IMPACT OF TECHNOLOGY ON PRODUCTIVITY AND SERVICE QUALITY AMONG INDIAN AIRLINE SERVICES

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ABSTRACT

The booming Indian economy has given enormous opportunity for Indian Service providers to enhance their business and profits. However, this growth in business has been accompanied by increased competition among the service providers. Hence, managers are forced to concentrate on improving productivity in order to boost both the top line and bottom line. However, improving service quality often comes with the compromise on Productivity and vice versa. Indeed productivity measures adopted by the service providers do result in poor service quality. Often, service providers resort to the use of technology to enhance productivity often at the cost of service quality. Hence, there is a need to find a way out, wherein the service provider is able to improve productivity using technology without the compromise of service quality. This has resulted in the need to establish a theoretical model for identifying the relationship between technology, productivity and service quality.

It has been advocated that reducing customer input and increasing the company input in the service delivered will enhance the service quality. Hence the use of technology and its relationship between the various company input and customer input is required to be identified.

1.0 INTRODUCTION

The booming Indian economy has given opportunity for many service organisations to increase their service offering. This boom is also accompanied by intense competition among the various companies providing the same type of service. Because of increased competition among the service providers, the cost of operations of the service companies have increased. These companies adopt various methods like maintaining lower prices and improving productivity in order to maintain their market share and bottom-line.

One of the ways in which companies improve productivity is by replacing human points of contact with points of contacts thorough application of technology. Many of the Interactive Voice Response System based initiatives of service providers is a case in point. Service providers are faced with a paradox, either to improve service quality or improve productivity through technology enabled productivity measures. Is improving service quality and improving productivity through technology at loggerheads with each other? or rather Is service quality at loggerheads with productivity through Technology? These questions give rise to the need to study the relationship between Technology, Productivity and Service Quality. This paper
endeavors to establish a model linking the relationship between Technology, productivity and Service Quality.

2.0 THEORETICAL UNDERPINNINGS

Many studies have been conducted in the field of Service quality, Impact of Technology and Productivity. The following is a collection of the theoretical underpinnings for the research.

2.1 Service Quality

Like price, quality is a critical dimension of a firm’s competitive strategy (Porter, 1980). Service quality has received a great deal of attention from both academicians and practitioners. In the services marketing literature service quality is defined as the overall assessment of a service by the customers. Parasuraman et al. defined perceived service quality as "global judgment, or attitude, relating to the superiority of the service". Parasuraman et al. (1985) conceptualized service quality as perceptions resulting from the comparison of customer expectations and actual service performance. One of the most accepted facts is that service quality in most cases depends on a number of factors or aspects (Berry, Zeithaml and Parasuraman, 1985; Johnston and Lyth, 1991; Sasser, Olsen and Wyckoff, 1978; Fitzgerald, Johnston, Brignalls, Silvestro and Voss, 1991; Collier, 1991; Juran, Gryna, Frank and Bingham, 1988). Parasuraman, Zeithaml and Berry (1985) identified ten determinants: reliability, responsiveness, competence, access, courtesy, communication, credibility, security, understanding/knowing the consumer, and tangibles (Berry, Zeithaml and Parasuraman, 1985). Later these were reduced to five: tangibles, reliability, responsiveness, empathy and assurance (Parasuraman, Zeithaml and Berry, 1988). Grönroos (1988) added a sixth dimension recovery to these five. This refers to having a clear-cut strategy for removing the unwanted elements of service offer to the satisfaction of the consumer. All have not universally accepted these dimensions. Various researchers have reported that their research do not support these dimensions. Finn and Lamb (1991) researching on retailing negated the Parasuraman et al.’s claim that their instrument is applicable to a wide range of services. They concluded that the five dimensions are insufficient to measure service quality in the retail setting. Similarly, Cronin and Taylor (1992), researching for services like banks, dry-cleaning, etc. found little support for Berry et al.’s (1985) five dimensions. They did not have any research sample that confirmed Parasuraman’s five dimensional construct of service quality. Silvestro and Johnston (1989) and Fitzgerald et al. (1991) in their studies enlarged Parasuraman et al.’s efforts by redefining some of the previous dimensions and enlarging this list to as many as 15 factors. They caution against relying exclusively on the market (or consumers) to determine all the key attributes of service quality. Thus, they maintain that due attention to the specific tasks of operations is also desirable. Among others, Collier (1991) identifies the following service quality attributes: accuracy, volume and activity, convenience, time-oriented responsiveness, reliability, professionalism and competence, friendliness and consumer empathy, atmosphere and aesthetics, security and safety, productivity and efficiency, overall market and performance indicators, technology, and price/value/cost/relationships. Earlier, Juran et. al. (1988) identified three aspects of services that should be measured: timeliness, consumer well being, and continuity of services. Armistead (1990) classified the service dimensions as ‘soft’ and ‘firm’. The
style (attitude of staff, accessibility of staff, and ambience), steering (the degree to which customers feel in control of their own destiny) and safety (trust, security and confidentiality) are the soft dimensions whereas; timeliness, consumer well being, and continuity of services. Armistead (1990) classified the service dimensions as ‘soft’ and ‘firm’. The style (attitude of staff, accessibility of staff, and ambience), steering (the degree to which customers feel in control of their own destiny) and safety (trust, security and confidentiality) are the soft dimensions whereas; time (availability, responsiveness and waiting), fault freeness (in physical good, intangible activities and information) and flexibility (recovery, customization and augmented services) are the ‘firm’ dimensions.

They further pointed out that service quality perceptions are not solely the outcomes of service but it also involves the evaluation of the service delivery process by the customers. Lehtinen (1982) conceptualized service quality as a three dimensional construct viz. "physical", "interactive" and "corporate." Physical quality is the quality dimension which originates from the physical elements of service like physical product and physical support. Interactive quality indicates the interaction between the customer and the service organization. And corporate quality is symbolic in nature and indicates the perception of customers about the image of the organization. Garvin (1988) provided a comprehensive definition of service quality comprising of the attributes viz. performance, features, conformance, reliability, durability, aesthetics, serviceability and customers' perceived quality. Asubonteng et al. (1996; p.64) defined service quality as "the difference between the customers' expectations for service performance prior to the service encounter and their perceptions of the service received." Yoo and Park (2007) state that the firm's ability to create and sustain competitive advantage depends upon the high level of service quality provided by the service provider. They defined perceived service quality as the extent to which a firm serves the needs of its customers successfully. Again, Dabholkar et al. (2000) considered service quality as a set of different sub-dimensions like reliability and responsiveness which form the antecedents to customer satisfaction.

SERVQUAL (Parasuraman et al. 1988) emerged as an instrument to measure service quality consisting of the five dimensions of service quality viz. reliability, tangibility, responsiveness, assurance and empathy. But it had its own share of criticisms because it was based on the difference between the expectations and performance. Its reliability and validity has been questioned by many researchers (Carman 1990; Cronin and Taylor 1992; Strandvik and Lijander 1994; Babakaus and Boiler 1992). Thus, service quality is conceptualized both as a one dimensional and a multidimensional construct in the literature. Furthermore, there is strong evidence in the literature for service quality being an antecedent of customer satisfaction.

3.0 CONCEPTUAL FRAMEWORK

The use of Technology in increasing productivity is well documented. Improving service productivity through technology is also done by many organisations. However, the question is whether the use of technology for improving productivity affects the service quality? If yes, what are the relationships between Technology, productivity and Service Quality? If no, then does the use of technology for improving productivity result in improved service quality. If yes, what are the relationships between Technology, productivity and Service Quality? Parasuraman in his article titled “ Balancing Service Quality and productivity” establishes a linkage
between Productivity and Service quality. His 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. 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

Since technology is a component of company’s input , the relationship between technology and productivity can be expressed in the form of the below bubble chart

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

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_J: Use of Technology enhances the performance of flight routes
- H_K: Use of Technology enhances the performance of flight timings
- H_L: Use of Technology enhances the performance of on time flight take off
- H_M: Use of Technology enhances the performance of on time flight arrival
- H_M: Use of Technology enhances the performance of utilities provided at the airport provided by the airlines

The below chart establishes the various components of Productivity related to customer’s inputs:

From the above, the following postulates can be arrived at:

- H_N: Use of Technology reduces the time spent by the customer in availing the service
- H_O: Use of Technology reduces the effort put in by the customer in availing the service
- H_P: 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

\[ H_{N2} \] ---- Use of Technology reduces the time spent by the customer in booking for the service

\[ H_{N3} \] ---- 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, a conceptual model for the research as shown below can be developed

Then, there is a need to establish the constructs of Service Quality as relevant for Indian Airline services

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 stashing the linkage between productivity, use of technology and to the identified constructs of Service quality is yet to be done.

3.0 RESEARCH METHOD

The Research design adopted for the survey was Descriptive research as the researcher aims to study the below mentioned objectives.

3.1 Research Questions

The research questions emanating from the nature of the problems stated in conceptual framework can be summarized as follows

1. Does the use of technology for improving productivity affects the service quality?
2. what are the relationships between Technology, productivity and Service Quality?
3. Does the use of technology for improving productivity result in improved service quality?
4. Is improving service quality and improving productivity through technology at loggerheads with each other?
5. What are the relationships between use of technology and company inputs?
6. What are relationships between use of technology and customer inputs?
7. What are the constructs of service quality which are relevant for Indian Airline Services?

The pilot study that was done pertains to the last question and there is work to be yet done related to the other questions.

3.2 Objectives of the study

The objectives of the study, set on the basis of research questions are

1. To Present a theoretical framework for establishing a research model for establishing the link between Technology, Productivity and Service Quality
2. To Identify the influence of Technology and various company inputs
3. To Identify the influence of Technology and various customer inputs
4. To develop an inventory of the construct of service quality as relevant for Indian Airline services

The pilot study that was done pertains to the last objective

3.3 Sampling Procedure

A sample of 200 respondents were selected based on convenience sampling and the questionnaire distributed to them. The Samples are those using the Coimbatore Airport. The researches felt that the users of the Coimbatore Airport would not only be those from Coimbatore but from across the country and hence there was not a need to go the various cities per se.

3.4 Research instrument

The questionnaire designed was the survey instrument. The questionnaire was comprised of 12 sections namely Flight Timings, Flight Delay, Flight Connection,
Frequent flyer programme, Cabin baggage, Baggage, Crew members, Food, Seating arrangement, Booking, Pre-flight and Miscellaneous constituting the various dimension of Service Quality among the Indian Airline service providers. Statements related to all the factors identified are used to develop a Likert scale, asking respondents to rate the factors on a five point scale consisting of Strongly agree, Agree, Neutral, Disagree, Strongly Disagree.

3.5 Reliability of the research instrument

The reliability of the various factors is tested using the Cronbach Alpha method of validity. Reliability test was conducted for determining the proportion of systematic variation in a scale that assesses reliability.

3.6 Findings

The research identifies the factors contributing to service quality as perceived by the customers of Indian Airline service providers. The ranking of the service quality factors as perceived by the passengers have been identified as follows:

<table>
<thead>
<tr>
<th>Ranks</th>
<th>Factors</th>
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<tbody>
<tr>
<td>I</td>
<td>Price</td>
</tr>
<tr>
<td>II</td>
<td>Politeness of the crew members</td>
</tr>
<tr>
<td>III</td>
<td>Consistency between communication and experience</td>
</tr>
<tr>
<td>IV</td>
<td>Check in of luggage</td>
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<tr>
<td>V</td>
<td>Convenience of flight timings</td>
</tr>
<tr>
<td>VI</td>
<td>Image of the airline</td>
</tr>
<tr>
<td>VII</td>
<td>Guidance of airline staff at interchange point during flight connection</td>
</tr>
<tr>
<td>VIII</td>
<td>Check-in facilities</td>
</tr>
<tr>
<td>IX</td>
<td>On time take off of flights</td>
</tr>
<tr>
<td>X</td>
<td>Ease of booking through the company website</td>
</tr>
<tr>
<td>XI</td>
<td>Time of delivery of food</td>
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<tr>
<td>XII</td>
<td>Handling of misplaced luggage</td>
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<tr>
<td>XIII</td>
<td>On time landing of flights</td>
</tr>
<tr>
<td>XIV</td>
<td>Communication regarding the frequent flyer programme</td>
</tr>
<tr>
<td>XV</td>
<td>Providing rooms / accommodation during flight delays</td>
</tr>
<tr>
<td>XVI</td>
<td>Providing food during flight delays</td>
</tr>
</tbody>
</table>

From the above ranking, it is clear that the Price, Politeness of crew members, Consistency between communication and experience, Check in of luggage and
convenience of flight- timings are the top five factors of service quality as perceived by the passengers. It is clear from the above findings that the passenger perceives service quality as a combination of the three dimensions namely physical, interaction and corporate and all the three dimensions have to be given equal priority by the Indian Airline service providers.

4.0 CONCLUSIONS

The research has identified the key factors contributing to service quality as perceived by the passengers. It is now up to the Indian Airline service providers to concentrate on these key factors of service quality so as to have an enhanced passenger satisfaction. Enhanced passenger satisfaction will result in loyalty, willingness to pay a premium and willingness to recommend the service to others. These surely will result in better financial performance for the airlines.

However, as only one part of the research has been completed, the other part is yet to be done for which the conceptual framework is described earlier.

5.0 FUTURE SCOPE AND LIMITATION

This research has provided insights into various factors that customers consider important while evaluating the Service Quality of Indian Airline service providers. However it does have certain limitations, which are discussed below.

The sample size is small due to time and cost constraints, which may not be suitable to conclude the generalization of this research survey. The data is proposed to be collected from the customers using the Coimbatore Airport. The research considers the customers as a homogenous group, which may not be the case. Hence there is a scope for further research based on segmenting of the customers. Further study can explore the factors contributing to service quality as perceived by the airline companies. The same can be compared with the factors as perceived by the customers. This can be used to identify the service gap, if any.

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