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Assessing Quality of Educational Service by the SERVQUAL model: Viewpoints of Paramedical Students at Tehran University of Medical Science

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Abstract

Introduction: Understanding how the students' expectations about the process of educational services is being met, plays an important role in improving the quality education and academic services in the higher learning institutes; because by determining the probable gaps between the expectations and perceptions of students, necessary actions can be undertaken to enhance the quality of educational services.

Purpose: This study intends to determine the quality gap in educational services provided to the paramedical students in Tehran University of Medical Sciences in 2010.

Method: The study was a cross sectional research that used standard SERVQUAL questionnaire to collect data from paramedical students of the school of Allied Medical Sciences, Tehran University of Medical Sciences. A total of 135 responses were analyzed to identify the quality gap in educational services.

Findings: Results show that there is a negative quality gap in all five dimensions of quality educational services (empathy, physical, responsiveness, assurance and confidence). The maximum and minimum mean of quality gap observed in the dimension of empathy and assurance was -1.57 and -1.31 respectively. Moreover, a statistically significant difference was observed between the five dimensions of educational services in the quality gap ($p<0.001$).

Conclusion: According to the results, it is recommended that in order to reduce the gap and improve the quality of educational services, attention should be paid to all aspects of service quality, particularly to the empathy dimension. It is also suggested that proper planning is needed to better serve employees and increase their communication skills, in order to help reduce the educational quality gap.

Originality/value: The concept of service quality assessment through SERVQUAL is a relatively new effort among Iranian universities, and there is lack of previous published literature using this method to assess the quality of educational services. Thus, this paper can be used as a guide for universities and academic institutes who seek to identify the educational quality gap in order to improve upon it.

Key words: Service Quality, Expectations, Quality gap, Educational services, SERVQUAL

Introduction

In the present world, the issue of quality management has brought challenges to the organizations and its acceptance has tremendously increased in the service sector. Service quality is an

important factor for growth, competitiveness, success and durability and is organized as a strategic, effective and comprehensive issue in management agenda (Abdullah, 2006, Douglas and Douglas, 2006; Nejati and Nejati, 2008). Therefore, the use performance management and service quality improvement techniques have been extensively applied as a means to enhance competitiveness and quality in the organizations, especially among educational institutes (Nejati *et al.*, 2007) and to improve customers/users' retention (Nejati *et al.*, 2009). It is the comparison to what the customer feels that should be (expectations) with what has been received (perceptions). If the expectation is over perceptions then quality of service received by clients will see less and may lead to dissatisfaction with him (Sahney *et al.*, 2008).

Recently, interest in the quality in the higher education and universities has increased dramatically and is receiving global attention in the educational research (Coates, 2005, Lopez, 2005). In the academic setting, students, staff and faculty members are the major customers of higher education (Sahney *et al.*, 2008), of whom students have attracted the most attention are the main customers of universities who receive a variety of educational services, including registration, course selection and other related services (Sirvanci, 2004, Kebriaei and Roudbari, 2005). Since one of the criteria of quality in university is to meet the students' expectations about the process of educational services, by assessing the gap between expectations and perceptions of students, an understanding of the quality level will be obtained; where less gap between expectations and perceptions denotes higher quality of educational services. Hence, an essential step to compensate this gap is to identify the perceptions and expectations of students about the quality of educational services to determine the strengths and weaknesses of the system. This should be followed by adopting strategies for reducing the quality gap and satisfying the students' expectations (Kebriaei and Roudbari, 2005).

Conflicting perceptions of the quality of education have lead to different methods for measuring quality in high education (Tam, 2001). For many years, researchers have used single-dimensional scales for measuring service quality, whereas such scales are not suitable to measure a multidimensional concept such as quality (Adee and Bernie, 2007). To overcome that limitation, one of the ways that has often been used for the quality assessment of higher education and universities is the SERVQUAL framework that was developed by Parasuraman (Alves and Vieira, 2006). This tool measures customer perceptions in five dimensions of service, namely: Tangibles dimension (physical space, environmental conditions and service delivery including facilities, equipment, personnel and communication channels), Reliability dimension (ability to serve secure and reliable forms of services), Responsiveness dimension (willingness to cooperate and assist the customer), Assurance dimension (competency of personnel for induction trust and confidence to customer) and Empathy (especially dealing with each customer according to their mood so that customers are convinced organization has understood them). (Parasuraman *et al.*, 2004) SERVQUAL is a valid tool for evaluating service quality that compared to other quality assessment methods has advantages, including the possibility of adapting its various dimensions with service environments, high reliability and validity for the comparison of customers' perceptions and expectations, the relative importance of Servqual's five dimensions in service quality perceptions and the ability to analyze based on demographic, psychological and other fields (Zafiropoulos, 2006, Arambewela and Hall, 2006). All organizations can specifically use this model according to their different characteristics and needs, to create the appropriate changes (Parasuraman *et al.*, 2004). Currently the students' views on all aspects of training provided in the educational institutes are reviewed as an essential factor in quality monitoring in universities (Hill *et al.*, 2003).

Research results from some of the Iranian medical universities indicates gaps in all five dimensions of education service quality which signifies the poor service quality level in these universities (KEBRIAEI *et al.*, 2005, Aghamolaei *et al.*, 2006, Sabahi Bidgoliy and kebriaie, 2007). The results of a study to determine the quality of educational services in the U.S also indicated that the students are not provided with quality service (Ruby, 1998). A similar research in Australia revealed that the expectations of students of educational services were not met, resulting in the students'

willingness to quit school (Slade *et al.*, 2000). In the study of Cho about the quality of educational services at the School of Management at the Ryerson University of Toronto, Canada, the most negative quality gap was observed in the Assurance dimension (Chua, 2006). In another study using SERVQUAL method, Bradley determined the perception and expectation of Chinese students about the quality of educational services in postgraduate studies. The quality gap analysis showed that there is negative quality gap in all dimensions of service (Bradley, 2006). Now that in Iran the development of universities is in transition from a quantitative to a qualitative phase, a research to identify the quality gap of educational services is required more than ever. The current study is an effort to answer this need.

Method

In this descriptive analytical which was cross-sectional, 170 paramedical students in Tehran University of Medical Sciences were randomly selected and questionnaires were distributed among them. Considering that the study aim was to determine the quality gap between the students' expectations and their perceptions about educational services, the following formula was used to test that the mean of quality gap is not equal to zero:

$$n = \frac{(z_{1-\frac{\alpha}{2}} + z_{1-\beta})^2 \sigma^2}{(\mu - \mu_0)^2}$$

As questions of expectations and perceptions were in multiple choice and were measured according to Likert scale, the change range for the quality gap could be up to six. Standard Deviation (SD) was estimated by the formula of $\sigma \cong R/6 \cong 1$ and $\mu - \mu_0 = 0.25$ was considered as the minimum difference valuable.

According to the formula, the required sample number was 125. Therefore, to satisfy this criteria and considering the approximate 75% response rate, 170 questionnaires were distributed. Out of these questionnaires, 135 were completed and returned, yielding a response rate of 79.4%. Data was collected by using a standard SERVQUAL questionnaire. Questionnaire comprised of two sections: In the first section, demographic information of students were asked; whereas the second portion inquired about the five dimensions of service quality (namely, physical dimensions, assurance, responsiveness, assurance and empathy). Noticeably, each dimension of service quality consisted of several sub-dimensions as it follows:

- *Physical (tangible)* consisting of the physical facilities, tools, personnel and communication channels sub-dimensions;
- *Assurance* consisting of the organization's ability to implement the promised services to students sub-dimension;
- *Responsiveness* consisting of the accountability of staff towards the services provided to students sub-dimension;
- *Assurance* dimension consisting of the ability, knowledge and skills in staff of training services to create confidence in students;
- *Empathy* dimension consisting of the sense of belonging and commitment of staff to all students sub-dimensions

All measurement items were rated using a 5-point Likert scale consisting of "completely disagree", "disagree", "agree", and "strongly agree". In total, the questionnaire contained 25 questions. Students were asked to answer the questions about the ideal situation in their opinion under the expectations section; whereas under the perceptions sections, they should have expressed their evaluation on the present situation. The validity of questionnaire was approved by consulting some experts in the field. The questionnaire's reliability was measured by the Cronbach's alpha coefficient in the two sections expectations and perceptions (Table 1). To determine the quality gap, the scores of students to the present status of educational service quality (students' perception about the quality of educational services) were compared with the scores given by the students to the desirable quality educational services (students' expectations from service quality). As for the results, a positive score difference would indicate that the quality of educational services is higher than expected, whereas a negative score difference would mean that educational services does not meet the expectations of students and a quality gap exists. Finally, if the difference of the resulting scores was zero, it would signify the absence of any

quality gap between the perceived and expected educational services provided to students. To analyze the data, related statistical tests were used (descriptive statistics and tests, Paired-Sample T Test, Independent-Sample T Test and One-Way ANOVA) in SPSS version 16 software.

Result

As for demographic data, of all 135 students participated in the study, 114 students (84.4%) were female and 21 students (15.6%) were men. The average age of respondents was 21.75 years (SD=2.22). A number of 41 students (30.4%) were in their second year of studies, 68 students (51.1%) in the third year, and 25 students (18.5%) in the last year of the studies. 96 students (71.1%) were studying at the day classes, while 39 students (28.9%) during the night classes.

Results showed that the expectations of learners in all aspects and questionnaire items were higher than the current situation. The highest mean score in expectations aspect was for the *reliability* dimension (3.65) and the lowest scores were related to the *tangibles* and *accountability* dimensions (3.60). In the Perceptions aspect, the highest mean score belonged to the *confidence* dimension (2.30), while the lowest score was for the *sympathy* dimension (2.30). After calculating the difference between expectation mean scores (ideal situation) with perceptions mean scores (current situation), a gap in all dimensions was noticed. The highest negative average score gap was in the empathy dimension (-1.75) and the lowest one was in confidence dimension (-1.31), respectively.

In the study of individual determinants (subdimensions) also a negative quality gap was observed, of which the determinant of "needed facilities" from the *tangibles* dimension had the highest quality gap, whereas the determinant of "service provision at the predetermined time" from the *empathy* dimension had the lowest quality gap. Table 2 displays the mean scores for students' expectations and perceptions, as well as the quality gap in each dimension and sub-dimensions (determinants).

For all five dimensions of the educational services quality, as well as all questions of questionnaire, the differences of mean between expectations and perceptions (quality gap) was significant ($p < 0.001$) using the paired-sample T test. But the difference of the overall gap mean between men and women was not significant. Similarly, the difference of the gap mean in the five quality dimensions of educational services for men and women was not significant (Independent-Sample T test).

The gap mean was investigated for the five dimensions of educational services' quality, for day or night courses with the Independent-Sample T test. The results revealed a significant impact only in the *tangibles* dimension. The gap mean of the five dimensions of educational services' quality was evaluated for the students of the different academic years by One-Way ANOVA to find out that only in *tangibles* significant effects exist (Table 3).

Discussion and Conclusion

This study intends to determine the quality gap in educational services provided to the paramedical students in Tehran University of Medical Sciences in 2010. As seen in the results section, negative quality gaps existed in all five dimensions of SERVQUAL and its determinant. The highest mean of quality gap was observed in the dimension of *empathy*, followed by the dimensions of tangibles, responsiveness and assurance respec-

Table 1. Alpha Reliability

Perceptions Expectations			Perceptions		
Dimensions	**No of Items**	**Cronbach's Alpha**	**Dimensions**	**No of Items**	**Cronbach's Alpha**
Tangibles	5	0.78	Tangibles	5	0.88
Reliability	5	0.78	Reliability	5	0.87
Responsiveness	5	0.87	Responsiveness	5	0.88
Assurance	5	0.83	Assurance	5	0.88
Empathy	5	0.84	Empathy	5	0.91

Table 2 . Mean scores of expectations and perceptions, and service quality gap in each dimension of the quality of educational services

Quality dimension	Question	Expectations	Perception	Quality Gap
Tangibles	Educational Equipments	3.36	1.87	-1.75
	Educational facilities	3.59	1.89	-1.70
	Staff appearance	3.52	2.41	-1.11
	Facilities needed	3.75	1.92	-1.78
	Intimate and dynamic relationship with learners	3.53	2.14	-1.39
	Total	**3.60**	**2.05**	**-1.55**
Responsiveness	Interest to solve problems of learners	3.62	1.96	-1.66
	Willingness to help learners	3.51	2.33	-1.88
	Providing required information to the learners	3.63	2.29	-1.34
	Preparedness for responding	3.57	2.11	-1.46
	Convenient working hours	3.64	2.20	-1.44
	Total	**3.60**	**2.18**	**-1.42**
Reliability	Provide safe and reliable service	3.58	2.52	-1.06
	Sufficient knowledge of to respond to the learners	3.65	2.32	-1.33
	Knowledge, skills and abilities	3.64	2.37	-1.28
	Having the knowledge necessary to perform educational services	3.68	2.27	-1.41
	Reliable behavior	3.48	2.02	-1.46
	Total	**3.61**	**2.30**	**-1.31**
Empathy	Creating peaceful environment	3.60	2.15	-1.45
	Personal attention to students	3.47	1.97	-1.50
	Respect for learners Feedback	3.71	1.99	-1.73
	Students with interest to hear comments	3.67	2.03	-1.64
	Responding the students patiently	3.58	2.04	-1.54
	Total	**3.61**	**2.03**	**-1.57**
Assurance	Keeping Promises	3.67	2.19	-1.49
	Providing services without mistakes and errors	3.69	2.08	-1.60
	Confronting all learners equally	3.69	2.26	-1.63
	Services provision at the determined times	3.61	2.63	-.99
	Speed in operation	3.56	2.09	-1.47
	Total	**3.65**	**2.25**	**-1.40**

Table 3. Mean scores of expectations and reality, and service quality gap in each dimension of the quality of educational services categorized according to gender, course and academic year

variation			Dimensions				
			Tangibles	**Responsiveness**	**Reliability**	**Empathy**	**Assurance**
sex	**male**	M±SD	-1.38±1.02	-1.25±0.79	-1.22±1.06	-1.55±0.89	-1.60±0.86
	female	M±SD	-1.59±0.73	-1.45±0.80	-1.45±0.80	-1.58±0.81	-1.38±0.87
	Independent-Sample T test		0.38	0.29	0.30	0.88	0.30
Educational Courses	Daily	M±SD	-1.62±0.83	-1.45±0.82	-1.38±0.92	-1.64±0.80	-1.47±0.84
	Overnight	M±SD	-1.39±0.63	-1.35±0.76	-1.14±0.80	-1.43±0.86	-1.26±0.92
	Independent-Sample T test		.09	0.49	0.17	0.19	0.21
Academic year	**Second year**	M±SD	-1.48±0.67	-1.41±0.81	-1.35±0.85	-1.65±0.78	-1.45±0.87
	Third year	M±SD	-1.71±0.81	-1.49±0.81	-1.32±0.95	-1.60±0.90	-1.45±0.92
	Fourth year	M±SD	-1.27±0.79	-1.26±0.75	-1.22±0.83	-1.38±0.66	-1.23±0.70
	One-Way ANOVA test		0.04	0.49	0.84	0.43	0.54

tively. As for the lowest gap mean, it belonged to the *reliability* dimension.

Based on this study's findings, in order to reduce the quality gap and improve quality of educational services through the appropriate allocation of resources and efforts of the organization, it is recommended to categorize five dimensions of services into three priority groups: the highest priority groups should consist of the dimension of *empathy* as it had the most negative quality gap; the second priority group should be formed of the *tangibles*, *responsiveness*, *reliability* dimensions; and finally the dimension of *assurance* with the lowest negative quality gap should be listed in the lowest priority group. This way and by focusing more on aspects that have higher quality gaps, the perceptions of the users will improve more. Of course, improving the quality of services in one dimension will also influence the perceptions and viewpoints of recipients in other dimensions of services, because the existence of defects and gap (or in the contrary, the quality increase) in a dimension lead to exacerbating effect; that is it causes low quality (or quality improvement) in the other dimensions (Lamei, 2000).

The *empathy* dimension shows the college tendency to offer quick and timely services to the students. It also reflects the sensitivity and awareness of faculty about the demands, questions and complaints raised by the student (Chua, 2006). The fact that *empathy* has had the most negative quality gap shows that the students do not find appropriate mechanisms to express their comments, and their views are not being considered in curriculum planning. It seems that high volume of administrative works, high numbers for students to staff ration, and lack of experience and skills among some of the staffs could have left the staffs no time to listen to the students' needs and make efforts to show empathy towards students and understand them, hence resulting in a huge service quality gap in *empathy* dimension. Existence of quality gap in dimensions of responsiveness, assurance and tangibles signifies that requests and questions from the students are not handled well by the administrative staff who do not show readiness to respond to the students' concerns; the working hours to provide services to the students are not appropriate; there is lack of training facilities; and that the decision makers do not act to their promises and commitments. The lowest average negative quality gap was observed in the *assurance* dimension, which indicates that the employees have sufficient knowledge, skills and abilities to behave in a reassuring manner (Arbooni *et al.*, 2008) .

Research results of Kebriaee and Aghamolaee in Hormozgan and Zahedan universities of medical sciences about the quality of educational services also represent a negative gap in the five dimensions of service quality in both universities. According to their studies, the *responsiveness* and *assurance* dimensions had the highest and the lowest negative gap, respectively, indicating that the quality of educational services in those universities is undesirable (Aghamolaei *et al.*, 2006, Kebriaei and Roudbari, 2005). A study by Kebriaee and Bidgoli in Kashan university of medical sciences indicated the maximum service quality gap in the *tangibles* dimension and the minimum service quality gap in *reliability* dimension (Sabahi Bidgoliy and kebriaie, 2007). Arbouni in a study among students of Zanjan University of Medical Sciences, reported negative quality gaps in all five dimensions of service, where the highest mean gaps was in *empathy* and the lowest mean gap in the *reliability* dimension (Arbooni *et al.*, 2008) .

Similarly, a study by Bradley study on the analysis of the educational services quality gap using SERVQUAL method among Chinese postgraduate students showed that there is a negative quality gap in all aspects of service (Bradley, 2006). In another study conducted by Ruby (1998) on the students' satisfaction towards the quality of educational services, the dimensions of *assurance* and *reliability* had highest and lowest negative quality gaps, respectively; but there was a positive gap in the tangibles quality, indicating that the perception of students about the quality of educational services in the *tangibles* dimension was beyond their expectations. In a study by Cho about the quality of educational services at the school of management at the university of Toronto Ryerson, Canada, again it was shown that all aspects of service quality had a negative gap, the most negative quality gap was seen in assurance dimension, and the least gap in the *reliability* dimension (Chua, 2006). Slade and colleagues studies about the quality of educational services in the two groups of dropout students and

students willing to study in the USC School and the Higher School in Australia, showed that the service gap in terms of current students to continue education is more than of the students who have quit school (Slade *et al.*, 2000). Finally, a study by Husain *et al.* (2009) using SERVQUAL method, as an instrument to measure the satisfaction and dissatisfaction of educational experiences showed that student satisfaction was found to be related to the course structure, content, feedback and assessment, as well as the administration quality.

Determining the service quality gaps can act as an appropriate basis for planning, priority setting and decision-making about resource allocation (Campbell *et al.*, 2001). Reviews of the literature and research findings locally and internationally have confirmed the existence of quality gap in all or a number of service quality dimensions. The results of this study are mostly consistent with other studies, though there might be inconsistencies with regard to the exact service quality dimension that have the highest or least quality gap, as this seems to be very much dependent on the socio-cultural characteristics of the society where the respondents come from, as well as their family background, and the type of courses and educational levels that they are affiliated with. Hence, different societies will perceive the service quality differently and will have various expectations. So in that sense, the results cannot be generalized to the entire university or other universities, and it is recommended to identify the service quality gap in every university to identify the gaps and improve upon. Nonetheless, the fact that this study was conducted in the highest ranking medical university in Iran and among the paramedical students makes the findings more noteworthy as it is among the very few first researches of its kind, hence making an important contribution to the service quality literature in the academic setting on the developing countries.

As the existence of quality gap indicates universities' failure to act to its commitment and to its incapability to meet the expectations of students, it is recommended that special courses are provided to the administrative staff throughout the year to teach them how to apply effective methods of providing educational services and how to express effective communication skills with students . Also some educational workshops should be arranged for the university faculty members with regard to the use of modern teaching methods, as well as counseling and communication skills with the students. Besides, sufficient information should be provided to the students, and proper planning and arrangements for courses and classes should be done. Needless to say appropriate and specific hours should be allocated for the students to meet the faculty members and their supervisors.

Assigning specific hours to the students to share their insights and issues with the managerial board can also improve the service quality by the university. And finally, it is recommended that the students' constructive comments and feedbacks are considered in the educational planning.

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