Evaluating Training Services of Maritime Training Centers Using SURVQUAL Model

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Abstract

The present research was conducted to evaluate the quality of training services in maritime training centers of Khuzestan province (including DARYAYE DOOR, SERAJ DARYA and DARYA PEIMAYE GENAVE). For this purpose, SURVQUAL model was used. The research is of descriptive-field study type for which 110 trainees of maritime training centers of Khuzestan province were selected via stratified random sampling method in 2011. The standard SURVQUAL questionnaire, including two parts of personal specifications and the quintuple dimensions of quality of training services, was applied to collect the required data. There were quality gaps in all dimensions of training services. The highest mean of quality gap was observed in the responsiveness dimension (-1.23) after which the reliability (-1.98), physical (-1.05), and sympathy (-0.98) dimensions were placed, respectively. The least mean of gap belonged to the assurance dimension (-0.88). The trainees' expectations were beyond their perceptions of the existing situation and none of their expected dimensions of services were met.

Keywords: *SURVQUAL, Quality, Training Services, Evaluation, Trainees*

1. Introduction

Attending the quality of goods and services plus providing more favorable services are vital matters, which are specially prioritized by the global society, nowadays. Low quality goods and services (less than customer's expectation) cause reduction of reputation, market share and profit of their producers (Carman, 1990). These days, quality is defined by customer desires, therefore their expectations and perceptions are respected as the main factors to specify quality.

In fact, customers define the quality of goods and services rather than producers. For this reason, quality must be seen from the eyes of customers and their ideas on quality must be investigated. Compared to goods, quality of services is more sensitive and important, because goods are produced in one place and used in another place. In this way, their quality is subject to be checked later; but services are produced and used at the same time and place, therefore their quality is checked simultaneously with production and usage. Therefore, important services providing companies, need to continuously concern improving

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the quality of their services. Cosnsequently, current situation should be evaluated, customer satisfaction must be realized, strong and weak points need to be recognized and necessary steps, such as customer points of view (Alvani and Riahi, 2003), to be taken to improve the situation. Maritime training centers as the service providing organizations, educate and promote scientific level of seafarers, play a significant role accordingly and as such, are prime candidates for survey.

The shipping industry today is the result of a steady evolutionary process over the years and it remains vital to the worlds trade. The success of this ever-changing industry rests on two essential factors: technology and the human element. But, even the best designed and equipped ship is sub-standard, if her crew is under trained, poorly accommodated and overworked. The future of shipping is ultimately dependent not on state-of-art technology, but rather on the quality and expertise of the person handling that technology. Moreover, in compliance with the content of STCW convention, such Institutions have to take necessary steps to promote the quality level of their services. The main objective of this research is evaluation of quality of services in maritime training centers of Khuzestan province by using SURVQUAL model.

SERVQUAL is one the famous methods for measuring the quality of services, applied by Parasurman et al. (1985). They commenced in 1983, when the project of Service Quality Measurement supervised by America Marketing Sciences Institute got approved. The SERVQUAL instrument has been the predominant method used to measure consumers' perceptions of service quality in different publications. These publications incorporated both theoretical discussions and applications of SERVQUAL in a variety of industrial, commercial and not-for-profit settings, such as retailing (Carman, 1990), dental services (Carman, 1990), hotels (Saleh and Ryan, 1992), travel and tourism (Fick and Ritchie, 1991), car servicing (Bouman and van der Wiele, 1992),

business schools (Rigotti and Pitt, 1992), higher education (Ford et al., 1993; McElwee and Redman, 1993), hospitality (Johns, 1993), business-to business channel partners (Kong and Mayo, 1993), accounting firms (Freeman and Dart, 1993), architectural services (Baker and Lamb, 1993), recreational services (Taylor et al., 1993), hospitals (Babakus and Mangold, 1992; Mangold and Babakus, 1991; Reidenbach and Sandifer-Smallwood, 1990; Soliman, 1992; Vandamme and Leunis, 1993; Walbridge and Delene, 1993), airline catering (Babakus et al., 1993a), banking (Kwon and Lee, 1994), apparel retailing (Gagliano and Hathcote, 1994) and local government (Scott and Shieff, 1993).

Parasuraman et al. (1985) identified 97 attributes which were found to have an impact on service quality. These attributes were the criteria important in assessing customer's expectations and perceptions on delivered service (Kumar et al., 2009). These attributes were categorized into 10 dimensions (Parasuraman et al., 1985) and later, were proposed for assessing service quality through two stages in order to purify the instruments and select those with significant influences (Parasuraman et al., 1988). The first purification stage came up with 10 dimensions for assessing service quality which were; tangibles, reliability, responsiveness, communication, credibility, security, competence, courtesy, understanding, knowing, customers, and access. They went into the second purification stage and in this stage, they concentrated on condensing scale dimensionality and reliability. They further reduced the 10 dimensions to five as follows:

1- Physical dimensions: including existence of job related facilities and equipment plus communicative devices. All of these dimensions create the image which customer consider for quality evaluation (Zeithmal and Parasurman, 2008).

2- Reliability: it means to be capable for fulfillment of services in an assured and reliable form as the expectations of the customer are met. In other words, service providing organization has to comply with commitments on services time, style and cost if already agreed on (Zeithmal and

Parasurman, 2008).

3- Responsiveness: it means tendency to help and cooperate with customer. This dimension of services quality emphasizes on showing sensitivity and vigilance towards customer's demands, questions and complaints (Zeithmal and Parasurman, 2008).

4- Guarantee and Assurance: guarantee and assurance express capability and competence of staffs to inspire in customer a sense of reliability and assuredness toward the organization. This dimension is especially important in services with higher risk (Zeithmal and Parasurman, 2008).

5- Sympathy: it means facing people in a specific way based on their own morale as they become convinced that the organization has appreciated them and they are important for the organization (Zeithmal and Parasurman, 2008)

SURVQUAL should be considered as a reference in measuring the quality of services, since it is one of the initial methods in this field. This method was based on measuring the gap between what customers wants and the services they really perceived. Three conditions emerge while studying this gap (Zeithmal, Parasurman, 2008):

- Customer's perceptions are more than his expectations. In this case quality is excellent.
- Customer's perceptions are equal to his expectations. In this quality is good.
- Customer's perceptions are less than his expectations meaning that his expectations are not met. In this case quality is weak.

1- Process of implementation and analysis of results, in this method is more detailed and is executed more precisely than other methods;

2- The model is conformable and many models have been developed for specific situations on the basis of this methodology.

3- Considering the abundance of field studies conducted by use of this method, the inclusiveness and exclusiveness of its quintuple dimensions as well as conformability of its 22 items with different situations are proven. Therefore, compared to other

methodologies, this method possesses a higher level of validity.

4- By studying this method and its basic concepts and executive procedure, it can be observed that there is no heterogeneity in this method in regards to conformity, with processes of information technology. It can be said that there was no problem for its conformity, although no specific field study was observed for this type of services.

Notwithstanding its growing popularity and widespread application, SERVQUAL has also been subjected to a number of theoretical and operational criticisms as follows (Buttle, 1996):

Theoretical criticisms

1- Expectations: the term expectation is polysemic meaning, it has different definitions; consumers use standards other than expectations to evaluate service quality; and SERVQUAL fails to measure absolute service quality expectations.

2- Item composition: four or five items cannot capture the variability within each service quality dimension.

3- Moments of truth (MOT): customers assessments of service quality may vary from MOT to MOT.

4- Polarity: the reversed polarity of items in the scale causes respondent error.

5- Scale points: the seven-point Likert scale is flawed.

6- Two administrations: Dual administrations of the instrument (expectations and perceptions) cause boredom and confusion.

7- Variance extracted: the over SERVQUAL score accounts for a disappointing proportion of item variances.

The model has been applied on evaluating quality of education in universities and higher education centers. Hamidi and Jabbari (2002) studied quality gaps of educational services in industrial management field. Finally, five gaps of SURVQUAL model were reviewed. It was ascertained that quality problems could be reduced if standardization process is applied, based on the expectations of customers. Bagherzade

Khaje and Bagherzade (2009) studied the quality of services of higher education centers of Tabriz applying SURVQUAL model and ranked them via Analytical Hierarchy Process, in which the least amount of gap belonged to the dimension of assurance and the most extent belonged to the dimension of sympathy. Toufiqi and Sadeghi (2011) studied the quality of educational services of Medical Sciences University from the eyes of the students. The results showed that their expectations were beyond their perceptions of the current circumstances of university and no dimension of services had complied with their expectations.

Information regarding the quality of services provided by maritime training centers via SURVQUAL model in Khuzestan was lacking, and thus this study was undertaken to apply SURVQUALfor evaluating quality of services of maritime training centers of Khuzestan province (including DARYAYE DOOR, SERAJ DARYA and DARYA PEIMAYE GENAVE), determining gaps in services and ranking quintuple dimensions of services according to the trainees' opinions. Therefore, following hypothses were to be evaluated:

1- There is a difference between the extent of trainees' expectations from the services of maritime training centers and the extent of their perceptions of the received services.

2- According to the trainees' opinions, the importance of quintuple dimensions of quality is different.

Further secondary hypotheses were as follows:

1- Trainees' expectations of physical factors dimension of services provided by maritime training centers is different from their perceptions.

2- Trainees' expectations of reliability dimension of services provided by maritime training centers is different from their perceptions.

3- Trainees' expectations of responsiveness dimension of services provided by maritime training centers is different from their perceptions.

4- Trainees' expectations of assurance dimension of services provided by maritime training centers is different from their perceptions.

5- Trainees' expectations of sympathy dimension of services provided by maritime training centers is different from their perceptions

2. Materials and Methods

In this research, SURVQUAL standard questionnaire-which included two 22-question parts for evaluation of customers' expectations and perceptions-was normalized for consideration of maritime training industry in Iran and the opinions of several relevant experts.

Questionnaire consisted of two parts; in part one, responders were requested to rank the importance of each one of quintuple dimensions of quality of services (Physical, reliability, responsiveness, assurance and sympathy) from 1 to 5. Part two consisted of 22 questions for evaluation of trainees' expectations and 22 questions for evaluation of their perceptions of services of maritime training centers at which they studied. Likert's 5 degree scale was applied for answering questions; the choices were from completely disagree = 1 to completely agree = 5.

Validity of questionnaire was confirmed by research advisor and Cronbach's alpha test was applied for checking the reliability. The figures obtained by use of SPSS Ver. 19 and presented in (Table 1).

Table 1. Figures of Cronbach's alpha test

SURVQUAL DIMENSIONS	Cronbach's alpha		SURVQUAL DIMENSION	Cronbach's alpha	
	Expectations	Perceptions		Expectations	Perceptions
Physical	0.75	0.80	Reliability	0.79	0.84
Responsiveness	0.81	0.81	Guarantee and Assurance	0.77	0.87
Sympathy	0.82	0.79	Total Reliability of Questionnaire	0.78	0.82

Statistical population of this research consisted of all available trainees of maritime training centers of Khuzestan province (including DARYAYE DOOR, SERAJ DARYA and DARYA PEIMAYE GENAVE) who attended following courses: second officer and master of Ships less than 500-tons traditional and metallic vessels as well as below 150-ton metallic vessels, trainees of operator of marine engines less than 750 kilowatt, comparative course of third engineer less than 3000 kilowatt, third engineer less than 3000 kilowatt, second engineer less than 3000 kilowatt in the year 2011.

In this research, to determine the sample size, a preliminary study with distribution of 30 questionnaires among the trainees was carried out. Via estimation of variance of primary sample in confidence level of 95%, the sample size, in a stratified random sampling, was determined to be 110 persons (Daryaye Door and Seraj Darya each 40 and Darya Peimaye Genave with 30 persons).

The other method to determine the sample size is referring to the published researches which are thematically relevant to the research. For determination of sample size, a researcher can go through the relevant previous researches and take the average of sample size of at least three works. To a great extent, it can be said that the taken average is a proper size (Biabangard, 2003). As the works mentioned in the literature of this research, are thematically relevant to the subject, the average of sample size of those three researches, was taken as the sample size of this research, based on which 170 questionnaires were distributed among the trainees of maritime training center. The number of 135 questionnaires were completed and returned (the replying rate of 79%). Finally, after preliminary review, 25 questionnaires found incomplete and only 110 questionnaires remained for the final analysis. In addition, additional approaches such as, holding interview sessions with experts from Ports and Maritime Organization,

internet research as well as library studies on resources relevant to quality, services, evaluation of services quality, managerial valid journals and relevant domestic and foreign academia were also used to comple the data.

Normality of data distribution was tested using SPSS Kolmogorov–Smirnov test. The results ($p > 0.05$) confirmed the normality of data distribution. Parametric paired sample test was applied for testing the hypotheses of research and Friedman test was employed for rating and prioritization of quintuple dimensions of quality of services based on trainees' views. Data were analyzed with Excel 2010 and SPSS Ver. 19.

3. Results

The data collected through SURVQUAL questionnaires showed there was a remarkable gap between what the trainees expect from the quality of services and what they perceive (Table 2, Figure 1).
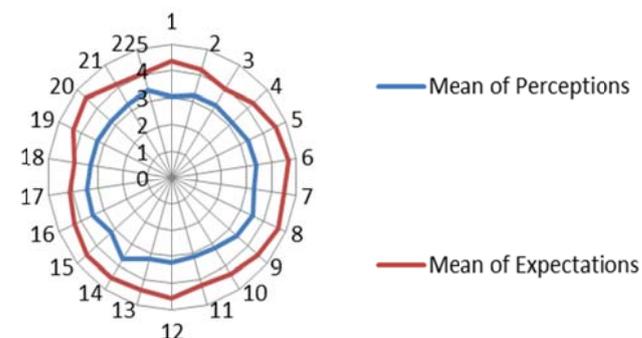

Fig. 1: Radar chart

Results showed there was a significant difference between the extent of trainees' expectations of services of maritime training centers and the extent of their perceptions of the received services. Also, in physical factor, Reliability, Responsivenes, Assurance and sympathy dimensions, there were significant differences between the trainees levels of expectations and perceptions ($p \leq 0,05$) (Tables 3 and 4).

Table 2. The mean of expectations, perceptions and quality gap for each dimension of services quality

Dimensions	Elements	Mean of Expectations	Mean of Perceptions	Mean of Gaps
Physical Dimension	1- There are modern and proper educational and aid educational equipment (PC, simulator and other educational equipment required by STCW and PMO standards).	4.38	3.03	-1.33
	2- Decoration and facilities of center's classrooms and workshop are appropriate.	4.21	3.19	-1.01
	3- The appearance of training instructors and instructors while attending the classrooms is in accordance with conditions of training environment.	3.93	3.25	-0.68
	4- The access to the center in city is appropriate.	4.25	3.19	-1.05
Reliability Dimension	5- Questions discussed in classes are answered correctly.	4.56	3.36	-1.19
	6- Related, proper and updated information (maritime industry and maritime safety) according to educational courses is given to the trainees.	4.69	3.40	-1.29
	7- Training courses are held in due time.	4.49	3.30	-1.18
	8- Experts and instructors show interest to update their educational material (in accordance with STCW and PMO standards).	4.66	3.54	-1.12
Responsiveness Dimension	9- Staffs are honest and trustee to assist the trainees, information transfer and solving their problems.	4.49	3.40	1.09
	10- New and updated information is given to the trainees.	4.35	3.17	-1.17
	11- Proper answers are given to the trainees of the training center in the least possible time.	4.25	3.11	-1.14
	12- Instructors are always eager to assist the trainees.	4.56	3.22	-1.33
	13- Education Department is responsible for taking feedback from trainees and instructors in view point of training quality.	4.44	3.21	-1.23
Assurance Dimension	14- Staffs of Education Department are properly familiar with application of new educational equipment and technology.	4.49	3.7	-0.79
	15- Staffs and instructors have sufficient knowledge to reply trainees' questions.	4.49	3.22	-1.27
	16- Trainees trust on education experts and instructors for receiving the respected services.	4.3	3.49	-0.81
	17- Trainees feel relax and convenience while interacting with Education Department.	4.14	3.46	-0.67
Sympathy Dimension	18- Staffs' behavior gradually creates confidence in trainees.	3.95	3.29	-0.66
	19- Training center appreciates specific needs as well as ideas and criticisms of the trainees.	4.35	3.3	-1.05
	20- Working time of training center is appropriate for trainees.	4.58	3.22	-1.36
	21- All people visiting the center are given equal amount of importance.	4.14	3.26	-0.87
	22- Staffs pay personal attention to the trainees.	4.06	3.42	-0.63

Table 3. Results of Paired T Test – Testing the first main hypothesis

Paired Difference									
Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		**t**	d.f	Sig. (2-tailed)	Hypothesis	Test Results
			upper	lower					
1.05800	0.15802	0.07067	1.25421	0.86179	14.971	109	0.000	First Main Hypothesis	H_1 Confirmed

Table 4. The Results of Paired t Test – Secondary Hypotheses Test

Paired Difference									
Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	d.f	Sig. (2-tailed)	Hypothesis	Test Results
			lower	upper					
1.06000	0.28694	0.14347	0.60342	1.51658	7.388	3	0.005	Physical dimension	H_1 confirmed
1.20000	0.06976	0.03488	1.08899	1.31101	34.403	3	0.000	Reliability dimension	H_1 confirmed
1.25000	0.16823	0.07523	1.04112	1.45888	16.615	4	0.000	responsiveness dimension	H_1 confirmed
0.88750	0.26133	0.13066	0.47167	1.30333	6.792	3	0.007	Assurance dimension	H_1 confirmed
0.91800	0.29920	0.13381	0.54650	1.28950	6.861	4	0.002	Sympathy dimension	H_1 confirmed

Results of Friedman test showed the priorities of importance of quintuple dimensions of quality of services according to the trainees' points of view were different. The importance of quintuple dimensions of quality of services was not equal for the responders. prioritization of the dimensions from the trainees' points of view is shown in Table 5. The elements of assurance and responsiveness were the most and the element of physical factors were the least important dimensions.

Table 5. The results of Friedman Test – Second Main Hypothesis Test

Prioritization of Dimensions	Quintuple Dimension of Quality	Friedman Test		
Fifth	Physical	2.21	N	5
First	Reliability	4.58		
Second	Responsiveness	3.04	Chi - Square	17.674
Third	Assurance	2.58	df	4
Fourth	Sympathy	2.57	Asymp. Sig.	0.001

4. Discussion

Generally, it could be considered that there were gaps in all dimensions in the centers, meaning that they couldn't have met the expectations of the trainees, who were the main customers of these centers. The highest mean of quality gap was observed in the responsiveness dimension (-1.23) followed by dimensions of reliability (-1.98), physical (-1.05), and sympathy (-0.98), respectively. The least mean of gap belonged to the assurance dimension (-0.88). According to the trainees' opinions, priority order of the quintuple dimensions of quality of services from the most to the least were as follows: reliability, responsiveness, assurance, sympathy and physical factors.

Following suggestions were offered in order to utilize the results:

- The results obtained from the statistical analysis confirmed all hypotheses, therefore the present research could be deemed reliable to evaluate the quality of services of maritime training centers and for improvement the services as well as identifying points of strength and weakness of maritime training. The results of hypotheses testing showed that in all quintuple, dimensions of quality of services, there were gaps between the quality expected by the customers and what they really perceived. In other words, services given to the trainees by maritime training centers did not meet their expectations in all dimensions. So, these centers must try to remove gaps.

- The prioritization of quintuple dimensions of quality of services in this research could be considered as a basis for determining of state of quality promotion programs of maritime training centers of Khuzestan province. In this way, emphasizing on more prior dimensions, planners of those centers could use the resources of their organization more effectively.

- In view on the fact that responsiveness as the most important dimension has the biggest gap, to decrease or remove the gap, it is required that the mentioned centers develop programs based on which the staffs and instructors pay special attention to this dimension. In this direction, the following measurements could be helpful in solving the problem: holding awareness sessions for staffs and instructors; applying incentive systems to persuade staffs and instructors; assisting trainees to obtain new and updated information as well as facilitating information transfer and problem solution through replying to the trainees' questions correctly in the shortest possible time; taking feedback from the trainees and instructors on quality of education.

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