

IDENTIFICATION OF THE NEEDS AND EXPECTATIONS OF UNIVERSITY STUDENTS FROM ENGINEERING COURSES ON THE EXAMPLE OF A UNIVERSITY IN POLAND

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Abstract: The paper assessed the quality of educational services using the SERVQUAL. In order to use the SERVQUAL method for identification of the needs and expectations of university students from engineering courses, the statements used in the method were modified by adjusting them to key characteristics of services provided by the higher education system. The aim of the paper was to analyze gaps in expectations concerning services and the perceived level of meeting these services. The paper has a form of a case study.

Keywords: quality, SERVQUAL, education

1. INTRODUCTION

The concept of quality does not only concern the product and its characteristics (Nowakowska-Grunt and Mazur, 2016) but also the level of services provided for the customer (Czajkowska and Ciuk, 2006; Niciejewska and Klimecka-Tatar, 2018, Ingaldi and Kotus, 2018). Quality of education is affected by a number of factors, such as e.g. curricula, the way the knowledge is taught and verified, technological equipment, learning resources, practical classes, extracurricular classes, author's curricula and participation of students in educational contests (Polak and Stasiak, 2002; Ingaldi and Ulewicz, 2018; Bitner et al., 1990). On the one hand, the demographic low in Poland can lead to the decline of "poorer" universities. The university can be an opportunity for improving the quality of education for others. Knowledge of the university student's expectations is an important starting point for making the educational offer more attractive.

One of the important aspects of education is the safety of pupils, in case of the universities, the safety of students at the university. Students spend many hours a week at the university, participate in different types of activities, such as laboratories, where they are exposed to various kinds of dangers. Therefore, when examining satisfaction with educational services, it is worth taking into account certain elements related to their safety.

The paper assessed the quality of educational services using the SERVQUAL method which was developed in 1983-1985 by Berry, Parasuraman and Zeithaml (Parasuraman, et al., 1985; Zeithaml et al., 1990). In order to use the SERVQUAL method for identification of the needs and expectations of university students from engineering courses, the statements used in the method were modified by adjusting them to key characteristics of services provided by the higher education system. The aim of the paper is to analyze gaps in the expectations of the educational services and the perceived level of meeting these expectations. The paper has a form of a case study. Similar studies were already conducted by e.g. Ulewicz (Ulewicz, 2014).

2. LITERATURE REVIEW

According Parasuraman et al. (Parasuraman, et al., 1985; Zeithaml et al., 1990) customers evaluate perceived service quality in terms of five dimensions:

- tangibility (this is equipment, devices),
- responsiveness (the willingness to help customers and provide prompt service);
- reliability (the ability to perform the promised service accurately and dependably);
- empathy (the level of caring and individualized attention the firm provides to its customers);
- assurance (the knowledge and courtesy of employees and their ability to inspire trust and confidence).

SERVQUAL has been successfully applied in a wide variety of service settings (Bahia and Nantel, 2000; Babakus et al., 2003; Karatepe et al., 2005; Ladhari, 2008): banking services, hotel, library services, small service points and others.

Researchers have problems with regard to the conceptualization and operationalisation of the SERVQUAL scale (Ladhari, 2009; Cai and Jun, 2003; Buttle, 1996). Questions concern applicability of the five generic SERVQUAL dimensions in several service industries. The use of the SERVQUAL method requires adapting it to the specifics of some services (Brady et al. 2002; Jun et al., 2004). The article adapted the dimensions to the specifics of the services examined. As a result, the areas as in the table were adopted.

Table 1

SERVQUAL areas for school services

SERVQUAL areas	Adopted SERVQUAL areas for school services
tangibility	materiality
responsiveness	reliability
reliability	timeliness
empathy	competence
assurance	empathy

Source: own study

3. METHODOLOGY OF THE RESEARCH

There are several method used to assess the service quality. Between the most frequently used, SERVQUAL, Importance/ Performance Analysis, SERVPERF, CIT, Mistery Shopper should be mentioned. All these methods have their pros and cons.

The first step in the assessment of the quality of services is the selection of the appropriate method. It should be mentioned that method should provide as much

information as possible about the quality of services offered by the enterprise. In the paper the SERVQUAL method was chosen as the easiest one to conduct.

In the SERVQUAL method, analysis consists in evaluation of the difference between the actual perception of the quality of services and their expectations and ideas concerning the services in all the areas (Ulewicz, 2014).

Characterization of the gaps is as follows (Parasuraman, et al., 1985; Zeithaml et al., 1990; Cronin and Taylor, 1994):

- The first gap determines the difference between customer expectations and perception of these differences by the service provider,
- The second gap is defined as a difference between perception of customer expectations by enterprise managers and physical features of the service,
- The third gap represents the difference between the specification of the quality of services and actually provided services,
- The fourth gap is the difference between the provided service and information about this service obtained by the customer,
- The fifth gap means the difference between customer expectations and his or her actual perception of the quality of purchased services.

The basis assumption of the SERVQUAL method is the analysis of the gap between customer expectations of the service and his or her perception after being provided the service (Parasuraman, et al., 1985; Zeithaml et al., 1990; Goranczewski and Puciato, 2011; Karaszewski, 2001). Due to the multifaceted nature of each service, its quality is assessed from several standpoints (areas) which can differ from each other depending on the specific nature of the services. The analysis concerns the expectations and perception of customers in five key areas which to a certain point characterize a specific service area. Five areas were identified in the case of quality of services in higher education:

- Materiality: this includes the appearance of buildings, classes, equipment, clothing and appearance of the staffs,
- Reliability: dependability, credibility, good management,
- Timeliness: means meeting deadlines, checking the tests, midterm and final exam papers on time, punctuality,
- Competence: knowledge and qualifications of employees, their competencies and proficiency, ability to answer the questions asked by students,
- Empathy: individual approach of didactic employees to each student, identification with his or her expectations, understanding their problems.

Consequently, the customer who is provided the service can experience three situations depending on the result of comparison of his or her expectations and perception of the service (Kowalik and Klimecka-Tatar, 2018, Ulewicz, 2018):

$P=O$ - if the result of the analysis equals zero, customers is satisfied and his or her expectations of the service are matched by their perception of the actual service. Quality of feelings connected with being provided the service meet the expectations concerning the service.

$P>O$ - if the result of the comparison is positive, the actual quality of the service is higher than customer expectations, who assesses the quality at a high level.

$P<O$ - if the difference between the perception of the service and the expectations is negative, the expectations of the service were not met. The negative result of the

analysis points to insufficient customer satisfaction and not meeting his or her expectations.

4. RESULTS

The survey was conducted in November and December 2016. The questionnaire was completed by 240 university students from one of the university course in technology. In order to evaluate the quality of services provided by the university, one should identify the areas which are critical to customers (university students) i.e. those whose level reflects a high/low level of satisfaction.

The questionnaire was composed of three parts. Two first parts contain 22 statements divided into 5 areas/dimensions: Materiality, Reliability, Timeliness, Competence, Empathy. In the first part, students evaluated their expectations concerning each statement on a scale of 1 to 7. In this scale, 1 means "I entirely disagree with this statement", whereas 7 means "I entirely agree with this statement". In the second part, students evaluated their perception of the degree of meeting each statement on a scale of 1 to 7. In the third part, students assigned weights to individual areas. The order of the analysis of the results was as follows:

- For each student surveyed, the difference between actual perception of the level of meeting the service (P) and expectations of the level of quality (O) for each of the five areas and mean result was computed for each area by dividing by the number of respondents.
- Mean unweighted index was computed (1.12).
- The weight for each of the areas was computed based on 100 points divided by the respondents between 5 areas.
- Weighted mean was computed by multiplying means for each area by weights. The weighted index of 0.04 was obtained.

Table 2 presents the statements which were assessed by the respondents and sums of differences between the perception and expectation for each of 22 statements.

Table 2

Statements which were assessed by the respondents

Statements	SERVQUAL
MATERIALITY	O-P
1. Classes are equipped in modern devices	0.12
2. The faculty building looks attractive	0.02
3. Didactic and administrative employees look neatly.	0.16
4. The electronic system helps deal with all the affairs connected with studying	-2.37
Arithmetic mean	-2.07
RELIABILITY	
5. Didactic employees meet deadlines. Classes are according to the schedule.	0.31
6. Students can expect the commitment and understanding of the dean's office employees in solving problems of individual students	0.06
7. Students can count on the lecturer's help in solving a problem	-0.59
8. Curricula are consistent with card of subject matter of teaching	0.43
Arithmetic mean	0.21
TIMELINESS	
9. Didactic employees respond to e-mails quickly	-1.02
10. Tests are checked quickly (deadlines are met)	-0.76

Statements	SERVQUAL
11. Employees are never too busy to respond to student's requests.	-0.8
Arithmetic mean	-2.58
COMPETENCE	
12. Employees care for high level of education.	-0.10
13. Didactic employees are exacting	1.35
14. Didactic employees use adequate (effective) methods of evaluation.	-0.41
15. Didactic staffs are prepared and competent for the classes their teach. Employees offer professional help.	0.16
16. Tests are checked with due care.	-0.08
Arithmetic mean	0.92
EMPATHY	
17. Each student is approached individually by the dean's office employees.	0.06
18. Consultation hours are convenient for students.	0.04
19. WB employees are polite and treat each student with respect.	-0.22
20. Plan is organized so that to ensure good organization of student's work	-0.69
21. Employees do not understand individual student's need (their life-related problems).	-1.26
22. Students believe in goodwill of the lecturer (in their fairness)	-0.02
Arithmetic mean	-2.08

Source: own study

The analysis revealed that total arithmetic measure of SERVQUAL quality of services without taking weights into consideration is:

$$S = \sum R_{mean} / \text{Number of areas} = -1.12 \tag{1}$$

The results obtained are presented in Fig. 1 The analysis of the figure leads to the conclusions that the university exceeded the students' expectations concerning the quality of education in two areas: reliability and competence. The source of this evaluation is the fact that the most of staffs employed for the faculty surveyed has the technical experience acquired as a result of stipends and internship programs and offers professional competence while their classes are full of practical examples. According to the students, the poorest area is timeliness. In this area, the difference between the perception of the services and expectations is 2.5.

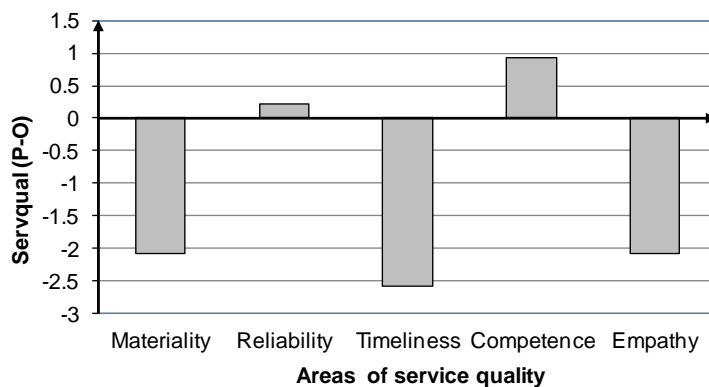


Fig. 1. Results of unweighted assessment in five areas of service quality

Total weighted SERVQUAL (S_w) computed based on the arithmetic mean in each area and the attributed weights (Table 2) is:

$$S_w = \Sigma (P-O) / \text{number of areas} = -0,04 \quad (2)$$

The results were presented in graphical form in Fig. 2.

The material presented in the study shows that the quality of services expected by students is consistent with the quality they experience. With weights assigned, good assessment of competence even exceeded students' expectations. As results from the survey, the students are least satisfied from the areas of timeliness and empathy.

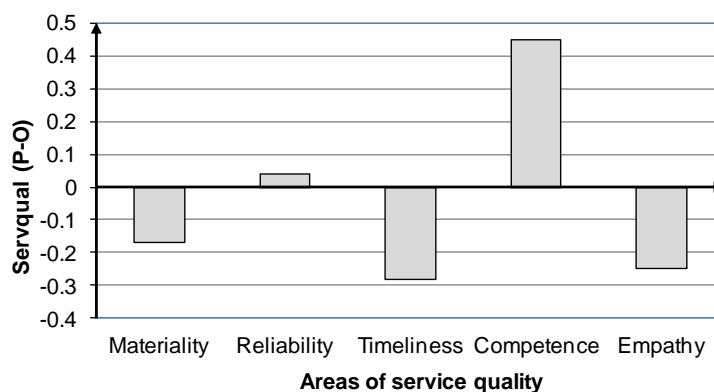


Fig. 2. Results of weighted assessment in five areas of service quality

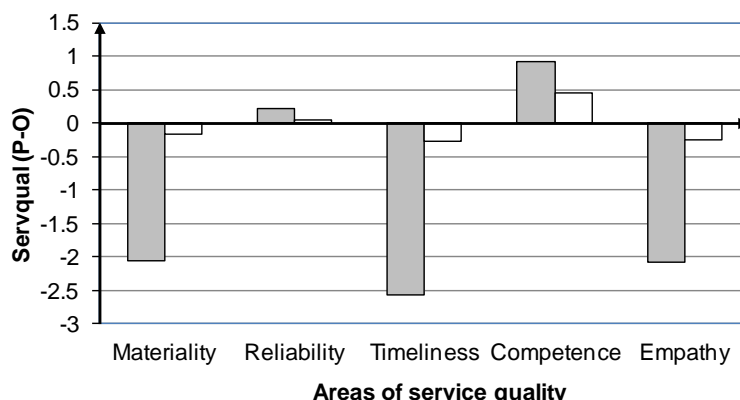


Fig. 3. Comparison of weighted and unweighted indices in individual areas

Analysis of the results shows that the area with best assessment by students was competence. The lowest satisfaction was found for timeliness. In this area, the biggest drawback was lack of quick response to e-mails. The assessment of the Materiality area also can be surprising. The building was thoroughly renovated in 2011 but the students gave poor assessment to this area. Analysis of the individual statement in this area shows, however, that only one in four factors had an effect on this low assessment as other three P-O differences were positive. The result was lowered by the computer software which was aimed to facilitate the university functioning and remains in the implementation phase and does not fully perform its role.

Fig. 4 presents the weights assigned by the respondents to individual areas. As shown in the figure, the most important area is competence, whereas the least important one is materiality.

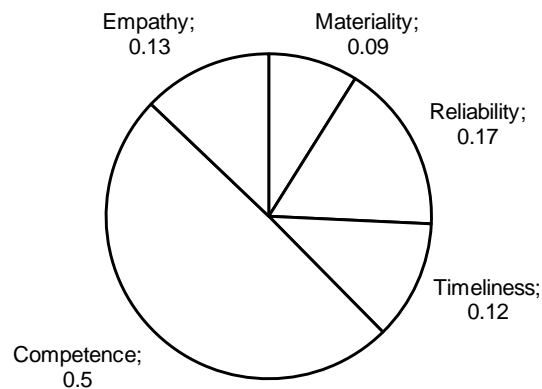


Fig. 4. Structure of mean weights for five areas of service quality

5. CONCLUSION

Analysis of the examinations shows that students are satisfied from the services provided by the university. The result of 0.04 represents a high consistency of the expectations of the services with the perception of the actually provided service. The university can be proud of the fact that the area of competence, which is the most important to students, exceeded their expectations. The area of reliability was also assessed by students as exceeding the expectations. The improvements should be made in timeliness and empathy, which reduce total weighted SERVQUAL.

Universities are not typical service-providing companies and cannot meet all the expectations of the students as not all of them would be good for the university and the students themselves. Nevertheless, in order to educate at a high level, the expectations of the students should be identified. The idea of the SERVQUAL method consists in matching the statement with the specific nature of the services. The questionnaire form should be developed so that it takes into consideration key aspects of the service. Authors plan to continue the research and to use other methods to compare the results presented in this paper.

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