sampling schemes available and the results can be used to infer about the population. Sampling is the process of choosing actual data sources from a larger set of possibilities. The very different goals of qualitative and quantitative research lead to equally
different procedures for selecting data sources from a larger population. In practical terms, every research project has to consider which kinds of data sources will be eligible for the study, regardless of whether those data sources consist of people to be interviewed, sites to be observed, or texts and other media to be examined. Stating the eligibility criteria that determine whether a given data source is included in the total population is technically known as defining a sampling frame.

1.5.6.1 Random or Probability sampling scheme ensures equal chance of selection into sample for every unit in the population.

In Stratified random sampling the population is divided into homogeneous groups / strata based on a stratification factor. This results in minimum variance within a stratum and maximum variance between strata. Then SRS is used to select sample units from each stratum.

1.5.6.2 Non–probability sampling does not adopt the theory of probability. Selection of the sample units depends upon the enumerator or researcher. Convenience sampling is a method of selecting easily available population units as sample units for study.

Purposive / Judgement sampling is the method in which units are selected based on a pre-determined decisive factor. This involves the selection of units which are expected to be the most appropriate ones for the study.

1.5.6.3 Sampling Scheme for commuters: In the present study the population consists of all the people in Bangalore who travel by BMTC and also those who visit Bangalore and use the
bus services. This is a huge population and it is impractical to use any of the probability sample schemes as it is not possible to identify all units of the population. Therefore Convenience and Purposive / Judgment sampling scheme is used to collect data from commuters.

Respondents

A large proportion of Bangalore population commute by BMTC either regularly or whenever required. Individuals belonging to different age groups, with different educational, financial, and employment status avail the bus services. Therefore, while selecting the respondents, care was taken to make sure to get a good representation of different categories for each factor. Also, commuters from different areas / localities of Bangalore and frequent visitors to the city were included in the survey. Individuals with or without own vehicle, traveling long or short distances, who might depend on the BMTC bus services or otherwise were all contacted to get a holistic opinion. A relatively large group of individuals were approached to collect data. Based on the willingness of individuals who were ready to provide information, the questionnaire was administered to collect their opinion about the services of BMTC.

1.5.6.4 Sampling scheme for Employees: BMTC has 36 depots at various locations in Bangalore. The administrative decisions taken at the corporate office are conveyed to all depots and therefore, uniformity is expected in the quality of services offered from these depots. Some depots are ISO certified. Some depots operate only Volvo buses, some do not operate Volvo, and some operate all types of buses.
Therefore, while selecting depots for study, stratification was done based on the type of buses they operate. Four depots are selected from the strata which included depots operating all types of buses except Volvo, One depot which operates only Volvo (depot no.7), one depot which operates all types including Volvo (depot no. 13) are selected at random. Depot number 16 selected as one of the sample unit for the study as it is an ISO certified depot which operates buses other than Volvo. Depot number 7 is another ISO certified depot in the sample which operates only Volvo buses. Also, the corporate office and one of the major bus stations was selected at random.

Based on the convenience and concurrence of the employees working in any of these selected depots or bus station or corporate office, data is collected using a questionnaire either by self administrating or by assisted self administrating.

215 responses were collected from employees of whom 17 are discarded either for lack of complete information or for ambiguity in response. Therefore 198 responses are considered for the final analysis of data for employees.

1.5.7 Data Collection – Source & Method

1.5.7.1 Sources

*Primary sources* are the original sources from which the researcher directly collects the required data. These sources provide primary or unprocessed or firsthand information about the variables under study. Methods or tools used to collect primary data are; observation, interview, mail survey using questionnaire, experimentation, simulation etc.
Secondary sources are those which can provide the required information and data which is collected and compiled for some other purpose. The secondary data is either published or unpublished. Books, Magazines, News papers, Journals, Annual reports of companies, National Sample Survey reports, reports published by international organizations are usually considered as reliable secondary sources. Records and Registers maintained in the companies provide unpublished, reliable secondary data. While using secondary data one should be careful about the validity of the data for the study under consideration.

In the present study, primary data is collected from commuters to analyse their expectation, perception and satisfaction level about the BMTC services. Secondary sources like books, magazines, web sources are used to understand concepts and various works by different researchers in the field of quality service delivery and transportation sector. Annual reports, registers and hand books of BMTC, are also used to understand functioning of the organisation.

1.5.7.2 Methods adopted for data collection

1.5.7.2.1 Data collection method adopted for Commuters

The questionnaire prepared for the purpose of data collection was distributed (self-administered) to more than one thousand people based on their willingness and were collected back after some time. In some cases where the respondent was unable to read and write, the researcher noted down the data (interview administered) depending upon the response. Some responses were also collected through e-mail. A total of 645 filled-in questionnaires were
received of which 133 were incomplete in some respect and were discarded. Finally 512 responses are considered for the analysis.

Questionnaire design for commuters’ opinion collection: The questionnaire consists of three parts; 1) personal details 2) Thirty Likert scale based statements and 3) SERVQUAL.

To measure quality of a service based on customer satisfaction, the qualitative properties of the service needs to be defined in terms of measurable parameters. In transportation sector, classification of qualitative properties of transportation as offered and as those required, as per the comprehensive list by Klatt include factors mentioned in the list given below.

Based on these parameters, Thirty statements were identified to cover-

i) Spatial Distance
   • Omnipresence
   • Mobility
   • Direct carriage route
   • Ability to form branches
   • Continuity of the transport system
   • Accessibility to the transport system

ii) Object to be carried
   • Ability to increase performance
   • Careful service
   • Safety of conveyance
   • Comfort
   • Expediency
iii) Time
- Reliability
- Dependability
- Temporal accessibility
- Time table conveyance
- Frequency
- Planning
- Precision
- Punctuality
- Regularity
- Speed

iv) Cost: cheap Vs Expensive

The above said parameters can be considered as technical quality parameters and functional quality includes – helpful crew, courtesy, empathy etc.

In the third part based on SERVQUAL, which actually consists of 22 items for expectations and 22 items for perception, one additional statement was included.

Based on the comments and suggestions received during the pilot test of the questionnaire with 28 commuters, some statements in second part (Likert scale based statements) were rephrased. In the SERVQUAL part, the column to measure the gap between Expectations and Perception is eliminated and only 23 statements were included to measure both expectations and perception, as many respondents during pilot survey felt that the questionnaire is very lengthy to read and answer and the clarity can be retained even after eliminating second set of statements for perception.
1.5.7.2.2 Data collection method adopted for Employees

To understand the satisfaction of employees of the organisation under study, a questionnaire is designed based on Job Satisfaction Survey (JSS) scale, developed by Paul E. Spector, to evaluate nine dimensions of job satisfaction related to overall satisfaction. This instrument is one of the well established scales among the job satisfaction scales. The demographic variables in the questionnaire include the employee’s Educational background, Family background, Job profile and Social status.

In a standard JSS, 36 statements are used to measure nine dimensions of job satisfaction. But, two statements are added in the current study, one statement each under Operating Procedures and Nature of Work. The remaining seven dimensions viz., Pay, Promotion, Supervision, Fringe benefits, Contingency rewards, Coworkers and Communication, are measured using four statements each.

The questionnaire also includes a section to measure contentment levels of employees on six factors viz., General working conditions, Pay and Promotion Potential, Work Relationships, Use of Skills And Abilities, Work Activities and Social Status. The statements used to measure these statements are rated on a five point scale, Not Satisfied At All = 1, Just Satisfied = 2, Somewhat Satisfied = 3, Satisfied = 4 and Extremely Satisfied = 5, by employees.

1.6 SCOPE OF THE STUDY

The data collected for the study spans a period of eight months between June 2010 and January 2011. To study the expectation and satisfaction levels of commuters of BMTC, a sample of 512 opinions are collected and analyzed. The suggestions indicated in this study are based on this
data and is an indicator of general opinion among commuters. As a public service provider, the organisation can use the findings and suggestions to design services which will enhance the commuters’ satisfaction.

The finding and conclusions drawn based on the data collected from 198 employees is an indicator of expectations and satisfaction levels of employees. This provides a glimpse of employees thinking and opinion about their job and organisation. This general idea collected from the employees is first of kind and can be used for designing employee friendly policies and culture in the organisation which motivates them to deliver better quality service.

1.7 LIMITATIONS OF THE STUDY

In the present study SERVQUAL scale is used to measure the gap between commuters’ expectation and perception about the service provided BMTC. SERVQUAL scale which is widely used to measure service quality is not industry specific and therefore, when adopted to a specific sector like transportation, might still be insufficient to capture all factors which influence customer satisfaction.

A standard SERVQUAL scale has 22 statements for Expectations and 22 statements for Perceptions. Including all 44 statements in a study make the survey too difficult for the respondents. To overcome this difficulty, in the present study 23 statements (22 statements based on the standard scale and one additional statement) are used to measure both expectations and perceptions. The accuracy of responses therefore depends on the respondents’ ability to understand the statements.
At present Bangalore is witnessing major infrastructural development, especially in the transportation sector. The Metro rail service, which is expected in the very near future, is changing the expectations and perceptions of people with respect to their intra city transportation needs. Also, BMTC is introducing changes in its service patterns, pricing, connectivity, and types of services at regular intervals which make the commuters opinion dynamic. In this context, the conclusions drawn based on the data collected for the study might lead to different interpretations in the future.

A glimpse of demographic diversity among commuters is captured in the study. The findings and conclusions drawn based on this data reflect the opinion of this select group can be generalized by a reasonable extent only to the population which has similar demographic pattern.

The study does not establish quantitative relationship between commuter satisfaction and satisfaction levels of employees of the organization providing the services.

1.8 SCOPE FOR FURTHER STUDY
This study does not cover changing needs of commuters and their impact on the expectation of commuters. As a public transport service provider, the challenges for BMTC in providing quality service, with the introduction of Metro rail as a better alternative to bus for inter city travel, another interesting area of study, which is beyond the scope of this study, are some of the topics for further study.
Comparison of Best practices adopted by public transport service providers and their impact on employee and commuter satisfaction in different metropolitan cities is another interesting topic for study. These scopes could also be ascertained by the findings and suggestions of this study.

Chapter Scheme

1. Introduction
This chapter covers theoretical over view of concepts like Quality, Service, Quality Management, Service Management and Quality Service Delivery. It also covers the statement of Research Problem and Objectives of study. Research Methodology explains the Approach and Type of research used in the study. Sampling technique, tools used for data analysis, scope, limitation and scope for further study is also covered in this chapter.

2. Introduction to Transportation Industry
This chapter elaborates on the importance of Transportation in a developing country, growth of public Transportation in Karnataka, and growth and importance of BMTC in Bangalore. This chapter also reviews some literature available in the field of Quality Service Delivery in Transportation.

3. Commuters’ Profile and Service Satisfaction Levels
Part – I of the chapter deals with sample commuter profile, Part – II deals with the Satisfaction levels of commuters’ on different quality parameters considered for study, Part – III deals with relationship between demographic parameters and service quality parameters, Part – IV deals with SERVQUAL and Part – V deals with regression model for Average Gap-Overall based on Gap for Tangibles, Reliability, Responsiveness, Assurance and Empathy.
4. Employee Job Satisfaction

Part I – A gives profile of BMTC employees selected for the study and Part I – B deals with measure of association among demographic variable of respondents. Part II – A deals with analysis of Job Satisfaction Survey (JSS) parameters and Part II – B deals with Employees’ Contentment Assessment. Part III deals with relationship between demographic parameters and Job Satisfaction Survey parameters. Part IV deals with Multiple Regression Model.

5. Findings

This chapter lists all findings based on the data collected for commuters and employees of BMTC.

6. Conclusion and Suggestions

Conclusions drawn based on the findings and suggestions based on data, qualitative information provided by respondents and observations of researcher are presented in this chapter.
Reference

1. Deccan Herald, 30-09-2010


xiii. p.169, Rochfort Scott, Hamerton


6. In a special feature on Quality Improvement, the September 26, 1988, *Fortune*


18. Benjamin Schneider, Susan S. White. “Service Quality: Research Perspectives”,

http://books.google.co.in/books?id=qBXliZ6-CBcC&printsec=frontcover&dq=history+of+quality+service+delivery&source=bl&ots=AeTqgxs7Dr&sig=niUBFOrTjZN910gXqYVWGDiK2lM&hl=en&ei=yY6hTIXrG8yqc&PVqYoB&sa=X&oi=book_result&ct=result&resnum=6&ved=0CDAQ6AEwBQ#v=onepage&q=history%20of%20quality%20service%20delivery&f=false


22. http://www.indiaonestop.com/serviceindustry.htm, and
