Evaluation of Logistic Service Quality (Storage and Delivery) Based on Servqual Model
(Case Study: Central Office of Boushehr Ports and Maritime, Iran)

Ali Soleymania, Manigeheh Bahramizadehb, Darioush Mohammadi Zanjiraniic

aPersian Gulf International Educational Branch, Islamic Azad university, Khoramshahr, Iran
bAss. Prof. of Business, Management of Marketing, Persian Gulf University of Bushehr, Iran
cAss. Prof. University of Isfahan, Isfahan, Iran

ABSTRACT

In 1995, parasouraman designed a model which allowed evaluation of service quality in organizations and companies. This model is known as "servqual" which evaluates service quality in three levels: expected service, presented service and minimum expected service. In service field, quality is of great importance. The present research aims to evaluate logistic quality (storage and delivery) based on servqual model in central office of Boushehr Ports and Maritime, Iran from clients point of view. Its aim is applied and its methodology is descriptive and it is also a survey research. Population of the research included all clients of central office of Boushehr Ports and Maritime, Iran which were sampled by means of random access method. Data was collected by field method and measurement tool was questionnaire. Validity of the questionnaire was verified by content, construct and simulated methods. Its reliability was measured by Cronbach's alpha (0.926). results showed that there is significant difference between expectations and perceptions of clients from logistic service quality (storage and delivery) in central office of Boushehr Ports and Maritime, Iran. It was also verified that there is difference between expectations and perceptions of clients from "reliability", "responsiveness", "empathy", "convenience" and "tangibles" of logistic service quality (storage and delivery) in central office of Boushehr Ports and Maritime, Iran. It was also verified that there is not any difference between clients' expectations and perceptions of "credibility"of logistic service quality (storage and delivery) in central office of Boushehr Ports and Maritime, Iran.

KEYWORDS: service dimensions, expectations, performance, quality

INTRODUCTION

Relationship between quality and service value has been investigated widely by theoretical texts (Zeithaml, 1998; Ravald & Grönnroos, 1996; Oliver, 1999; Sweeney and Soutar, 2001; Zeithaml, & Bitner, 2002). In the field of logistic activities, various authors believe that logistic service with high quality will have greater values for its customers (Innis and lalonde, 1994; Novak et al, 1996; Viliams et al, 1997; Tracey, 1998; Lambert and Burdulroglu, 2000; Parasuraman and Goioval, 2000; Rutner and Langley, 2000). Identification of service quality is considered as one precondition for value for customers and it is a factor that institutes must use to improve customer value. The main question of the present research is that whether there is any difference between expectations and perceptions of clients of central office of Boushehr Ports and Maritime, Iran from logistic service quality (storage and delivery)? It aims to measure and evaluate satisfaction and expectations level of service quality in central office of Boushehr Ports and Maritime, Iran using servqual (convenience, credibility, responsiveness, reliability, empathy and tangible). Then, clients' perceptions of this organization and expectations are compared and the gap between dimensions is also studied and finally, some recommendations will be provided.

Over the past decades, many organizations have thought about production and they have not paid enough attention to the ways the products are delivered to customers. Until 1962, logistic was not a common word in business and commerce (Maleki Tirabadi, 2009, 1). Supply chain management and logistic is very important in central office of Boushehr Ports and Maritime, Iran. There are many factors that influence clients' satisfaction in central office of Boushehr Ports and Maritime, Iran. One of these factors is "service quality dimensions", because this organization presents a lot of services like: loading and unloading, delivery and storage in ports yard, issue of quay installation and other equipment, reception of custom duties and taxes and other costs of products and ships and so on. If this organization can not provide such service with high quality, the clients will become dissatisfied. In other words, competitors will get a hand to market and will attract customers. In this context, by competitors we mean other active ports in Iran or in neighboring countries. Considering the fact that this organization has many daily clients especially from businessmen and clearance men (for importing and exporting goods), therefore two dimensions "storage" and "delivery" were selected for investigation due to their importance from among different

Corresponding Author: Ali Soleymani, Persian Gulf International Educational Branch, Islamic Azad university, Khoramshahr, Iran
dimensions of logistic service quality. In this research, servqual model was used to evaluate logistic service quality (storage and delivery) in central office of Boushehr Ports and Maritime, Iran.

1. Logistic: means delivery of suitable products, in suitable place and time with suitable cost and conditions and with care for and attention to environment. Logistic subsystems which have been referred to in the present definition are: carriage, storage, inventory control, communication/information systems, packaging and construction management (Ragu-Nathan, 2006, 110).

2. Service: it is a work or action presented by one side to another side and is intangible and it is not resulted in ownership of anything. Presenting a service might or might not require a physical product (Kotler, 2003, 506).

3. Service quality: it is achieved from mental evaluation of customers from a service. therefore, it is customer who judges about service quality. According to Edvardson, perceptions of service quality form at the time of production and presentation and consumption process, because customers play role in production and service providing process (Edvardson, 2005, 128).

Research background

Binestok et al. stated that the present problems ahead of servqual implementation in the field of industrial service are related to relative importance of technical dimensions/outcome against performance/process, which play role in the formation of the nature of consumption of industrial service transport. Technical quality/outcome considers that whether service advantages deliver what was promised or not? While performance/process quality considers service transportation (Binestook et al, 2008, 206). Servqual dimensions ("reliability", "responsiveness", "empathy", "assurance", "convenience" and "tangibles") are severely related to performance/process quality. As Lavlack proposed in his service classification plan (1983), industrial service (like logistic service) may be considerably different, depending on the service receiver from investigated service in most service quality studies. For many industrial services, servqual emphasis on performance/process dimensions may not be enough for service quality structure. In other words, in service fields that 1) service providers are separate from service customers physically; and 2) service is directed at "objects" and not individuals, development of adequate technical dimensions/outcomes may be necessary for finding a measurement tool for proper and reliable service (ibid, 206). Binestook et al (1997) corrected a 15-item scale based on applications of added values of time, place and correct method which included 3 technical/quality dimensions of appropriate physical distribution.

Mentzer et al (1999 and 2001) conducted some studies in the field of logistic service quality in a wider research and stated that appropriateness, applicability and also some other additional dimensions of performance and process must be considered. Mentzer et al (2001) believed that logistic service quality is a process in which customers' develop a perception on the quality of the service. In the process model of LSQ, customers' perception of LSQ (personnel communication quality, order reception values, information quality, arrangement process and investigation of difference and discordance in order) affects directly and indirectly on LSQ satisfaction. Indirect influences involve four dimensions: order accuracy, conditions of order, appropriateness of order and order quality. Separation of the process and service quality dimensions in a comprehensive model is an important step in service quality texts (Binestock et al, 2008, 206).

Service quality and customer satisfaction

Service quality and customer satisfaction are concepts that have received a lot of attention in marketing texts. Nature of customer judgments and relationship between these two concepts is still ambiguous (Rajaee, 2008).

Satisfaction can be defined as customers' response to evaluation of perceived difference among previous expectations or normal performance and real performance of the product which is perceived after consumption (Karvana, 2002, 815). Although satisfaction is defined as difference between expectation and performance, there are differences between these two concepts including: 1) satisfaction is a decision after experience and quality is not like this. 2) expectations have different definitions in quality and satisfaction literature.

In satisfaction literature, expectations have been defined as customer's prediction of what will happen in a transaction. For instance, according to Oliver, "expectations are probabilities of events happening whether positive or negative, by a consumer, if a consumer does some particular behaviors". In contrast, expectations are defined as ambitions or demands of consumers in service quality literature. In other words, service providers "must" satisfy them with their wanting rather than "what will be provided" (Rajaee, 2008).

There has been always a gap between customers' expectations and service provider performance. Therefore, there is a difference between expected service and received service and this gap is a measure of satisfaction and also a measure of service quality. Although satisfaction is defined as difference between performance expectations, there are differences between quality and satisfaction. Most experts believe that customer satisfaction is a short term interactive scale, in contrast, service quality is an approach which forms in the long run and it is some kind of performance evaluation. Many studies have been conducted in the field of relationship between service quality and satisfaction. Findings show that satisfaction results in service quality
(Parasouraman, 1994). In contrast, results of some studies (Kronin and Tilor, 1993; Rasset and Oliver, 1994; Sterback and Selil Ganedar, 2002) show that service quality is before customer satisfaction. Kronin and Tilor studies (1994) and also Selil Ganedar (2002) showed that there is a mutual relationship between satisfaction and service quality.

Figure 1- model of service quality, customer value and customer satisfaction

RESEARCH METHODOLOGY

The present research is an applied study because most of the service organizations especially ports and maritime offices in Iran can reach competitive advantage through application of suitable strategies. The present research is also a descriptive and field research. Statistical population of the research includes clients of central office of Boushehr Ports and Maritime, Iran and some of them were selected as sample members. In the present research, simple random sampling was used in which each of the members has equal and independent chance for being selected. Cochran's formula was used to select sample size (384).

Data gathering tool

In the present study, Servqual was used to gather data. This tool (questionnaire) includes 26 corresponding questions based on 5-point Likert scale and service quality includes 6 dimensions. Tangibles dimension(4 questions), reliability (5 questions), responsiveness(4 questions), convenience (4 questions) and empathy dimension (5 questions). The researcher used papers related to the subject and localized the questions in order to achieve better results. The questionnaire had 5 parts and several questions were selected for each part. A five-point scale was used from very much (5) to very low(1). Cronbach's alpha was used to calculate reliability. Alpha was calculated 0.86 for 26 questionnaires and it was calculated 0.926 for 380 questionnaires which is a satisfactory value. Research hypotheses are as follows:

Main hypothesis:
- There is a difference between expectations and perceptions of clients from LSQ(storage and delivery) in central office of Boushehr Ports and Maritime, Iran.

Subsidiary hypotheses:
1) there is difference between expectations and perceptions of clients from "reliability" of LSQ (storage and delivery) in central office of Boushehr Ports and Maritime, Iran.
2) there is difference between expectations and perceptions of clients from "responsiveness" of LSQ (storage and delivery) in central office of Boushehr Ports and Maritime, Iran.
3) there is difference between expectatations and perceptions of clients from "credibility" of LSQ (storage and delivery) in central office of Boushehr Ports and Maritime, Iran.
4) there is difference between expectations and perceptions of clients from "empathy" of LSQ (storage and delivery) in central office of Boushehr Ports and Maritime, Iran.

5) there is difference between expectations and perceptions of clients from "convenience " of LSQ (storage and delivery) in central office of Boushehr Ports and Maritime, Iran.

6) there is difference between expectations and perceptions of clients from "tangibles" of LSQ (storage and delivery) in central office of Boushehr Ports and Maritime, Iran.

In the present research, different variables of "service quality dimensions" are independent variables and "storage" and "delivery" variables are dependent variables. Friedman test was used to compare the perception and expectation of service receivers from quality of the 6 dimensions of service. SPSS was used to analyze data.

![Research model](extracted from Parasouraman et al, 1991).

**Research hypotheses tests**

In this part of the research, hypotheses tests are verified. T-test was used in order to test hypotheses for comparing performance means (or perceptions) and expectations of clients from service.

Main hypothesis: There is a difference between expectations and perceptions of clients from LSQ (storage and delivery) in central office of Boushehr Ports and Maritime, Iran.

Expectations and perceptions related to each question was first specified. Then, the gap between expectations and performance was calculated. The 6 dimensions of service quality were compared and the gap between them was calculated.

According to the results and also the gaps which were all negative, it can be said that there is difference between expectations and perceptions of clients from service provided by central office of Boushehr Ports and Maritime, Iran. In order to calculate the gap between quality dimensions in central office of Boushehr Ports and Maritime, Iran and comparison of expectations and perceptions means, each of the service quality dimensions were calculated and the gap between them was calculated.
As it can be observed in table 1, all dimensions of service quality are lower than their expectations from the clients' point of view. In fact, the expectations have not been satisfied (the difference is negative). T-student test was used for all items in which clients' expectations have not been satisfied.

First subsidiary hypothesis: there is difference between expectations and perceptions of clients from "reliability" of LSQ (storage and delivery) in central office of Boushehr Ports and Maritime, Iran.

In table 2, t statistic and significance level of analysis of independent variable of reliability dimension and comparison of performance and expectations have been shown. According to table 2, because significance level of the test (0.019) is smaller than error level (0.05), therefore \( H_0 \) is rejected and it can be said with 95% of certainty that there is significant difference between expectations and perceptions of clients from "reliability" of LSQ (storage and delivery) in central office of Boushehr Ports and Maritime, Iran.

Second subsidiary hypothesis: there is difference between expectations and perceptions of clients from "responsiveness" of LSQ (storage and delivery) in central office of Boushehr Ports and Maritime, Iran.

According to table 2, because significance level of the test (0.286) is smaller than error level (0.05), therefore \( H_0 \) is rejected and it can be said with 95% of certainty that there is significant difference between expectations and perceptions of clients from "responsiveness" of LSQ (storage and delivery) in central office of Boushehr Ports and Maritime, Iran.

Third subsidiary hypothesis: there is difference between expectations and perceptions of clients from "credibility" of LSQ (storage and delivery) in central office of Boushehr Ports and Maritime, Iran.

According to table 2, because significance level of the test (0.000) is smaller than error level (0.05), therefore \( H_0 \) is rejected and it can be said with 95% of certainty that there is significant difference between expectations and perceptions of clients from "credibility" of LSQ (storage and delivery) in central office of Boushehr Ports and Maritime, Iran.

Fourth subsidiary hypothesis: there is difference between expectations and perceptions of clients from "empathy" of LSQ (storage and delivery) in central office of Boushehr Ports and Maritime, Iran.

According to table 2, because significance level of the test (0.000) is smaller than error level (0.05), therefore \( H_0 \) is rejected and it can be said with 95% of certainty that there is significant difference between expectations and perceptions of clients from "empathy" of LSQ (storage and delivery) in central office of Boushehr Ports and Maritime, Iran.

Fifth subsidiary hypothesis: there is difference between expectations and perceptions of clients from "convenience" of LSQ (storage and delivery) in central office of Boushehr Ports and Maritime, Iran.

According to table 2, because significance level of the test (0.002) is smaller than error level (0.05), therefore \( H_0 \) is rejected and it can be said with 95% of certainty that there is significant difference between expectations and perceptions of clients from "convenience" of LSQ (storage and delivery) in central office of Boushehr Ports and Maritime, Iran.

Sixth subsidiary hypothesis: there is difference between expectations and perceptions of clients from "tangibles" of LSQ (storage and delivery) in central office of Boushehr Ports and Maritime, Iran.

According to table 2, because significance level of the test (0.000) is smaller than error level (0.05), therefore \( H_0 \) is rejected and it can be said with 95% of certainty that there is significant difference between expectations and perceptions of clients from "tangibles" of LSQ (storage and delivery) in central office of Boushehr Ports and Maritime, Iran.

<table>
<thead>
<tr>
<th>Row</th>
<th>Quality dimensions</th>
<th>expectations</th>
<th>Perceptions</th>
<th>gap</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>reliability</td>
<td>4.4832</td>
<td>2.9721</td>
<td>-1.5111</td>
</tr>
<tr>
<td>2</td>
<td>responsiveness</td>
<td>4.4836</td>
<td>2.9013</td>
<td>-1.5823</td>
</tr>
<tr>
<td>3</td>
<td>credibility</td>
<td>4.4493</td>
<td>2.9289</td>
<td>-1.5204</td>
</tr>
<tr>
<td>4</td>
<td>empathy</td>
<td>4.4837</td>
<td>2.7879</td>
<td>-1.6958</td>
</tr>
<tr>
<td>5</td>
<td>tangibles</td>
<td>4.5474</td>
<td>3.1947</td>
<td>-1.3527</td>
</tr>
<tr>
<td>6</td>
<td>convenience</td>
<td>4.4862</td>
<td>2.8322</td>
<td>-1.654</td>
</tr>
</tbody>
</table>

Table 1. results of gap analysis between quality dimensions

<table>
<thead>
<tr>
<th>Variable</th>
<th>Error level</th>
<th>T statistic</th>
<th>Significance level</th>
<th>Standard error means</th>
<th>Degree of freedom</th>
<th>T value</th>
<th>Test result</th>
</tr>
</thead>
<tbody>
<tr>
<td>« reliability»</td>
<td>0.05</td>
<td>-30/659</td>
<td>0.019</td>
<td>-1/511</td>
<td>758</td>
<td>-3/066</td>
<td>rejected  H0</td>
</tr>
<tr>
<td>«responsiveness»</td>
<td>0.05</td>
<td>-34/276</td>
<td>0.000</td>
<td>-1/582</td>
<td>758</td>
<td>-3/428</td>
<td>rejected  H0</td>
</tr>
<tr>
<td>«credibility»</td>
<td>0.05</td>
<td>-34/595</td>
<td>0.246</td>
<td>-1/520</td>
<td>758</td>
<td>-3/460</td>
<td>verified  H0</td>
</tr>
<tr>
<td>«empathy»</td>
<td>0.05</td>
<td>-36/212</td>
<td>0.000</td>
<td>-1/695</td>
<td>758</td>
<td>-3/621</td>
<td>rejected  H0</td>
</tr>
<tr>
<td>«convenience»</td>
<td>0.05</td>
<td>-30/546</td>
<td>0.002</td>
<td>-1/653</td>
<td>758</td>
<td>-3/054</td>
<td>rejected  H0</td>
</tr>
<tr>
<td>«Tangibles»</td>
<td>0.05</td>
<td>-24/824</td>
<td>0.000</td>
<td>-1/352</td>
<td>758</td>
<td>-2/482</td>
<td>rejected  H0</td>
</tr>
</tbody>
</table>
Friedman test was used to rank Servqual dimensions and physical factors (tangibles) had the highest rank. Ranks of other factors have been summarized in table 3.

Table 3. results of Friedman test: ranking of Servqual model dimensions

<table>
<thead>
<tr>
<th>expectations</th>
<th>dimensions</th>
<th>Performance (perceptions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rank (importance level)</td>
<td>Rank mean</td>
<td>reliability</td>
</tr>
<tr>
<td>2</td>
<td>3.51</td>
<td>responsiveness</td>
</tr>
<tr>
<td>3</td>
<td>3.48</td>
<td>Credibility empathy</td>
</tr>
<tr>
<td>5</td>
<td>3.41</td>
<td>tangibles</td>
</tr>
<tr>
<td>6</td>
<td>3.38</td>
<td>convinience</td>
</tr>
<tr>
<td>1</td>
<td>3.73</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>3.48</td>
<td></td>
</tr>
</tbody>
</table>

Results of research hypotheses analysis

As it can be observed, there is negative gap in all 6 dimensions of service quality. Empathy dimension had the greatest gap with a mean equal to -1.695 and tangibles had the least gap with a mean equal to -1.352. the gaps in other dimensions are: convenience (-1.65), responsiveness (1.58), reliability (-1.52) and Credibility (-1.51), the results show that the service provided does not satisfy the clients. In central office of Boushehr Ports and Maritime, Iran, the smallest negative value for gap mean was related to tangibles and this shows that there is a good physical place and suitable equipment and facilities in the area for clients. Presence of negative gap in other dimensions shows that the demands of clients have not been satisfied in other dimensions. Employees are not responsive, work hours of employees are suitable for providing service and commitments are not fulfilled on time.

Managers must feel responsible towards clients in order to fill the gaps. Furthermore, employees who have face-to-face contact with clients should be trained to respect clients’ demands and try to solve their problems with interest. Clients expect that employees feel empathy and act considerately and always behave justly. Modern equipment application is advised to be used in order to increase clients’ satisfaction.

Polite behavior of direct personnel and considering clients’ needs and hearing their recommendations and opinions are among other expectations of clients. It is advised to managers to make their personnel prepared in terms of technical and communication skills in order to have more satisfied clients. Managers can prioritize resources for filling the gaps in 6 dimensions. Empathy should be allocated the most resources because it is at the top of the ranking and after that, convenience, responsiveness, reliability, Credibility, tangibles, respectively. Allocation of resources has the advantage that removal of one gap will lead to improvement of other gaps because experts believe that a gap in one dimension will intensify gaps in other dimensions.

The following recommendations are presented according to the results: considering the gaps which exist in service quality, managers of service organizations must consider the following: concerning empathy: employees of central office of Boushehr Ports and Maritime, Iran must recognize the needs of clients and try to satisfy them. 2) employees must behave kindly with the clients. 3) clients must be kept satisfied in terms of security, satisfaction in their interactions.

Concerning Credibility: 1) personnel of central office of Boushehr Ports and Maritime, Iran, should work with high exactness and friendly interaction. 2) personnel should behave respectfully and politely towards customers. 3) personnel should be empowered in responding to clients’ expectations (teaching, encouragement, job satisfaction). 4) employees should inspire friendship and kindness.

Concerning reliability: 1) reliability in investigation of the problems of clients based on their needs and demands. 2) central office of Boushehr Ports and Maritime, Iran should fulfill its commitments concerning the clients expectations. 3) service must be provided in the promised times. 4) service must be provided correctly.

Concerning responsiveness and responsibility: 1) employees of central office of Boushehr Ports and Maritime, Iran should be prepared for responding to clients’ questions. 2) clients should be aware of the type of the service they receive. 3) service must be provided very fast. 4) employees must help clients.

Concerning convenience: 1) the organization must provide convenient conditions especially when the clients are waited for a long time. 2) e-service must be applied to satisfy the clients needs without their physical presence (internet and phone).

Concerning tangibles: 1) modern equipment must be used in the organization. 2) the environment and constructions must be attractive and clean. 3) personnel should be tidy and well-dressed in their work environment.

REFERENCES

transational-systematic bank service quality (SYSTRA-SQ)” journal of management of organizational culture, period: 7 (in Persian).
22) Ranjabarian, Bahram; Rashid Kaboli, Majid; hagh shenas, Asghar; yavari, Zahra; 2002 "investigation of customer satisfaction from after-sale service quality, case study: Zeerox company in Isfahan Province” commercial research quarterly, number 25 (in Persian).