CHAPTER 3
RESEARCH MODEL FRAMEWORK

The studies of Service Quality have substantiated the complexity of the same and the inability to measure them across industries using a generalized scale. Hence, there is a need for developing a Scale for measuring Service Quality suitable for Indian Airline Service Providers. This chapter gives the theoretical justification for the same. Also, this chapter provides the theoretical background and the conceptual framework for modeling the relationship between Productivity, Use of Technology and Service Quality among the Indian Airline Service Providers.

3.1 SERVICE QUALITY

During the past 20 years, considerable academic attention has been paid to establishing that services differ from products, and this difference should be taken into account in the marketing of services (Gabbott and Hogg 1997). Definitions of services have been proposed since the 1960s, but there are still differing views on how they should be defined. Gronroos (2000) defines a service as “A process consisting of a series of more or less intangible activities that normally, but not necessarily always, take place in interactions between the customer and service employees and / or physical resources or goods and / or systems of the service provider, which are provided as solutions to customer problems “. 
Services in general can be characterized as either episodic or relational (Liljander and Strandvik 1995). Episodic service is a discrete service which forces the customer to make a separate decision each time the service is purchased. Relational service, on the other hand, are continuous since the customer makes some kind of contract for the service delivery with the service provider. Airline services are clearly episodic in nature.

A significant gap exists in services literature in explaining the relationship between Use of Technology, Productivity and Service Quality. The link between the three constructs has not been systematically investigated.

Service Quality (SQ) is usually defined as the customer’s impression of the relative superiority or inferiority of a service provider and its services (Bitner and Hubert, 1994) and is often considered similar to the customer’s overall attitude towards the company (Parasuraman et al 1988, Zeithaml 1988, Bitner 1990). Researchers have tried to conceptualize and measure Service Quality and explain its relevance to the overall performance of companies and organizations.

A common notion of research on SQ is that because services are intangible, heterogeneous, and their production and consumption are usually inseparable, the process used by customers to evaluate SQ is exceptionally composite and cannot be easily identified. The idea that services are evaluated both by the outcome and by the production and delivery process is commonly accepted. Gronroos (1982) considers services as products requiring, to a large extent, the customer’s involvement in the process of production and consumption during which time the consumers compare their expectations about the service with what they actually receive. The result of this comparison perceived as service quality, Gronroos (1982) suggest that the customers’ expectations are also influenced by marketing activities, external
influence and word-of-mouth. He identifies two types of service quality; “technical”, related to what the customer gets from a service and “functional”, associated with how the service is delivered.

The last two decades have witnessed great changes in the business environment, with Quality consistently being considered as one of management’s top most competitive priority and a prerequisite for sustenance and growth. The quest for quality improvement have become a highly desired objective in today’s intensely competitive global market place. Quality management has been reckoned as the prime over for enhanced business performance (Corbet et al1998). In today’s world of fierce competition, rendering quality service is a key for subsistence and success. Hence it is important to ascertain the customer’s perception of Service Quality and subsequently develop strategies to meet customer expectation. Also, the service organizations have learned that Quality does not improve unless it is measured.

3.2 DEFINITIONS OF SERVICE QUALITY

The below is a substantial collection of definition of Service Quality as told by various authors.

1. “It is the result of the comparison that customers make between their expectations about a service and their perception of the way the service has been performed (Lewis and Booms 1983)

2. “It is a form of attitude, related but not equivalent to satisfaction, and results from a comparison of expectation with perceptions of performance” (Gavin 1984)
3. “Perceived judgment resulting from an evaluation process where customers compare their expectations with the service they perceive to have received” (Gronroos 1984)

4. “Comparative function between consumer expectations and actual service performance” (Parasuraman et al 1985)

5. “Consumers belief regarding services received” (Parasuraman et al 1985)

6. “Degree and direction of discrepancy between consumer expectation and actual performance” (Parasuraman et al 1988)

7. “Comparison to excellence in service encounters by the customers” (Rust and Oliver 1994)

8. “Consumers judgment about the excellence or superiority of a service provider’s performance” (Babakus and Boller 1992, Cronin and Taylor 1994, Berry and Parasuraman 1996).

9. “A global judgment or attitude, relating to the superiority of the service” (Parasuraman et al 1988)

10. “The customers’ judgment about an entity’s excellence or superiority and it is a form of attitude and results from a comparison of expectations with perception and performance” (Parasuraman et al 1988)

11. “Assessment of attributes related to service process such as responsiveness, awareness, assurance and empathy” (Dabholkar and Overby 2003)

3.3 SERVICE QUALITY MODELS

In this tough business environment, measurement of SQ has created interest among the service providers and scholars alike. This is so because,
SQ is used by marketers to position their respective products in the market place. (Brown and Swartz 1994). Over the years various SQ models have been developed to measure the Quality of services. The following table gives a list of various SQ models.

**Table 3.1 Various Service Quality Models**

<table>
<thead>
<tr>
<th>Model</th>
<th>Author</th>
<th>Year</th>
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<tbody>
<tr>
<td>The Nordic Model</td>
<td>Gronroos</td>
<td>1984</td>
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<tr>
<td>The SERQUAL model A</td>
<td>Parasuraman et al</td>
<td>1985</td>
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<tr>
<td>The SERQUAL model B</td>
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<td>The SERVPREF model</td>
<td>Cronin and Taylor</td>
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<td>The three component model</td>
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<td>The CARTER model</td>
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There has been considerable progress in the literature as to how SQ perceptions should be measured (e.g., Babakus and Boller 1992, Cronin and Taylor 1992, Teas 1993) but little advances as to what should be measured. The researchers have generally adopted one of the two conceptualizations. The first if the “Nordic” perspective (Gronroos 1984), which defines the dimensions of SQ in global terms as consisting of functional and technical quality. The second, the “American” perspective (Parasuraman et al 1988), uses terms that describe service encounters (i.e., reliability, responsiveness, empathy, assurance and tangibles). Although the later conceptualization dominates the literature, a consensus has not evolved as to which is the more appropriate approach.

The foundation for SQ literature lies in the product quality and customer satisfaction literature. Early conceptualization (Gronroos 1984,
Parasuraman et al (1985) are based the disconfirmation paradigm employed in the physical goods literature (e.g., Cardozo 1965, Howard and Seth 1969, Olshavsky and Miller 1972, Oliver 1977, Churchill and Supernant 1983, Oliver 1983). This suggests that Quality results from a comparison of perceived with expected performance.

Three themes are evident in more recent work on SQ. First, several studies suggests modified versions of SERVQUAL model proposed by Parasuraman et al (1988). Cronin and Taylor (1992); Boulding et al (1993); DeSabro et al (1994) have attempted to provide modified versions. These modifications either drop expectation or dimensions to expectation such as “will” and “should” or employ alternative methods such as Conjoint analysis to assess SQ perceptions.

The second uses a two forms of Quality approach. Gronroos (1984) postulated that there is technical and functional dimension to SQ. In support of this theme, Rust and Oliver (1994) offered a three component model consisting of the service product, the service delivery and the service environment. Rust and Oliver have tested their model empirically, though there has been support for similar models in retail Banking (McDoughall and Levesue 1994) and health care industry (McAlexander et al 1994).

The third theme relates to the structure of SQ construct. Dabholkar et al (1996) identified and tested a hierarchical conceptualization of SQ that proposes three levels: (1) Customers’ overall perception of SQ (2) Primary dimensions and (3) Sub-dimensions. This multi level model recognizes the many facets and dimensions of Service Quality perceptions. SQ is considered as higher order factor that is defined by two additional levels of attributes.
Thus, SQ has been defined as a customer’s perception regarding (1) an organization’s technical and functional quality; (2) the service product, the Service deliver and the service environment; or (3) the reliability, responsiveness, empathy, assurances and tangibles associated with a service experience.

### 3.3.1 The Nordic Model

Early contribution to the literature of SQ model have been developed by Gronroos in 1984 called the Nordic Model and it has conceptualized the measurement of SQ as customer’s perception regarding an organizations’ technical and functional quality. Technical Quality refers to primarily what is delivered as service and functional quality refers to primarily how the service is delivered. Examples of Technical quality are Cleanliness of the seats in the aircraft, effectiveness of car repair etc., and Functional quality are the care of the crew members, the manner in which the service provide helped a customer in the airport during luggage check-in etc.

The Nordic model of SQ measurement is criticized on the following aspects; it gives only generalized picture of SQ and lacks detail. For example, it does not talk much about service tangibles and service encounters.

### 3.3.2 The Serqual Model A

In 1985, Parasuraman et al have pioneered the ever debated and challenging aspect of measuring Service Quality, popularly known as SERVQUAL model. They had started the unending journey of conceptualizing the measurement of SQ with ten SQ dimensions. It was later filtered and refined to five SQ dimensions, namely, tangibles, reliability, responsiveness, assurance and empathy. Even today, research adopt the model developed by these pioneers to measure SQ in different service settings.
3.3.3 The Serqual Model B

Again in 1988, the same set of three researchers, namely Parasuraman et al further refined and fine tuned the five major dimensions by changing the statements to get more reliable and valid results for SERQUAL model. All new models are prone to criticism, similarly the SERQUAL model has been widely criticized by different authors in different service settings. Researchers allege that it is limited to one sector such as a banking sector and the score is biased because of the wrong terminologies used in the statements. Mostly, the model has been criticized for the psychometric properties and methodological soundness. In 1993, Cronin and Taylor commented that it is unnecessary to measure customer expectation in SQ research. They contended that measuring perceptions of performance alone is sufficient.

3.3.4 The SERVPREF Model

The strong critiques of SERQUAL model were offered by Cronin and Taylor, who had developed a new model in 1992, popularly called SERVPREF model. Their conceptualization of SQ is based on the performance component alone. They proposed the SERPREF model which is based on Performance Satisfaction model. They have reduced the number of items to be measured but they have used the same dimensions. The SERVPREF is also criticized on the precise that is used and tested only in developed nations.

3.3.5 The Three-Component Model

During 1994, Rust and Lover modified and extended the Nordic model into three component model. The measurement of SQ is conceptualized as the customers’ perception about an organization’s service product, service deliver and service environment. The criticism leveled
against Rust and Oliver’s model is that it has omitted several important elements of SQ and gives only a generalized picture of SQ.

3.3.6 The Carter Model

The CARTER model of measuring SQ was developed by Othman and Owen, in 2001. They conceptualized a proposed framework for measuring SQ in Islamic banks and the dimensions considered were: Compliance, Assurance, Reliability, Tangibility, Empathy and Responsiveness. The CARTER model was the first to mix customers religious beliefs and values with other quality dimensions. It links Quality with customer’s satisfaction and service encounter. This model has been appreciated for its systematic and well documented approach.

3.3.7 The Three-Order Factor Model

The Three-order factor model was developed by Brady and Cronin (2001). This model conceptualized the measurement of SQ on the basis of three main dimensions, which is taken from the Nordic model, the three component model and it also has nine sub-dimension and three descriptors taken from SERVQUAL scale. The three main dimensions of SQ considered are Interaction quality, Environmental quality and Outcome quality. The nine sub-dimensions considered are Attitude, Behavior, Expertise, Ambience, Design, Social factors, Waiting time, Tangibles and Valence. The three descriptors are Reliability, Responsiveness and Empathy. The criticism of this model is that it has been used in only few service settings.

3.3.8 The Human –Societal Element Model

The Human-Societal Element model was developed by Sureshchander et al in 2002 with a view to overcome the drawbacks in SERVQUAL model. The SERVQUAL model did not address certain
important aspects of SQ such as core service and standardization of Service delivery. This model conceptualizes SQ model based on the following five dimensions; Core service or service product, Human element of service delivery, Systematization of service delivery, Tangibles of service and social responsibility. The criticisms of this model are as follows: the study has been confined to Banking industry only and that too by collecting data from customers of Banks in developing economies and not developed economies.

From the discussion of all the various models, it is clear that no one model had obtained global acceptance and each model suffered from serious weakness. Hence, this research does not use any specific model but uses points obtained from all these models. Then, a focused group interview was conducted to establish the constructs of SQ which are of interest for studying SQ among Indian Airline Service providers. The details of the above are discussed in the next chapter.

However, the research does not end with establishing SQ constructs suitable for Indian Airline Service providers. Using the dimensions of relevance for SQ, the research endeavors to establish a relationship between Use of Technology, Productivity and SQ. The conceptual framework for establishing the relationship between Use of Technology, Productivity and SQ is discussed in the next topic.

3.4 CONCEPTUAL FRAMEWORK

The use of Technology in increasing productivity is well documented. Improving service productivity through technology is also done by many organizations. However, it is not clear whether the use of technology for improving productivity affects service quality. If, indeed the use of technology affects service quality there is a need to understand the relationship between use of technology, productivity and service quality. Parasuraman in his article titled “Balancing Service Quality and productivity
“establishes a linkage between Productivity and Service quality. He states that higher level of company inputs and lower level of customer inputs will lead to higher levels of Service Quality. Service Quality in turn, will influence outputs as viewed by the customer. The Figure 3.1 conceptualizes the above statements.

Figure 3.1 Productivity and Service Quality
Source: Parasuraman, Pitch, 2006

Hence, the research framework pertains the establishing the role of enhancing company input and reducing customer inputs. Also, if service companies channelize more resources into service, the customers input will come down. Hence there is a need the study the role of Technology in increasing company input and decreasing customer input.

This results in the postulation of the following hypothesis

H\(_A\) - Productivity achieved through increasing companies input will result in increased service quality

H\(_B\) - Productivity achieved through decreasing customer input will result in increased service quality
Technology is a component of company’s input. Also productivity is a component of company input. Hence the relationship between technology, productivity with respect to company input and customer input is given below.

**Figure 3.2 Use of Technology and Productivity**

This leads to postulate the following hypothesis

- $H_C$ - Use of Technology is an important component of Company’s input
- $H_D$ - Use of Technology has a positive effect on company input
- $H_E$ - Use of Technology has a negative effect on customer’s input

The company inputs towards productivity among Indian Airline Services are labour, Equipment, Rights. The labour component of productivity will involve the performance of Pilots (All the pilots in the cockpit), cabin crew, Airline staff at the airport. This leads to the following postulates
H_F - Use of Technology enhances the performance of Pilots

H_G - Use of Technology enhances the performance of the cabin crew

H_H - Use of Technology enhances the performance of airline staff at the airport

Aircrafts and its associated equipments, Communication tools, are components of Equipment related to the company’s input for productivity

H_J - Use of Technology enhances the performance of aircrafts

H_K - Use of Technology enhances the performance of associated equipments

H_L - Use of Technology enhances the performance of communication tools

Rights for flight routes, Flight timing, on time flight take off, On time flight arrival, Facilities at the airport provided by the airlines. These lead to the following postulates

H_M - Use of Technology enhances the performance of flight routes

H_N - Use of Technology enhances the performance of flight timings

H_P - Use of Technology enhances the performance of On time flight take off

H_Q - Use of Technology enhances the performance of On time flight arrival
$H_R$ - Use of Technology enhances the performance of utilities provided at the airport provided by the airlines

$H_S$ - Use of Technology reduces the time spent by the customer in availing the service

$H_T$ - Use of Technology reduces the effort put in by the customer in availing the service

$H_U$ - Use of Technology reduces the price for the customer in availing the service

The components of the time spent by the customer can be further broken down into the following postulates

$H_v$ - Use of Technology reduces the time spent by the customer in booking for the service

$H_w$ - Use of Technology reduces the time spent by the customer in the actual use of the service

Similar hypothesis can be drawn for effort and price too.

From the above postulated hypotheses, it is clear that there is a need to establish the constructs of Service Quality as relevant for Indian Airline services

From the data collected, the various constructs of service Quality as relevant for Indian Airline services can be categorized as Flight timings, Flight Delay, Flight connection, Frequent flyer programme, Cabin baggage, Baggage, Crew members, Food, Booking, Pre flight and other Miscellaneous aspects.
A pilot study was conducted to establish the key constructs of Service Quality as relevant of Indian Airline services. The Research method adopted to establish the key constructs of Service Quality as relevant of Indian Airline services is explained in the further passages. The Research method for establishing the linkage between productivity, use of technology and to the identified constructs of Service quality is yet to be done

From the above, a conceptual model for the research as shown below can be developed

![Conceptual Model](image)

Figure 3.3 Conceptual model relating Use of Technology, Productivity and Service Quality

As depicted in Figure 3.3, the present study is to analyse the impact of Use of Technology on Productivity and Service Quality and also the impact of Productivity on Service Quality. The next chapter discusses in detail the research design adopted for achieving the objectives of this study.