THE SERVICES QUALITY LEVEL ASSESSMENT AT THE TECHNICAL UNIVERSITY USING THE SERVQUAL METHOD

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Highlights

• • *The article refers the results on the technical university service quality analysis*

Abstract

Contemporary universities services quality level concerns mainly the education efficiency evaluation that results from the learning outcomes realization and innovative features of the teaching programs that differs universities offers. Technical universities' attention is focused on ministerial requirements fulfillment which are strictly concentrated on the obtaining of students' skills expected by the employers' market. Analysis of the university services quality ignores common expectations of students and candidates for students related to the technical or functional quality such as university facilities and administrative workers empathy.

The aim of this study is to identify the expectations of both students and candidates for studies at technical universities. This allows identifying a level of the university services quality and areas that needs improvement in terms of not only the educational services but also technical university facilities. Results show significant importance of the all examined service quality aspects in the context of candidates expectations and students' perception. Research findings also support the university development within the scientific research process assistance.

Introduction

Education is one of the key factors, which is the subject of the service quality assessment of contemporary universities. It is a key mission component of each university, what underlines the main component of the university evaluation.

Nowadays, many assessments and rankings of higher education institutions (HEI) and their faculties are published by wide range of agencies and organizations. Due to the higher education globalization, the focus has shifted to worldwide rankings and assessments. University leaders believe that good rankings help to maintain and build institutional position and reputation, students and postgraduates exploit rankings to make a university choice (Furková, 2013).

A very popular and important supporting decision tool seems to be evaluation of HEI. The HEI assessments and rankings provided by wide range of agencies and organizations are based on different ranking systems; different indicators or metrics are used to measure higher education activities.

There are several institutions that measure higher education services quality level with applying of different indicators or metrics. In Poland the agency, which deals with evaluation of the higher education institutions activity results, is the State Accreditation Commission. In Czech Republic, the quality of higher education is fostered by the Accreditation Commission (Urbancová, Urbanec, 2013, Stacho, Urbancová, Stachová, 2013). In Slovak Republic, there are two agencies dealing with assessment and ranking of HEI: Accreditation Commission and Academic Ranking and Rating Agency (Furková, 2013).

The quality of education services at universities is traditionally evaluated by study results of students or their graduates.

Important information for graduates is the percentage of employment on appropriate positions. The results of students can be measured not only by the examination grades but also by subjective satisfaction of students (Vostrá Vydrová, Jindrová, Dömeová, 2012).

Identification of the university services quality needs to verify different definitions and concepts of service quality from the literature. A general definition of the service quality is "the totality of features and characteristics of a service that bears on its ability to satisfy stated or implied needs" (Johnson and Winchell, 1988). Service quality is important to all organizations as it is "regarded as a driver of corporate marketing and financial performance" (Buttle 1996:8). Service quality has been also put forward as a critical determinant of competitiveness (Lewis, 1989) and a source of lasting competitive advantage through service differentiation (Moore, 1987).

LeBlanc and Nguyen (1988: 7-18) have suggested that corporate image, internal organization, physical support of the service producing system, staff-customer interaction, and degree of customers' satisfaction all contribute to service quality. Further, Edvardsson et al. (1989) presented four aspects of quality that affect customers' perceptions: technical quality (skills of service personnel and the design of the service system), integrative quality (the ease with which different portions of the service delivery system work together), functional quality (to include all aspects of the manner in which the service is delivered to the customer, to include style, environment and availability), outcome quality (whether or not actual service product meets

both service standards or specifications and customer needs/ expectations) (Robinson, 1999).

The education services performance in the form of skills and competences gained by students at technical universities results from the tangible and intangible assets. Furthermore, the learning process effectiveness can be influenced by many factors. Students' personalities and qualities can be one of them (Kostolányová, Šarmanová, Takács, 2011, Urbancová, 2012).

However, the technical universities services quality is related to both education and research activity. In the result the university services quality improvement may arise from the different sources related to students' expectations on service quality determinants such as: university facilities, technical conditions (buildings, premises and equipment appropriate for the learning process), teachers and administrative workers competencies, workers empathy, reliability of the offered services, assurance, availability and comfort (Urbancová, 2010).

The aim of the study is to identify students' expectations related to all technical university services and verifying valuable service quality factors that need improvement through identification of the university services quality level. The research model is based on the SERVQUAL method. Research findings are compared with the research findings obtained in the survey conducted among the candidates for technical universities studies (at chosen vocational schools), whose expectations show the other factors improving the university service quality level.

Materials and Methods

Service organizations, which care about quality of services, should recognize the clients' requirements and measure their satisfaction. Results are useful in the process of the organization performance improvement towards a more complete fulfillment of the clients' expectations in the context of the service value analysis. Customers' feedback allows identifying the strengths and weaknesses of the organization (Urbancová, 2012).

Many service quality models have been proposed (Moore, 1987; Heywood-Farmer, 1988; Beddowes, 1988; Nash, 1988; Philip and Hazlett, 1997; Robledo, 2001). The most enduringly popular, widely cited and best researched method of assessing service quality is SERVQUAL (Asubonteng, 1996; Waugh, 2002) developed by Parasuraman et al. (1985, 1988). SERVQUAL method is focused on identifying perceived quality, which is a customer's judgment about the excellence of a service (Zeithaml, 1987).

SERVQUAL methodology is tried and tested methodology primarily within the commercial sector (Kaye, Dyason, 2013). Brysland and Curry (2001) concluded that the literature clearly supported the use of SERVQUAL in the public sector. SERVQUAL has been used successfully in higher education sector research, although these have been limited to Library Services (Broady-Preston and Preston, 1999), undergraduate academic teaching (Hill, 1995) and administration (Galloway, 1998).

SERVQUAL methodology presents the differences (gaps) related to some different levels of expectation and perceptions result from the clients' and the organization point of view (Fig. 1).
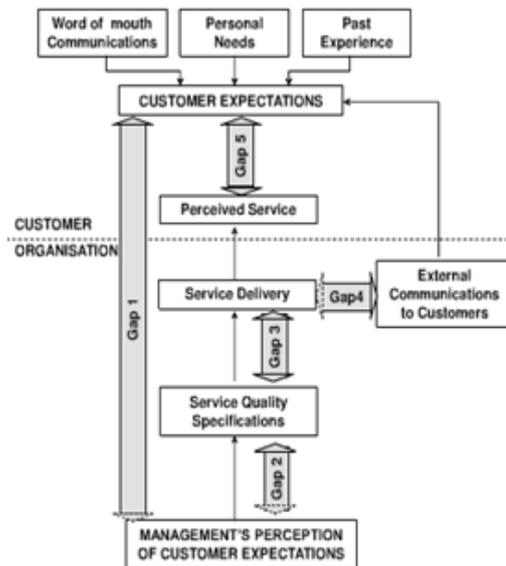

Figure 1: SERVQUAL methodology model (Kaye and Dyason, 2013)

The first gap is created by a difference between the expectation of clients (students) and the perception of these expectations from the service providers' point of view (university and university campus). The source of this difference may be the lack of reliable knowledge about students' expectations resulting from the shortcomings of marketing research, errors in applying of the research results and shortcomings in communicating with students. Improper perception of expectations may be the result of too extensive organizational structure of universities, often resulting in the separation of the senior management workers from the complete set of information on the students' expectations and, consequently taking improper decisions.

The second gap creates a difference between the perception of students' expectations for the service organization and the specification of university services quality. The reason for this gap may be a lack of belief management's ability to meet students' expectations, and the lack of adequate supporting service process in the appropriate research and technical equipment, facilities and adequate procedures. The discrepancies between quality of service specification, and its performance is, according to the authors' model, the third gap. The source of this discrepancy may be such factors as: lack of clarity and conflict roles performed by workers, low-skilled staff, poor technology, and poor selection of employees working in a team, and improper supervision of process control services. Fourth gap results from the difference between the service provision and the process of external communication with the students. In practice, there is often a disproportion between service sellers' promises, implementation of services and fulfillment of promises made earlier by service provider (technical university). All differences, discussed consequently, form a key gap between the expected service and the received service, which determines the university service quality perceived by students. It could be argued that the foundation for the realization of a satisfactory service is the student's precise knowledge of his/her expectations and skillful processing of these expectations on the aims and objectives of a service organization.

The fifth gap in the SERVQUAL methodology model consists in measuring the customer's satisfaction as a numerical value. The concept is implemented on the basis of surveys concerning

desirable features that should characterize the perfect service and the customer's satisfaction degree. This method allows determining the difference between the expected and the resulting quality for the studied population of consumers. The method is based on the five dimensions of service quality, which determine the client's perception of the organization: the material dimension, reliability, willingness to cooperate, assurance and empathy. In order to establish the service quality level, there should be established the difference between client's expectations regarding service level and the client's perception of the service provided by a particular organization.

Condition of the student's satisfaction is a subjective feeling that is identified individually by every human's experience and emotion. It reflects the feeling of satisfaction with unfulfilled expectations of a student as a result of the acquisition of a particular service. I should be emphasized that the perception of student's satisfaction is closely associated with the experience of his/her positive impressions. Students' (clients') satisfaction is a reflection of the extent to which the overall product offered by the organization meets a set of students' requirements.

In this context, the service quality function is expressed as the function of students' perceptions (P) and the future students' expectations with regard to all technical university services (E):

$$Q=f (P-E) \qquad (1)$$

Students' expectations and their perception level in relation to services offered by technical university were analyzed by statements including five service quality criteria (dimensions of the clients'/students' expectations and their perceptions):

- Tangibles. Appearance of physical facilities, equipment, personnel and communication materials.
- Reliability. Ability to perform the promised service dependably and accurately.
- Responsiveness. Willingness to help clients/students and provide prompt service.
- Assurance. Knowledge and courtesy of employees and their ability to convey trust and confidence.
- Empathy. Caring, individualized attention the organization provided to clients/students.

The whole basis and the value of the SERVQUAL methodology lays in the relevance of the statements. The questions are normally derived from the conversation with students. The value of the mentioned research method is in developing the statements interactively with the sample population. The statements chosen for the research study (Table 1) result from the analysis of all service quality aspects that considers technical university services in all aspects affecting students' perceptions and expectations of candidates for studies (technical quality, integrative quality, functional quality, outcome quality) in relation to students' and teachers' expectations, feelings and experiences that were identified in the process of the pilot survey (as a part of presented study).

The survey includes statements based on the following attributes of the technical university services such as: university indoor, equipment, dormitory conditions, courtesy and the staff, ability to provide the desired services in a reliable, accurate and consistent way, image, or reputation of an institution providing education services. Some of these features are called "hard service elements" (e.g. equipment) that are easily affected by objectification and thus allows setting acceptable standards for students. Evaluation of the service implementation process is the more difficult the more it is personified. In this situation, the

qualitative characteristics of services are not assessed primarily through the prism of these "hard elements" but characteristics are assessed by elements such as: individual feelings, sensations, moods, emotions and experience. The service quality assessment performed by the service provider (university) can be different than the evaluation of the same services performed by client (student).

The survey statements investigating the quality level of services provided by chosen technical university		
1.	Recruitment process at the university is efficient and well-organized.	1 2 3 4 5 6 7
2.	Staff recruiting candidates for the university is polite in relation to the prospective student.	1 2 3 4 5 6 7
3.	Parking availability.	1 2 3 4 5 6 7
4.	External appearance of the university buildings and offices.	1 2 3 4 5 6 7
5.	Internal appearance of the university buildings and offices.	1 2 3 4 5 6 7
6.	Marking indoor enables efficient movement inside and outside the university buildings.	1 2 3 4 5 6 7
7.	University lecturers have appropriate knowledge and skills.	1 2 3 4 5 6 7
8.	The university has modern equipment for research and well-equipped laboratories.	1 2 3 4 5 6 7
9.	University staff cares about the cleanliness and safety.	1 2 3 4 5 6 7
10.	The meals served in the cafeteria and students canteen are appropriate (portion size, temperature, taste).	1 2 3 4 5 6 7
11.	Price of external services available on the campus (cafeteria, bookstores, photo-copying) is adequate for their quality.	1 2 3 4 5 6 7
12.	Opening hours of students offices are convenient for the students.	1 2 3 4 5 6 7
13.	Teaching staff in relation to students is friendly and attentive.	1 2 3 4 5 6 7
14.	A student can always rely on help from the teachers.	1 2 3 4 5 6 7
15.	Price of tuition is adequate to acquired skills.	1 2 3 4 5 6 7
16.	Exams dates are convenient for students.	1 2 3 4 5 6 7
17.	Extramural classes schedule are convenient for students.	1 2 3 4 5 6 7

Table 1: Statements characterizing the technical university services quality for students included in the survey

There was applied the scale of Likert $(1 - 7)$ to rate the service quality level in relation to respondents' expectations and performance by asking students with using the set of questions on attributes that reflect mentioned quality dimensions (Table 1) (Parasuraman, Zeithaml, Berry, 1988).

Respondents/students of technical university were asked to assess the importance degree in terms of the university service quality, and then to identify which factor has met their expectations as a result of the technical university services. The seven point scale (scale of Likert) was applied, where the number 1 (in the case of a survey of students' expectations) - indicates not very important factor and 7 - a very important factor. However, in the case of survey, the number 1 means a very low factor assessment carried out by the service provider (university), and 7 - very high rating of a given factor.

The seven point scale allows identifying the most (1) and the least (7) importance degree considered as the most important results of the study which are significant in the research final conclusion. There were also the average importance levels (2 – 6), that were identified as the second important study results, because of the service quality level improvement.

Scope of the survey group consists of 3000 students of technical universities (65% of men and 35% of women) and 200 high school graduates (40% of men and 60% of women) who want to study at a technical university. The selection of respondents to the study group had a random and accidental character (survey group was gathered on the University Open Day at chosen technical universities). The response percentage was 80% of the survey group.

Results and Discussion

Research results in Table 2 show results that correspond to the fifth difference described in the SERVQUAL methodology model.

Analysis of research results (Table 2) show that students' expectations (ideas) on particular areas affecting the technical university services quality are not fully met in relation to candidates' expectations (in 85%) as to present and future students (result Q = P - E). The biggest difference between the average value of the expected and experienced service can be seen on issues relating to the parking availability (-5.25) and opening hours of students offices (-2.65). The other great difference identified between the students' expectations and their experience concerns a doubt about the skills and knowledge of the teaching staff (-2.35).

The significant gap was identified also in the dimension of the price of tuition that is not adequate to acquired skills (-1.9). In the case of questions concerning the purity and safety, the assessment of the facts made by the students don't exceed expectations of future students' ideas (-1.6).

Expectations of the future students' group (candidates for studies) have been exceed in terms of the canteen meals quality (0.2) and the meal price (0.75).

Expectations of the future students have been outperformed with regard to the external appearance of the universities' buildings (-0.4) and the internal appearance (-1.05), which are related to the marking indoor enables efficient movement inside and outside the universities' buildings. Research findings on this part of the study have shown that students' expectations exceed their perception level (-1.4). Expectations were not met also with regard to organization of the recruitment process at universities (-0.8) and treatment of the candidates for study in the recruitment process (-1.25). Expectations have not been met also in terms of the modern research and laboratory equipment that should be aimed at students' qualifications improvement (-0.5). The important service quality area that was low rated (the exam terms: -1.65) doesn't meet students' expectations (-1.55).

One of the most important elements of the research findings analysis is detailed examination of the candidates' opinions with regard to services offered by technical university (Fig. 2).
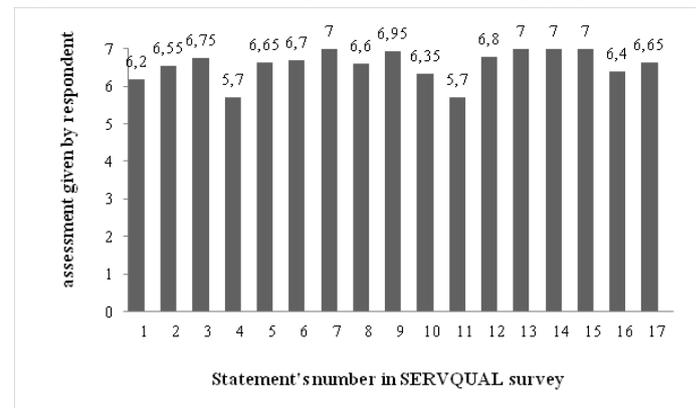

Figure 2: The technical university service quality level (E) expected by future students of technical university (candidates)

Research findings presented in Figure 2 show that in the opinion of candidates for studies at technical university the most important elements taken into consideration during the decision process on the university choice concern the university lecturers' knowledge and skills and teachers' empathy (the readiness to provide assistance to students). The least important factors that affect on the candidates choice are associated with external appearance of the university buildings and the price of external services available on the campus. It means that the great role in the candidates' choice of the university belongs to knowledge offered by the every single technical university.

Opinions of current students (Fig. 3) are useful in the process of comparison of candidates' expectations and students experience. This comparison is used in the identification of the services areas which need improvement. Results of the current students survey confirm partly candidates' expectations concerning technical infrastructure as the element of well – equipped laboratories. This element is supportive element in the process of a knowledge transfer, what also result in the students' skills improvement and teachers' scientific research process realization. Obtained research findings show also that, in the contrast to candidates' opinions, the most important elements of good university services are associated with technical infrastructure of the university related to the external services (bookstores, cafeteria, photocopying, and parking).

Statement's number in the survey questionnaire	The survey part investigating perceived service quality level by the current students of technical university (P)	The survey part investigating expected service quality level by the future students of technical university (E)	Quality level (Q = P – E)
1	5.4	6.2	-0.8
2	5.3	6.55	-1.25
3	1.5	6.75	-5.25
4	5.3	5.7	-0.4
5	5.6	6.65	-1.05
6	5.3	6.7	-1.4
7	4.65	7.0	-2.35
8	6.1	6.6	-0.5
9	5.35	6.95	-1.6
10	6.55	6.35	0.2
11	6.45	5.7	0.75
12	4.15	6.8	-2.65
13	5.35	7.0	-1.65
14	5.75	7.0	-1.24
15	5.1	7.0	-1.9
16	5.9	6.4	-0.5
17	5.1	6.65	-1.55

Table 2: Average quality level values on the expectations of candidates for technical university and the service quality level perceived by current technical university students
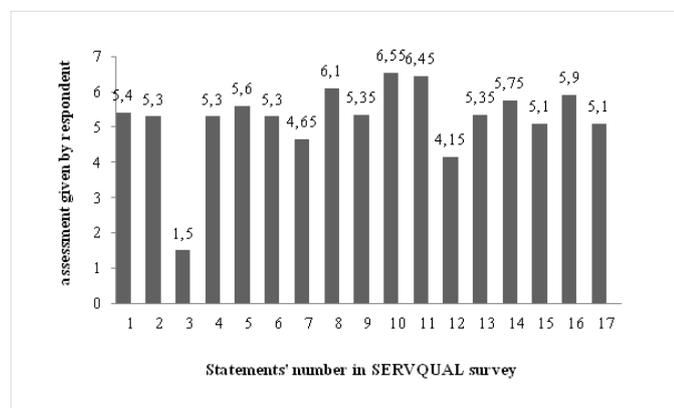
Figure 3: The technical university service quality level (P) perceived by current students of technical university

The underlying question to be addressed in the presented research results is also if the given results of the survey contribute the other gaps (1-4) mentioned in SERVQUAL model (Fig. 1)?

The first answer on the question related to the chosen research methodology (SERVQUAL) and the gap chosen to analyze is the identification of the correlation between gap 1 (difference between customers' expectations and management's perception of customer expectations) and the research result on the analyzed gap 5. In the analyzed survey case, the candidates' opinions gave some guidelines on the areas that should be well prepared in accordance to future students' needs. It is also an information source that should be compared with the students' opinions in the final stage of the service quality level assessment.

Managers and teachers of technical universities consider, in the learning outcomes analysis, what is the crucial element in the university services that create appropriate (expected by the ministry and the employers market) graduates skills and knowledge. The answer can be obtained by the fifth gap research survey results analyzed in the context of service quality specification delivered by ministry of higher education and common employers.

Current students' opinions can be used in the process of the comparison of service delivery process results and service quality specification (gap 3) what is supported by fourth gap concerning external communication with students.

Analysis of the all gaps in the context of obtained research results in SERVQUAL analysis helps with the identification of the weak and strength aspects of the technical university activity with regard to students, future candidates, ministry requirements and employers as well.

Conclusion

The main conclusion of the research results analysis concerns identifying factors that play the great role in the university education process improvement within the service process. In order to receive the appropriate level of the service quality, taking into account the students' satisfaction, the process of creating university services quality should be properly managed. An important function of the university services management, which is the basis for the service quality improvement, is the evaluation and the control, what can be supported by methodology presented in the article. The specificity of tuition services at technical universities, indeed, and other intangible services, is the difficulty of defining clear service quality, and hence determining a clear methodology for its evaluation. SERVQUAL method, as the answer for the university services quality level evaluation, takes into consideration all aspects

of the technical university services and actions related to the ministerial requirements.

The majority of the universities are focused on the opinions of current students and graduates in the process of the service quality assessment. It can be very useful source of information in the service process improvement, but it can give only the answer to the one aspect of the services quality level evaluation since the crucial aspect of the SERVQUAL methodology is comparison of future students' expectations and students' experiences. An important determinant of the quality of teaching services is undoubtedly satisfied students whose experiences are compared to their expectations. SERVQUAL method is an useful tool of expectations and perception measurement.

The one of the most important issues mentioned in the survey, that was low-rated, is technical infrastructure of the technical university that supports realization of the teaching process and ensures students with skill and qualifications. The well-equipped laboratories can be a source of both students' and teachers' skills development and can result in the university research progress. Results of technical infrastructure evaluation compared with results of the education process evaluation, what was done by students, can result in the identifying direction of the research and education processes improvement.

Acknowledgements

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