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AN EMPIRICAL ASSESSMENT OF THE APPLICABILITY OF SERVQUAL FRAMEWORK IN HIGHER EDUCATION SETTING *

Abstract: *The paper addresses the issue of higher education service quality measurement and stresses the need for both psychometrically and practically sound measurement instruments. The main objective of the study is to explore the suitability of SERVQUAL, generic multiple-item scale, within the context of higher education. Reliability and validity of the scale are tested on a sample of Engineering Management students. The findings indicate that the SERVQUAL framework is suitable for service quality evaluation in higher education setting. In order to encourage further interests on the subject, some managerial implications are highlighted and directions for future research are suggested.*
Keywords: *higher education, service quality, SERVQUAL framework*

1. INTRODUCTION

In the past two decades service companies have started to realize what their manufacturing counterparts had already realized, i.e. that they are in a competitive battle for customers who increasingly seek quality in market offerings and that the quality won't improve unless it is measured. The same applies to higher education institutions. Market forces are increasingly influencing higher education sector. Internationalization of educational services and thus competitive forces coming even outside the national borders, reduction in state funding together with rising proportion of fee-paying students and their greater consumer demands are posing pressures on higher education institutions to provide quality educational experience for all students [10,29]. Although students financing increasing proportion of the costs of education might be treated as primary beneficiaries of higher education, there are also other stakeholders to whom tertiary educations are responsible. Educational institutions being predominantly financed by governments out of taxation system must also seek to address the interests of governments, current and potential employers, local communities and society in general. All of these stakeholders are concerned with the end product of educational system, i.e. the quality of its graduates [24].

Tertiary educators worldwide are being called to take responsibility for the quality of education they provide. In order for higher educators to address the calls various quality indicators have been proposed. Although easily understandable performance indicators such as absolute number of students and educators, people and space ratios etc. may be necessary preconditions for provision of educational

services, they certainly fail to measure the quality of higher education services [26]. While the consensus on the importance of higher education service quality measurement and improvement has been reached, identification and implementation of appropriate measurement instruments is still a challenge for academics and practitioners alike.

Since education is a service industry and thus exhibit all of the classical service features, there is some merit in implementation of service quality measurement instruments within the context of higher education. Thus present study builds upon SERVQUAL scale, tried and tested instrument designed to be applicable across a wide range of services. After a brief discussion of the main service characteristics and service quality conceptions, reliability and dimensionality of SERVQUAL approach within higher education context will be investigated. Results of the study and its limitations will be followed by arising managerial implications. Some directions for future research will be also given.

2. CONCEPTUAL BACKGROUND

2.1 Unique Characteristics of Services

Comprehensive understanding of service quality construct calls for thorough consideration of intrinsic nature of services. Most people have some idea of the meaning of the term goods. These are tangible economic products, things and objects capable of being seen or touched, whereas understanding of services in not that clear. Unlike material goods services are acts, deeds and performances [23]. Intangibility, inseparability of production and consumption, heterogeneity and perishability are considered unique characteristics of services which separate them from tangible goods [30]. Services are rendered and experienced. Due to intangibility, they cannot be stored on a shelf, touched, tried on for size or tested in advance of sale to assure quality [25]. Simultaneous production and consumption characterize most services. As a consequence, quality occurs during a service delivery and in labour intensive services quality is affected not only by the acts of service providers, but is also highly affected by service customers' behavior. Heterogeneity refers to the potential for high variability in the essence and performance of services. The higher the labour intensity, the higher the potential for variability [30]. Since services are acts and processes they cannot be inventoried and saved for the future time. Thus hotel rooms not occupied and airline seats not sold represent lost revenues for service providers [23]. Higher education, being a service industry, exhibit all the classical features of services. It is both intangible and heterogeneous and meets the criterion of inseparability of consumption and production. Despite the advent of new technology higher education services are still mostly perishable [18,15]. Unique characteristics of services pose specific challenges for service providers. Conceptualization, measurement and improvement of service quality are among pivotal concerns of service businesses.

2.2 The Origins of Service Quality Theory

Service quality is said to be the most studied topic in the Service Marketing literature [4]. Efforts to comprehend, measure and improve service quality have been undertaken since 1980s. Numerous positive consequences of the quality had already been discovered in the area of material goods. According to Garvin's PIMS study, superior quality yields more than three times higher return on investments in comparison with inferior product quality and higher market share gains, which makes quality improvement a

profitable activity [11]. Due to rising contribution of service industries to Gross domestic product of western economies service quality has gained the status of pivotal concern of academic and business communities worldwide.

The conceptualization and measurement of service quality have been the most disputed issues among researchers to date. Researchers have generally adopted one of the two most widely known perspectives on service quality. The first one is the Nordic perspective on service quality. According to its representative, Christian Gronroos, service quality is a three-dimensional construct, whereby customers' perceptions of service quality are based on technical quality (i.e. what has been provided), functional quality (i.e. the way it has been provided) and corporate image, which serves as a sort of perceptual lens through which customers' perceptions of technical and functional quality are filtered [12]. The second one is the so called North-American perspective. Being influenced by the Nordic perspective, its representatives Parasuraman, Zeithaml and Berry claimed that service quality evaluations were not made solely on the outcome of a service, but that they also involved evaluations of the service delivery process [19]. Although Parasuraman et al. initially acknowledged the importance of outcome quality, it is interesting to note that SERVQUAL scale which originated within American school of thought does not include any measure of technical quality. The common ground of both conceptualizations is the disconfirmation paradigm and the notion that perceived service quality results from the comparison of perceived with expected performance. In spite of a comprehensive nature of Nordic conceptualization, American perspective has clearly dominated the literature [16]. Common agreement among the researchers as to the nature and content of service quality dimensions has not been reached yet, but they generally agree that service quality is a multidimensional or multi-attribute construct.

2.3 The North-American Perspective

Due to unique characteristics of services, service quality is an elusive and indistinct construct which is very difficult to define and measure. Service quality is the customer's judgement or attitude relating to the superiority of service provider's offering. It differs from objective quality. Due to the lack of objective measures, an appropriate approach for service quality assessment is to measure customers' perceptions of quality [20]. In order to gain deeper insights of the construct Parasuraman et al. [19] conducted an extensive exploratory investigation in four service businesses. On the basis of focus group discussions with service customers and in-depth interviews with service companies' executives Parasuraman et al. developed The gap model of service quality. Responses collected during the investigation revealed major hurdles which may prevent delivery of high quality service. There are four gaps on service provider's side. Gap 1 refers to the discrepancy between customers' expectations and management perceptions of those expectations. Gap 2 refers to the discrepancy between management perceptions and service quality specificications. Gap 3 refers to the discrepancy between service quality specifications and actual service delivery whereas Gap 4 refers to the discrepancy between external communications and actual service delivery. Previously mentioned gaps which are the responsibility of service company management ultimately lead to what was denoted as Gap 5. i.e. the discrepancy between customers' expectations and perceived service performances.

According to the Gap model of service quality exceeding customer expectations is the key to high quality service. Responses collected during focus group discussions revealed that customers generally used similar criteria in service quality evaluations. Determinants of service quality, discovered during the qualitative study, that transcended different types of services were reliability, responsiveness, competence, access, courtesy, communication, credibility, security, understanding/knowing the customer and tangibles. In the subsequent research conducted by Parasuraman et al. [20] 97-item scale concerning ten potentially overlapping dimensions of service quality, was condensed into a more parsimonious 22-statement expectations scale followed by 22-item perceptions scale, called SERVQUAL. Scale purification on the basis of reliability and factor analyses yielded five-dimensional structure. The description and content of service quality dimensions is as follows [20]:

Tangibles: Physical facilities, equipment and appearance of personnel

Reliability: Ability to perform the promised service dependably and accurately

Responsiveness: Willingness to help customers and provide prompt service

Assurance: Knowledge and courtesy of employees and their ability to inspire trust and confidence

Empathy: Caring, individualized attention the firm provides its customers

According to Parasuraman et al. [20,21] SERVQUAL is a concise and psychometrically sound measurement scale designed to be applicable across a broad range of service industries. In the study conducted by Carman [6] on a sample of clients of dental school patent clinic, business school placement center, tire store and hospital five-dimensional structure was not confirmed. Dimensions of service quality ranged between six to nine, depending on a context. Finn and Lamb [9] on four samples of retail customers discovered poor model fit of five-dimensional structure. According to the authors SERVQUAL scale might not be an appropriate measurement instrument for service settings which are different than those in which the scale was developed and refined, i.e. appliance repair and maintinance, retail banking, long distance telephone services and credit cards. On a sample of clients of an electric and gas utility company Babakus and Boller [2] discovered a poor model fit of five-dimensional structure and questioned the suitability of SERVQUAL scale for service quality measurement across a wide spectrum of services. Exploratory factor analysis conducted by Lam [17] on a sample of patients attending a two-day seminar in Hong Kong yielded one factor accounting for the most of the variation in item scores. According to the author scale items that define service quality might be different in another cultural context or scale items defined in one particular industry might be different from those of another industry. Testing the SERVQUAL scale in a business-to-business context Durvasula et al. [8] discovered only a weak support for five-dimensional structure of service quality. Whereas in previously mentioned studies reliability of the SERVQUAL scale was not a major point of dispute among researchers, Zhao et al. [31] on a sample of customers of department store in Northern China discovered that three out of five service quality dimensions had reliability scores below 0.60, which is the minimum acceptable value, even for exploratory research. Although SERVQUAL has generated considerable interest in service quality measurement, its five-dimensional structure and general applicability across service industries has nonetheless been questioned. Due to the fact that SERVQUAL's applicability has been

unresearched area in local cultural context as well as in higher education setting, present study focuses on its suitability for higher education service quality measurement in Serbia.

3. RESEARCH METHODOLOGY AND RESULTS

3.1 Sample and Data Collection

Sample comprised students attending undergraduate course in Engineering Management at Technical faculty in Bor. Data were collected by means of a structured questionnaire. The original version of SERVQUAL scale was first translated into Serbian by one of the researchers and then translated back into English by other researchers to ensure that the meaning of scale items was not changed due to translation. Prior to administration of the survey on a large scale focus group discussions with students and teachning staff were conducted with the aim of adapting SERVQUAL scale to higher education setting. During the qualitative phase of the study several suggestions emerged and consequently some items were reworded to avoid confusion. Pilot testing through focus group discussions confirmed face validity of the scale. The questionnaire included two sets of 22-items relating to students' expectations and perceived performances. Besides service quality attributes respondents were asked to indicate their behavioral intentions, i.e. how likely they were to recommend Technical faculty in Bor to their family members and friends, if they were facing the decision of choosing higher education service provider. Students' responses were collected on a 7-point Likert-type scale ranging from Strongly disagree (1) to Strongly agree (7) with no verbal labels for the points between opposite poles of the scale. In order to get as representative a sample as possible students of all years of study were targeted. Permission was sought from teaching staff to utilize fifteen minutes of their lecture time to explain the purpose of the study and persuade students to take part in the survey. Respondents were asked to fill out the questionnaires in the presence of the administrators and hand them back upon completion. Participation in the study that was entirely voluntary and anonymous together with described personal touch resulted in high response rate. In total, 234 usable responses were received. Statistical Package for the Social Sciences, version 18.0, was used for data analyses.

3.2 Reliability assessment

Service quality is an abstruse and abstract construct that is arduous to define and measure [27]. It is a global judgment or attitude relating to the superiority of service [20]. Abstract psychological constructs, such as intelligence and attitude, are latent constructs and as such cannot be measured directly. Thus, researchers interested in the measurement of latent constructs are faced with the challenge of choosing appropriate statements representing presence or level of the variable in question. Dealing with latent constructs necessarily invokes reliability checks. Reliability refers to the extent to which a set of variables is consistent in what it is intended to measure. One of the most widely used reliability statistics today is Cronbach's alpha [21] [5]. Widely accepted cut-off value of Cronbach's alpha coefficient is 0,70 in social science studies, although lower values, such as 0,60 are deemed acceptable in exploratory research [13].

To determine the extent to which items making up dimensions of service quality shared a common core, internal consistency analysis was performed separately for each of the five dimensions of SERVQUAL. As the framework is

based on disconfirmation paradigm, difference scores (P-E) were used as raw data in the analysis. Diagonal elements of multitrait matrix presented in Figure 2 consist of reliability coefficients associated with the five dimensions of service quality. The values of coefficient alpha ranging from .631 to .741 indicate acceptable level of reliability. Internal consistency is an indispensable, but insufficient condition for construct validity [14], which has been among major concerns of researchers interested in the application of SERVQUAL scale, since numerous studies have questioned the dimensionality of service quality construct and thus construct validity of the scale.

3.3 Validity assessment

In order to explore the dimensionality of modified SERVQUAL scale factor analysis was performed. The analysis seeks to discover whether larger number of observed variables can be explained by smaller number of factors. Principal components analysis with varimax rotation was performed on difference scores, derived from perception and expectation scores, collected on a sample of Engineering Management students. Absolute values of factor loadings lower than 0.33 were supressed and only factors with eigenvalues higher than one were consider significant. The analysis yielded five factors which account for 56 per cent in the variation of the data. Factor analysis and associated statistics, presented in Figure 1, reveal that five factors emerged as dimensions of higher education service quality, thus confirming five-dimensional structure of service quality construct. Component matrix reveals certain overlapping of service quality dimensions. However, this solution is expected, since service quality dimensions are interrelated. The findings of Parasuraman et al. [21,22] in several service industries also reveal considerable interdimensional overlap, especially among assurance, responsiveness and empathy (Parasuraman et al. 1991, 1994). According to the originators of SERVQUAL scale, notwithstanding unquestionable diagnostic value of difference scores, they might prove problematic in multivariate analysis.

Thus, construct validity of modified SERVQUAL approach, which relates to the extent to which an operationalization measures the construct it is supposed to measure [3] was aslo examined through multitrait matrix, presented in Figure 2. Cross-construct correlations, i.e. correlations between behavioral intentions and service quality dimensions, which are uniformly lower than within-construct correlations are evidence in support of discriminant and convergent validity, and hence construct validity.

	Component				
	1	2	3	4	5
A3			,390		
A1	,499				,580
A2		,423			,597
A4					,756
Rs4			,499		
Rs1			,771		
Rs2		,642			
Rs3		,522			
E3			,478		
E1	,601				
E2				,793	
E4				,694	,356
E5				,642	
Rl4			,785		
Rl2		,680			
Rl3	,364	,367			
Rl1		,518		,339	
Rl5		,493		,415	
T2	,784				
T3		,683			
T1	,739				
T4	,715				
Eigenv.	2,977	2,878	2,335	2,125	2,011
% of Variance	13,53	13,08	10,62	9,66	9,14
Cumulative %	13,53	26,61	37,23	46,89	56,03

Figure 1 – Rotated component matrix

	Ass	Resp	Emp	Rel	Tan	BI
Ass	(,632)					
Resp	,586	(,631)				
Emp	,551	,554	(,680)			
Rel	,521	,702	,595	(,672)		
Tan	,543	,391	,494	,546	(,741)	
BI	,189	,152	,176	,122	,147	-

Figure 2 – Multitrait matrix

Correlations are significant at the 0,01 level (2-tailed)

4. DISCUSSION

Although it is generally agreed that service quality is a multidimensional construct, how best to conceptualize and operationalize the construct are still the issues of fierce debate. From the moment of its publication SERVQUAL scale has gained immense popularity. Notwithstanding the fact that the scale has been replicated in a wide variety of service industries, its reliability and applicability in diverse cultural environments and service settings have been vastly questioned. Therefore the main objective of this study was to assess SERVQUAL's applicability in higher education setting in Serbia. Research conducted on a sample of undergraduate students attending Engineering Management course at Technical faculty in Bor yielded five dimensions of higher education service quality. Although the attributes did not completely load as expected, a plausible explanation for the factor structure could be similarity in respondents' ratings of scale items pertaining to different dimensions.

In spite of thorough procedure, the study does have several limitations. The main limitation of the study is the size and scope of its sample. Undertaking research on a convenience sample of students recruited from one institution does not provide generalizable results. Acting on the basis of the study findings calls for their replication on broader and more representative samples of student population. This study concentrated on student population only. Although it has been recognized that higher education as a service industry has various stakeholders, such a broad perspective is beyond the scope of this paper. A few additional points are also worthy of comment.

It should not be overlooked that the iterative procedure used in the development of SERVQUAL scale retained only those items that turned out to be relevant for all service businesses included in the study [20]. Thus the items of relevance to some, but not all services might have been excluded from further examination. Therefore, although SERVQUAL can be applied as a useful benchmarking tool across variety of service businesses, its adaptation to suit specific service settings would be advantageous to service providers seeking to improve perceived service quality. Moreover it is worth noting that the qualitative stage of the study revealed certain attributes of importance to students' evaluations of higher education service quality not previously included in the scale. Focus group discussions disclosed administrative service quality and some broader aspects of servicescapes, not covered by the tangibles dimension, as additional determinants of higher education service quality. According to Parasuraman et al. [21] SERVQUAL is the basic skeleton and a useful starting point for assessing and improving service quality. Therefore, adding some “flesh“ to the skeleton would be justified. The idea that higher education service quality should not be confined solely on the experiences that take place within the classrooms, but that non-academic aspects of educational experience should be addressed too, has been also supported by several authors [1,29,7]. However, by no means should the inclusion of additional items understate the importance of thorough validity assessment of newly

emerged measurement instrument. Provided that psychometric soundness of the scale is supported, future studies should employ the instrument periodically, for tracking trends in higher education service quality and uncovering strengths and shortfalls along service quality dimensions.

High perceived service quality leads to student satisfaction. Satisfied students are inclined to return to the university by enrolling higher level studies and attract new students by spreading positive word-of-mouth [28]. In order to compete successfully within European Higher Education Area, Serbian academic institutions will have to take due care of higher education service quality measurement and improvement. This study is among the first studies to examine validity of service quality measurement instrument within higher education setting in Serbian cultural context. Whilst it provides a much overdue initial step, further research in this area would be invaluable.

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