

## **ADAPTATION OF THE SERVQUAL SCALE IN SEMPA BRATISLAVA**

Assoc. prof. PhDr. Zoltán Rózsa, PhD.<sup>1</sup>

**Abstract:** The quality of higher education is fundamental to a country's development. It is necessary to understand that service processes are different from manufacturing processes, especially due to their intangible nature. SERVQUAL scale is the method that assesses client satisfaction as a result of the difference between expectation and the performance obtained. The objective of this paper is to propose an adaptation of the SERVQUAL scale's generic questionnaire for the higher education service sector.

### **INTRODUCTION**

The quality of higher education has recently become one of the most debated topics. The opinions on quality as well as the methodology used to measure the quality differ. The opinions on what actually is the product of higher education and who are their customers are different, too. The answer to the second question is at least in the case of a private high school quite simple. The customer of a private high school is a student. The management of the private high schools has to accept in its strategy the view of the students regarding quality. The aim of this paper is to find an answer to the question whether it is possible in terms of private high schools to use a standardized SERVQUAL questionnaire to measure the quality perceived by students.

### **1. ISSUE SUMMARY**

High education needs to keep in perspective the needs and interests of groups such as student, employers, government, alumni, parents and funding agencies, among others. The reality is that the needs of multiple groups of people and organizations may often be in conflict. Maintaining the correct balance in order to keep all customers satisfied becomes one of the biggest challenges of organizations [Maringe, Gibbs 2009, p.36]. The quality is an ambiguous and complex term with many meanings [Turek 2008, p.11]. Ambiguity and complexity of the term "quality", when evaluating services, is growing almost exponentially, and even so that the customer has no possibility to perceive through senses the particular service before realising purchase. The decision for purchase is often taken solely on the basis of expected benefits [Cibáková et al. 2008, p.28]. The opinions regarding quality will be resulting as a difference between expected benefits and the experience of the service provided. The understanding of customer's expectations and the way of perceiving the experience of the service provided is therefore a necessary prerequisite for providing quality service.

According to Parasuraman, Zeithaml, and Berry et al. it is possible to identify the same criteria of perceived quality regardless type of service. In the first stage of their research they have included

---

<sup>1</sup> SEMPA Bratislava

the physical components of the service (tangibility), reliability, responsiveness, communication, credibility, security, competence, courtesy, understanding / knowing the customer and access among these criteria. Based on further research they have reduced the number of criteria on the following five [PARASURAMAN et al. 1988, p.12-38]:

Reliability: The ability to perform the promised service dependably and accurately.

Tangibles: The appearance of physical facilities, equipment, personnel and communication materials.

Responsiveness: The willingness to help customers and provide prompt service.

Assurance: The knowledge and courtesy of employees and their ability to convey trust and confidence.

Empathy: The caring, individualized attention provided to the customer.

While the criteria assurance and empathy are results of these criteria merging: communication, credibility, security, competence, courtesy, understanding / knowing the customer and access.

On this way established SERVQUAL questionnaire consists of 22 items (Annex 1 and 2). Each item is assessed by respondent using seven point scale ranging from "Strongly Agree" (7) to "Strongly disagree" (1). Other degrees are no verbal explained and about a half of the questions is worded negatively. The customer's expectations are in the first part of the questionnaire, and the customer's experiences with the service form the second part. The perceived service quality is determined as the difference between expected quality and customer's experience in the relevant items and then in individual factors [PARASURAMAN et al. 1988, P.17].

By authors modified form of the questionnaire also determines what importance is attached by customer to individual service quality criteria so that the customer has an opportunity to divide 100 points among criteria as an expression of preference [MATEIDES - ĎAĎO, 2002].

O.J. Olivier and E.C. Ferreira have applied the questionnaire for a research of perceived service quality by students of São Paulo State University (UNESP) in Brazil (Annex 1 and 2) [OLIVIER - FERREIRA, 2009]. The decision to undergo their findings to further analysis before its use was prompted in particular by non-verification of internal reliability of procedure. As reported by M. Morales et al. a failure to verify validity and reliability of process measurement through SERVQUAL is a fundamental lack of professional work using this method to measure the quality of service [MORALES, M. et al., 2003].

## 2. RESEARCH METHODS

As noted above, the work is based on the processing of secondary data obtained by research of O.J. Olivier and E.C. Ferreira. Research sample consisted of students of São Paulo State University (UNESP) in Brazil. The part of the questionnaire containing the items relating the expected quality of service was completed by 28 students and the part of the questionnaire relating to the experiences with service was completed by 35 students. The results obtained by authors are subject to Tables No. 1 and No. 2.

Table No.1: Expected service quality

	No.	Number of answers							Mean
		1	2	3	4	5	6	7	
Tangibles	1	0	0	1	2	11	9	5	5.536
	2	0	0	1	2	7	11	7	5.750
	3	5	7	7	3	4	0	2	3.071
	4	1	2	2	3	9	6	5	4.964
Reliability	5	0	0	0	0	10	7	11	6.036
	6	0	1	1	5	8	7	6	5.321
	7	2	1	3	5	6	8	3	4.714
Responsiveness	8	0	0	3	0	5	11	9	5.821
	9	0	2	1	3	1	14	7	5.607
	10	0	0	1	5	5	8	9	5.679
Assurance	11	0	0	1	2	6	7	12	5.964
	12	0	0	1	2	4	16	5	5.786

	13	0	0	2	2	5	10	9	5.786
	14	1	1	2	7	10	4	3	4.714
	15	0	0	1	0	1	6	20	6.571
Empathy	16	1	1	2	3	9	8	4	5.071
	17	4	4	2	5	10	2	1	3.821
	18	0	1	1	2	2	8	14	6.036
	19	0	0	2	4	10	6	6	5.357

Source: OLIVIERA, J.O - FERREIRA, E.C: *Adaptation and application of the SERVQUAL scale in higher education.*

Table No. 2: *Customer's experience with the service*

	No.	Number of answers							Mean
		1	2	3	4	5	6	7	
Tangibles	1	6	5	10	8	5	1	0	3.114
	2	3	6	10	8	3	4	1	3.514
	3	0	1	4	4	8	14	4	5.200
	4	0	2	2	9	11	9	2	4.829
Reliability	5	0	2	7	5	8	11	1	4.647
	6	1	2	5	10	8	7	2	4.457
	7	1	1	6	10	11	5	1	4.371
Responsiveness	8	0	1	2	13	7	11	1	4.800
	9	0	1	4	6	11	12	1	4.914
	10	1	2	8	5	10	8	1	4.400
	11	1	0	4	7	7	9	7	5.114
Assurance	12	2	0	3	10	11	6	3	4.657
	13	0	1	1	9	9	11	4	5.143
	14	0	1	5	6	15	3	4	4.765
	15	0	1	2	9	9	10	4	5.057
Empathy	16	7	2	6	4	9	4	3	3.857
	17	2	0	9	8	8	5	3	4.343
	18	1	1	7	10	11	3	2	4.314
	19	1	4	8	11	7	2	2	3.943

Source: OLIVIERA, J.O - FERREIRA, E.C: *Adaptation and application of the SERVQUAL scale in higher education.*

To check the reliability of the questionnaire a methodology of range construction by T. Kollárik and E. Solárová [Kollárik, Solárová 2004, p.39] was applied and for the calculation of internal reliability Cronbach alpha coefficient was used. In the first phase the completeness of data collected by O.J. Olivier and E.C. Ferreira is to be checked. In the second phase the items as potentially non-compliant will be identified those items which responses have been accumulated to particular categories. For purposes of this research there have been identified two rules. According to the Rule 1 the item with more than 35% of identical answers and with 2 options unanswered is classified as non-compliant. Rule 2: The item with the responses dispersion less than 1 is also classified as non-compliant. During the third phase the internal reliability represented by Cronbach alpha coefficient will be examined. According to several authors the range reliability can be regarded as excellent if  $\alpha > 0.9$ , good if  $\alpha > 0.8$ , acceptable if  $\alpha > 0.7$ , questionable if  $\alpha > 0.6$  and uncertain if  $\alpha$  is  $> 0.5$ . A. Parasuraman et al. verifying the reliability of SERVQUAL scale reached the following results: tangibility -  $\alpha = 0.72$ , reliability -  $\alpha = 0.83$ , responsiveness -  $\alpha = 0.82$ , accurate -  $\alpha = 0.81$  and empathy -  $\alpha = 0.86$  [PARASURAMAN 1988, p.29]. The internal reliability will be determined as coefficient of standardized alpha if the dispersion of

individual items in the range will be significantly different. The coefficient calculation will be carried out by statistical program JMP8.

### 3. RESULTS

Although the authors of the questionnaire SERVQUAL have declared the questionnaire to be able to measure the service quality universally, regardless of industry, O.J. Oliviera and E.C. Ferreira have adapted the questionnaire for its use to measure the perceived quality of services provided by high school in the following manner:

- The items No. 9, 11 and 19 were omitted (in both versions of the questionnaire – expectations and experience). The total number of questions is 19.
- The wording of questions in the version of the questionnaire for customer's expectations have been changed (totally or partially from negative to positive formulation) No. 4, 8,11,12,13, 18, 20, 22. The order of questions was changed, too. The question No. 22 has become No. 19, the question No. 18 has become No. 20 and No. 20 has become No. 22.
- The wording of questions in the version of the questionnaire for customer's experience have been changed (totally or partially from negative to positive formulation) No. 4, 8,11,12,13, 18, 20, 22. The order of questions was changed, too. The question No. 22 has become No. 19, the question No. 18 has become No. 20 and No. 20 has become No. 22.
- The term “service provider” was replaced by the term “high school”.
- The term “staff” was replaced by “employees and teachers”.

It was found out that questions No. 5 and No. 14 in the version of the questionnaire concerning experience with customer service were not answered by one interviewee.

According to Rule 1 it is possible in the questionnaire about expected service quality to mark as potentially non-compliant items No. 5, No. 8 and No. 15 and in version on experience with customer service it is not possible to identify any item as potentially non-compliant.

Under Rule 2 (as shown in Table No. 3) it is possible in the version of the questionnaire for expected quality to identify as potentially non-compliant items No. 1, 5, 12, 15 and in a version of the questionnaire on experience with customer’s service can not be any of the items identified as potentially non-compliant.

Table No. 3: Dispersion of the responses

Quality criterion	No.	Dispersion	
		Expected service quality	Customer’s experiences with the service
Tangibles	1	0.999	1.928
	2	1.083	2.375
	3	2.884	1.694
	4	2.628	1.499
Reliability	5	0.776	1.872
	6	1.708	2.020
	7	2.804	1.593
Responsiveness	8	1.485	1.282
	9	2.099	1.375
	10	1.485	2.071
	11	1.295	2.222
Assurance	12	0.915	1.997
	13	1.434	1.420
	14	1.989	1.579
	15	0.772	1.526
Empathy	16	2.217	3.773

	<b>17</b>	2.967	2.291
	<b>18</b>	1.813	1.692
	<b>19</b>	1.423	1.938

Own source

In the last phase Cronbach alpha coefficients were calculated (Table No.4). The standardized alpha was not applied due to the low dispersion of responses.

*Table No. 4: Reliability of expected service quality and customer's experiences with the service*

Quality criterion	No.	Cronbach $\alpha$	
		Expected service quality	Customer's experiences with the service
Tangibles	<b>1</b>	0.9350	0.9608
	<b>2</b>	0.9328	0.9673
	<b>3</b>	0.9475	0.9685
	<b>4</b>	0.9195	0.9699
		<b>0.9494</b>	<b>0.9748</b>
Reliability	<b>5</b>	0.9542	0.9803
	<b>6</b>	0.8439	0.9575
	<b>7</b>	0.8861	0.9667
		<b>0.9332</b>	<b>0.9786</b>
Responsiveness	<b>8</b>	0.9589	0.9769
	<b>9</b>	0.9716	0.9730
	<b>10</b>	0.9669	0.9671
	<b>11</b>	0.9662	0.9730
		<b>0.9741</b>	<b>0.9794</b>
Assurance	<b>12</b>	0.9295	0.9769
	<b>13</b>	0.9224	0.9699
	<b>14</b>	0.9392	0.9751
	<b>15</b>	0.9572	0.9674
		<b>0.9527</b>	<b>0.9790</b>
Empathy	<b>16</b>	0.9426	0.9799
	<b>17</b>	0.9677	0.9587
	<b>18</b>	0.9597	0.9647
	<b>19</b>	0.9611	0.9660
		<b>0.9680</b>	<b>0.9745</b>

Own sources

## CONCLUSION

Based on the analysis carried out it can be concluded that the reliability of the SERVQUAL questionnaire modified by O.J. Olivier and E.C. Ferreiro is excellent. The results of individual quality criteria are: tangibles - alpha = 0.9494 and 0.9748, reliability - alpha = 0.9332 and 0.9786, responsiveness - alpha = 0.9741 and 0.9794, assurance - alpha = 0.9527 and 0.9790, and empathy - alpha = 0.9680 and 0.9745, are not only higher than the results previously obtained by authors, but even higher than 0.9.

However, the above findings may also have the following reservations:

- The analyzed data do not show reasons for omitting items No. 9, 11 and 19 from the original questionnaire. It is not possible to assume that these items were deleted due to reliability optimization.
- The reasons for change in wording of the questions (totally or from negative to positive formulation) are not obvious. At least the second change may misrepresent the responses due to sensitivity of the interviewee to questions' order.
- The reasons for changing the order of questions are not obvious from analyzed data.

Based on these results and reservations the SERVQUAL questionnaire by O.J. Olivier and E.C. Ferreira modified for the high school use can not be recommended for further research.

## REFERENCES:

- [1] CIBÁKOVÁ, V. - RÓZSA, Z. - CIBÁK, Ľ.: *Marketing služieb*. Bratislava: Iura Edition, 2008, 214 s. ISBN 978-80-8078-210-8
- [2] KOLLÁRIK, T. - SOLLÁROVÁ, E.: *Metódy sociálnopsychologickej praxe*. Bratislava: Ikar, 2004, 264 s. ISBN 80-551-0765-3
- [3] MARINGE, F - GIBBS, P.: *Marketing higher education. Theory and Practise*. Berkshire: Open University Press, 2009, 195 p. ISBN 978-0-335-22032-8
- [4] MATEIDES, A. - ĎAĎO, J.: *Služby*. Bratislava: EPOS, 2002, 750 s. ISBN: 80-8057-452-9
- [5] MATEIDES, A.: *Spokojnosť zákazníka a metódy jej hodnotenia*. Bratislava: EPOS, 1999, 270 s. ISBN 80-8057-113-9
- [6] MORALES, M. et al.: *10 years of service quality measurment: reviewing the use of the SERVQUAL instrument*. Cuadernos de Difusion, 7 (13), 101-107.
- [7] OLIVIERA, J.O - FERREIRA, E.C: *Adaptation and application of the SERVQUAL scale in higher education* In: POMS 20th Annual Conference, Orlando, USA: 2009.
- [8] PARASURAMAN, A. - ZEITHAML, V.A. - BERRY, L.L.: *SERVQUAL: A Multi-Item Scale for Measuring Consumer Perceptions of Quality* In: Journal of Retailing. Spring 1988, p.12-38
- [9] PARASURAMAN, A. - ZEITHAML, V.A. - BERRY, L.L.: *Delivering quality service: balancing customer perceptions and expectations*. London: Collier Macmillan, 1990, 226 p. ISBN 0-02-935701-2
- [10] RIMARČÍK, M.: *Štatistika pre prax*. 1. vyd. 2007. 200 s. ISBN 978-80-969813-1-1
- [11] TUREK, I.: *Kvalita vzdelávania*. Iura Edition, 2009, 232 s. ISBN 978-80-8078-243-6
- [12] FILIP, S.: *Postavenie a úlohy verejných vysokých škôl v bezpečnostnom systéme Slovenskej republiky*  
In: *Regióny - vidiek - životné prostredie*. Zborník vedeckých, odborných príspevkov a posterov z medzinárodnej vedeckej konferencie. Nitra : Slovenská poľnohospodárska univerzita, 2006. S. 114-119. ISBN 80-8069-709-4.

**Annex 1: SERVQUAL questionnaire – customer’s expectations version**

		<b>Parasureman et al.</b>	<b>Oliveira</b>
<b>Tangibility</b>	E1	They should have up-to date equipment.	Excellent Higher education institutions must have modern equipment, such as laboratories.
	E2	Their physical facilities should be visually appealing.	Higher education installations must be well conserved.
	E3	Their employees should be well dressed and appear neat.	Employees and teachers at excellent institutions of Higher education must present themselves (clothes, cleanliness, etc.) in an appropriate manner for their position.
	E4	The appearance of the physical facilities of these firms should be in keeping with the type of services provided.	The material associated with the service provided in excellent institutions of Higher education, such as journals, printed matter, must have a good visual appearance and be up to date.
<b>Reliability</b>	E5	When these firms promise to do something by a certain time, they should do so.	When excellent institutions of Higher education promise to do something in a certain time, they must do so.
	E6	When customers have problems, these firms should be sympathetic and reassuring.	When a student has problems, excellent institutions of Higher education demonstrate sincere interest in solving it.
	E7	These firms should be dependable.	
	E8	They should provide their services at the time they promise to do so.	Excellent institutions of Higher education will do the job right the first time and will persist in doing it without error.
	E9	They should keep their records accurately.	
<b>Responsibility</b>	E10	They shouldn’t be expected to tell customers exactly when services will be performed. (-)	Employees and teachers at excellent institutions of Higher education promise their clients the services within deadlines they are able to meet. (+ !!!)
	E11	It is not realistic for customers to expect prompt service from employees of these firms. (-)	The employees and the teachers at excellent institutions of Higher education are willing and available during service providing. (+!!!)
	E12	Their employees don’t always have to be willing to help customers. (-)	The employees and the teachers at excellent institutions of Higher education will always show good will in helping their students. (+!!!)
	E13	It is okay if they are too busy to respond to customer request promptly. (-)	The employees at excellent institutions of Higher education are always willing to explain doubts their students may have. (+!!!)
<b>Assurance</b>	E14	Customers should be able to trust employees of these firms.	The behavior of employees and teachers at excellent institutions of Higher education must inspire confidence in the student.
	E15	Customers should be able to feel safe in their transactions with these firms’ employees.	Students at excellent institutions of Higher education feel safe in their transactions with the institutions.
	E16	Their employees should be polite.	The employees and the teachers at excellent institutions of Higher education must be polite to the students.
	E17	Their employees should get adequate support from these firms to do their jobs well.	The employees and the teachers at excellent institutions of Higher education must have the knowledge needed to answer student questions.

		<b>Parasureman et al.</b>	<b>Oliveira</b>
<b>Empathy</b>	E18	These firms should not be expected to give customer individual attention. (-)	Excellent institutions of Higher education must have convenient business hours for all student. (+!!! and E22 in original questionnaire)
	E19	Employees of these firms cannot be expected to give customers personal attention. (-)	Excellent institutions of Higher education must have employees and teachers who provide individual attention to each student. (+!!! E18 in original questionnaire)
	E20	It is unrealistic to expect employees to know what the needs of their customers are. (-)	
	E21	It is unrealistic to expect these firms to have their customers' best interest at heart. (-)	Excellent institutions of Higher education must be focused on the service for their students. (+!!!)
	E22	They shouldn't be expected to have operating hours convenient to all their customers. (-)	Excellent institutions of Higher education must understand the specific needs of their student. (+!!! E20 in original questionnaire)

### Annex 2: SERVQUAL questionnaire – customer's experiences with the service

		<b>Parasureman et al.</b>	<b>Oliveira</b>
<b>Tangibility</b>	P1	XYZ has up-to date equipment.	Your Higher education institution has modern equipment, such as laboratories.
	P2	XYZ's physical facilities are visually appealing.	Your Higher education institution installations are well conserved.
	P3	XYZ's employees are well dressed and appear neat.	The employees and teachers at your Higher education institution present themselves (clothes, cleanliness, etc.) in an appropriate manner for their position.
	P4	The appearance of the physical facilities of XYZ is in keeping with the type of services provided.	The material associated with the service provided in your institution of Higher education, such as journals, printed matter, has a good visual appearance and be up to date.
	P5	When XYZ promise to do something by a certain time, it does so.	When your institution of Higher education promises to do something in a certain time, they must do so.
<b>Reliability</b>	P6	When you have problems, XYZ is sympathetic and reassuring.	When a student has a problem, your institution of Higher education demonstrates sincere interest in solving it.
	P7	XYZ is dependable.	
	P8	XYZ provides its services at the time they promise to do so.	Your institution of Higher education will do the job right the first time and will persist in doing it without error. (+the same tense as in E)
	P9	XYZ keeps its records accurately.	
<b>Responsibility</b>	P10	XYZ does not tell customers exactly when services will be performed. (-)	Employees and teachers at excellent institutions of Higher education promise you the services within deadlines they are able to meet. (+ !!!)
	P11	You do not receive prompt service from XYZ's employees. (-)	The employees and the teachers at your institution of Higher education are willing and available during service providing. (+!!! the same tense as in E)
	P12	Employees of XYZ are not always willing to help customers. (-)	The employees and teacher at your institution of Higher education always show good will in helping. (+!!!)



	<b>Parasureman et al.</b>	<b>Oliveira</b>	
<b>Assurance</b>	P13	Employees of XYZ are too busy to respond to customer request promptly. (-)	The employees at your institution of Higher education are always willing to explain your doubts. (+!!!)
	P14	You can trust employees of XYZ.	The behaviour of employees and teachers at your institutions of Higher education inspire confidence.
	P15	You feel safe in your transactions with XYZ's employees.	You feel safe in your transactions with your institution of Higher education are polite.
	P16	Employees of XYZ are polite.	The employees and the teachers at excellent institutions of Higher education must be polite to the students.
	P17	Employees get adequate support from XYZ's to do their jobs well.	The employees and the teachers at your institution of Higher education have the knowledge needed to answer your questions.
<b>Empathy</b>	P18	XYZ does not give you individual attention. (-)	Your institution of Higher education has convenient business hours for all students. (+!!! and <b>E22 in original questionnaire</b> )
	P19	Employees of XYZ do not give you personal attention. (-)	
	P20	Employees of XYZ do not know what your needs are. (-)	Your institution of Higher education has employees and teachers who provide individual attention to each student. (+!!! v <b>E18 in original questionnaire</b> )
	P21	XYZ does not have your best interest at heart. (-)	Your institution of Higher education is focused on the best service for its students. (+!!!)
	P22	XYZ does not have operating hours convenient to all their customers. (-)	Your institution of Higher education understands the specific needs of its student. (+!!! <b>E20 in original questionnaire</b> )