

**First scientific conference**



**ECIN 2016: INTERNATIONAL ECONOMICS AND  
MANAGEMENT CONFERENCE**

**Thematic Proceedings**

**Belgrade, September 2016**



**Publisher**

Economics Institute, Serbia

**Organizing Committee**

Jelena Cvijović, PhD

Marija Reljić, MSc

**Members of the Program Committee**

Ackovska Marija, PhD, Institute of Economics, Skopje, Macedonia  
Alihodžić Almir, PhD, University of Zenica, Faculty of Economics, Zenica, Bosnia and Herzegovina  
Andrei Jean, PhD, Petroleum-Gas University of Ploiesti, Faculty of Economic Sciences, Ploiesti, Romania  
Bajec Jurij, PhD, University of Belgrade, Faculty of Economics, Belgrade, Serbia  
Boko Haris, PhD, Energetics Institute "Hrvoje Požar", Zagreb, Croatia  
Filipović Jovan, PhD, University of Belgrade, Faculty of Organizational Sciences, Belgrade, Serbia  
Filipović Sanja, PhD, Economics Institute, Belgrade, Serbia  
Garača Željko, PhD, University of Split, Faculty of Economics, Split, Croatia  
Jeremić Veljko, PhD, University of Belgrade, Faculty of Organizational Sciences, Belgrade, Serbia  
Jovanović Slobodanka, PhD, Economics Institute, Belgrade, Serbia  
Knežević Miloš, PhD, University of Montenegro, Faculty of Civil Engineering, Podgorica, Montenegro  
Kokeza Gordana, PhD, University of Belgrade, Faculty of Technology and Metallurgy, Belgrade, Serbia  
Kostić – Stanković Milica, PhD, University of Belgrade, Faculty of Organizational Sciences, Belgrade, Serbia  
Lončar Dragan, PhD, University of Belgrade, Faculty of Economics, Belgrade, Serbia  
Macura Perica, PhD, University of Banja Luka, Faculty of Economics Banja Luka, Bosnia and Herzegovina  
Mastilović Jasna, PhD, Institute for Food Technology, Belgrade, Serbia  
Mencinger Jože, PhD, University of Ljubljana, Faculty of Law, Slovenia  
Mihic Marko, PhD, University of Belgrade, Faculty of Organizational Sciences, Belgrade, Serbia  
Nikolić Ivan, PhD, Economics Institute, Belgrade, Serbia, Chair  
Ognjanov Galjina, PhD, University of Belgrade, Faculty of Economics, Belgrade, Serbia  
Rajić Tamara, PhD, Economics Institute, Belgrade, Serbia  
Rakita Branko, PhD, University of Belgrade, Faculty of Economics, Belgrade, Serbia  
Ševarlić Miladin, PhD, Economics Institute, Belgrade, Serbia  
Štavljanin Velimir, PhD, University of Belgrade, Faculty of Organizational Sciences, Belgrade, Serbia  
Veljović Sonja, PhD, Economics Institute, Belgrade, Serbia  
Verbič Miroslav, PhD, University of Ljubljana, Faculty of Economics and Institute for Economic Research, Ljubljana, Slovenia  
Vujović Slavoljub, PhD, Belgrade Business School, Belgrade, Serbia  
Vukmirović Nikola, PhD, University of Banja Luka, Faculty of Economics  
Zubović Jovan, PhD, Institute of Economic Sciences, Belgrade, Serbia

**Supported by**

Ministry of education, science and technological development of Serbia

**Printed by**

Čigoja, Belgrade, circulation 70

**Editorial office and administration**

16 Kralja Milana Street, Belgrade, Serbia, [ecinconference2016@ecinst.org.rs](mailto:ecinconference2016@ecinst.org.rs)



## CONTENTS

<b>Economy and Finances</b>	<b>7</b>
<b>Almir Alihodžić</b>	
<i>Possibility of application of the Fama-French model in the capital market of the Republic of Serbia</i>	9
<b>Tatjana Brankov, Koviljko Lovre</b>	
<i>Fairtrade products- supply and demand</i>	19
<b>Darko Lazarov, Mitko Kocovski</b>	
<i>Empirical analysis of Macedonian export structure: the role of metal industry</i>	23
<b>Miloš Dobrojević, Sanja Cvetković, Jelena Vuksanović</b>	
<i>Cost-effective e-government solution for the Municipalities in Bosnia and Herzegovina</i>	31
<b>Sanja Filipović, Marija Reljić</b>	
<i>Preconditions for defining an efficient and effective public policies</i>	37
<b>Davor Petrić</b>	
<i>EU energy diplomacy in the Western Balkans: A story of the Energy Community Treaty</i>	47
<b>Ljiljana Pejin-Stokić, Ivan Nikolić</b>	
<i>Health care financing in Serbia - some issues and challenges</i>	53
<b>Filip Dimitrov, Borjana Mirjanić, Miodrag Paspalj</b>	
<i>Financial instruments for risk management compound options</i>	59
<b>Jurica Brajković, Igor Novko</b>	
<i>Allocation of costs in cogeneration facilities - implications for investment</i>	65
<b>Sanja Filipović, Jelena Cvijović, Marija Reljić</b>	
<i>Key problems of young entrepreneurs in Serbia</i>	75
<b>Mladen Vulović, Miloš Dobrojević, Andrea Vuković</b>	
<i>Web application for electricity meter reading</i>	83
<b>Management</b>	<b>89</b>
<b>Dragana Krainović, Slobodan Morača</b>	
<i>Open Innovation and PPM – general aspects and constraints</i>	91
<b>Dušan Mojić</b>	
<i>The concept of culture shock in cross-cultural management</i>	99
<b>Tamara Rajić, Ivan Nikolić</b>	
<i>Measuring service quality in convenience retailing using modified CALSUPER scale</i>	107
<b>Vladimir Jovanović, Dejana Milošev</b>	
<i>Informal education and its role in contemporary society</i>	115
<b>Danica Lečić-Cvetković, Nikola Atanasov</b>	
<i>An approach to the outbound supply chain performance improvement</i>	123
<b>Tamara Rajić, Sonja Veljović, Marina Zoroja</b>	
<i>Overview of the Serbian ICT sector: Looking optimistic towards the future</i>	133
<b>Milica Maričić, Nikola Zornić, Marina Dobrota, Veljko Jeremić</b>	
<i>Sensitivity analysis of Balkan universities on the URAP ranking list: Why is it important?</i>	139
<b>Željka Bašić</b>	
<i>Corporate software piracy in serbia: attitudes, explanation and anti-piracy strategies</i>	147
<b>Tamara Rajić, Andrea Vuković, Sonja Jaćimović</b>	
<i>An empirical examination of the impact of service quality on attitudinal and behavioral loyalty in higher education setting</i>	155



## An empirical examination of the impact of service quality on attitudinal and behavioral loyalty in higher education setting

**Abstract:** This study aims to examine the construct of higher education service quality from the perspective of students as primary users of educational services and investigate its impact on students' attitudinal and behavioral loyalty. The study has been performed on a sample of 234 students attending small public faculty in Serbia. Results of exploratory factor analysis indicate four-dimensional structure of higher education service quality. Findings of structural equation modeling point to significant impact of overall quality perceptions on students' attitudinal loyalty, whereas the impact of quality perceptions on behavioral loyalty is mediated via attitudinal loyalty. Implications of the study have been discussed and limitations and suggestions for future research are highlighted.

**Keywords:** higher education service quality, attitudinal loyalty, behavioral loyalty

### 1. Introduction

Customer loyalty has been frequently studied topic in Services Marketing literature over previous three decades. Researchers' interests in customer loyalty have been initiated by a number of expected benefits of building loyal customer base. Customer loyalty is regarded as an important basis for the development of sustainable competitive advantage of companies. Serving loyal customers is less expensive for companies, loyal customers are expected to buy more frequently and willing to try additional goods and services of a company. Loyal customers are less price sensitive and inclined to spread positive word-of-mouth and therefore bring in new customers (Reichheld, 1996; Lam et al., 2004). Marketing literature defines customer loyalty as a "a deeply held commitment to rebuy or repatronize a preferred product/service consistently in the future, thereby causing repetitive same-brand or same brand-set purchasing, despite situational influences and marketing efforts having the potential to cause switching behavior" (Oliver, 1999; p.34). This definition clearly implies two aspects of loyalty – attitudinal and behavioral loyalty. Early studies on customer loyalty mainly focused on behavioral component as a manifestation of customer loyalty, whereas customer loyalty was explained by repeat purchase behavior. This however is not a credible manifestation of true loyalty, as repeat purchases may be induced by high switching barriers and have nothing in common with preferential disposition towards a company and its goods and services (Bloemer et al., 1999). According to Dick and Basu (1994) both a favorable attitude, higher than the attitude of alternatives, and repeated patronage are required for loyalty. Therefore in addition to customer's tendency to repurchase, it is necessary to take into account customer's favorable attitudes towards a company, i.e. willingness to recommend a company and spread positive word-of-mouth, as indicators of true customer loyalty (Brexendorf et al., 2010).

Literature review indicates several determinants of customer loyalty and service quality has been most frequently highlighted among the determinants. In a multicompany study Zeithaml et al. (1996) provide empirical support for positive impact of service quality improvements on customers' favorable behavioral intentions, such as customers' willingness to spread positive word-of-mouth, repurchase from the same company, and pay price premiums, whereas positive perceptions of quality are negatively related to customers' intentions to switch and seek for external response to an eventual problem. On a sample of cruise passengers Petrick (2004) provides evidence of significant impact of service quality on passengers' intention to repurchase and spread positive word-of-mouth. Positive impact of service quality on customer willingness to say positive things about the company and

<sup>1</sup> Economics Institute a.d. Belgrade, Serbia, [tamara.rajić@ecinst.org.rs](mailto:tamara.rajić@ecinst.org.rs)

<sup>2</sup> Economics Institute a.d. Belgrade, Serbia

<sup>3</sup> Economics Institute a.d. Belgrade, Serbia



recommend service provider has been also supported by Quach et al. (2016) in the context implying provision of Internet services. Due to unique characteristics of services, such as intangibility, heterogeneity, perishability and inseparability of production and consumption of services, it is more difficult for customers to evaluate service quality and consequently more important for service providers to build loyal customer base (Javalgi & Moberg, 1997). Higher education also exhibits all classical features of services. Most quality attributes cannot be seen, felt or examined in advance, its production and consumption are inseparable and due to high involvement of human factor higher education services are heterogeneous and generally in spite of the advance of ICT higher education services cannot be stored (Cuthbert, 1996; Owlia & Aspinwall, 1996). According to Yeo and Li (2014) higher education, which includes lesson delivery, advising, counseling, research supervising, should be regarded as a service business, whereas students who are primary beneficiaries of educational services should be regarded as customers. Over recent years higher education institutions have faced a number of challenges, such as insufficient government funds and necessity of attracting tuition-fee paying students, requirements for higher involvement in international research and teaching cooperations, improvement in learning and teaching and the increase of staff and student mobility, improvement of corporate image and status in international league tables with the aim of attracting high quality business associates, which has put an additional pressure on higher education institutions to adopt customer-centric business models (Ledden et al., 2011) and pay greater attention to higher education service quality and its impact on students' behavior. Whereas quality of educational services has been the subject of much examination across countries (Cuthbert, 1996; Oldfield & Baron, 2000; Sohail & Shaikh, 2004; Stodnick & Rogers, 2008; Ali et al., 2016; Teeroovengadum et al., 2016), the determinants and consequences of service quality have been scarcely examined in Serbian higher education setting. Therefore, this study attempts to fill this important research gap. Taking the perspective of students as primary customers of higher education services, this study will examine the construct of service quality and its constituents in the context of higher education in Serbia and examine the effects of quality improvements on students' attitudinal and behavioral loyalty. Among service organizations, higher education service providers should be particularly concerned about student loyalty, as loyalty of current students may positively affect quality of teaching and lecturers' involvement in the course, which would further contribute to a classroom atmosphere that stimulates learning (Hennig-Thurau et al., 2001).

In order to address these research objectives the paper is organized as follows. Review of previous studies on service quality constructs, with special attention being paid to the construct of higher education service quality and its measurement, is presented first, which is followed by the explanation of research methodology. Main research findings are discussed subsequently and limitations of the study and suggestions for further research are highlighted.

## 2. Literature review

Due to aforementioned distinctive features of services, service quality has been regarded as an abstract construct which is difficult to define and measure. According to the most widely accepted conceptualization of the construct, service quality is regarded as "the consumer's judgment about an entity's overall excellence or superiority" (Parasuraman et al., 1988; p. 15), which is similar, but not equivalent to customer satisfaction and which results from comparison between customer's expectations and perceptions of service. Based on thorough qualitative research including customers and executives of service businesses, the authors proposed ten dimensions of service quality, which were in further quantitative research condensed into five service quality dimensions, reliability, assurance, responsiveness, tangibles and empathy. Following iterative procedure the authors further developed SERVQUAL scale, a 22-item instrument for measuring customer perceptions of service quality and based on reassessment and refinement of the instrument Parasuraman et al. (1988) claimed its applicability across a broad spectrum of services. Since its inception the instrument has gained enormous popularity among researchers, owing to its plain expectations-perceptions format including statements which addressed each of five service quality dimensions. However, in spite of its simplicity, the instrument has been criticized on many grounds, such as calculating difference scores between customers' perceptions and expectations and the instability of difference scores in multivariate data analysis, unsupported five-dimensional structure underlying SERVQUAL instrument, its applicability in service settings which differ from those on the basis of which SERVQUAL scale was proposed, its orientation towards measuring the process of service delivery without addressing the outcome of the process, etc. (Buttle, 1996).



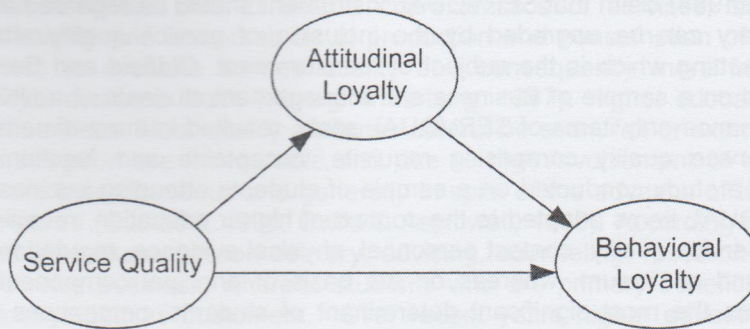
Notwithstanding the deficiency of SERVQUAL scale, a number of researchers has agreed with Parasuraman et al.'s (1988) claim that SERVQUAL instrument should be regarded as a basic skeleton which when necessary can be upgraded by the inclusion of service quality attributes which are relevant for service setting which is the subject of measurement. Oldfield and Baron's (2000) study which was conducted on a sample of Business and Management students at a UK university, by the application of performance-only items of SERVQUAL scale, resulted in three-dimensional construct of higher education service quality comprising requisite, acceptable and functional service quality attributes. Results of a study conducted on a sample of students attending business school in Saudi Arabia, using SERVQUAL items adapted to the context of higher education, revealed six dimensions of higher education service quality, contact personnel, physical evidence, reputation, responsiveness, access to facilities and curriculum, whereas on the basis of principal component analysis contact personnel emerged as the most significant determinant of students' perceptions of service quality (Sohail & Shaikh, 2004). In a study conducted on a sample of university students in Indonesia Sumaedi et al. (2012) provided evidence in support of seven dimensions of higher education service quality construct, such as curriculum, facilities, contact personnel, social activities, education counselors, assessment and instruction media, whereas by the application of regression analysis facilities emerged as the dimension contributing most towards overall perceptions of service quality of a state university. Stodnick and Rogers (2008) on a sample of students attending undergraduate Operations Management courses in the U.S. applied SERVQUAL scale, by adapting its 19 items to the classroom environment, and provided evidence of its reliability and validity in higher education setting, as well as its superiority for measuring classroom service quality in comparison with traditional student assessment scales. A study conducted on a sample of students in India, using adapted version of SERVQUAL scale, resulted in five dimensions of service quality, namely learning outcomes, responsiveness, physical facilities, personality development and academics, whereas significant differences emerged between students' expectations and perceptions with respect to all dimensions of service quality (Narang, 2012). Teeroovengadum et al. (2016) on the basis of extensive literature review, followed by thorough qualitative and quantitative research, proposed five-dimensional hierarchical instrument for measuring higher education service quality, named HESQUAL, and supported its reliability and construct validity on a sample of students attending the University of Mauritius. Findings of this study resulted in five primary dimensions of service quality, namely administrative quality, support facilities quality, core educational quality, transformative quality and physical environment quality, comprising nine sub-dimensions of service quality. According to Ali et al. (2016) higher education service providers should devote special attention to measuring and improving service quality, due to the strategic role of service quality for enhancing competitiveness of educational institutions and its relevance for attracting potential and retaining existing students. Boulding et al. (1993) on a sample of U.S. students provide evidence in support of positive impact of service quality on students' intention to say positive things about the faculty to people outside the faculty, contribute money to the faculty upon the graduation and recommend the faculty to one's employer as a place to recruit prospective employees. On a sample of former students of six German universities Hennig-Thurau et al. (2001) provide support for positive impact of service quality on students' intentions to recommend their course of study and the faculty to other people, keeping in touch with the faculty, making the same choice again if they had been faced with the decision of choosing a course of study and a faculty and students' willingness to become a member of an alumni organization at their faculty, i.e. both attitudinal and behavioral loyalty. Findings of a study conducted on a sample of Indian students indicate positive impact of students' perceptions of service quality on students' willingness to recommend the university to a friend or family member and students' preference to pursue higher level of studies at the same university (Subrahmanyam & Bellamkonda, 2016). Several studies have also reported significant impact of attitudinal loyalty on behavioral loyalty (Carpenter, 2008; Mandhachitara & Poolthong, 2011; Quach et al., 2016). Based on previous studies the following hypotheses are proposed:

- H1: Service quality positively affects attitudinal loyalty;
- H2: Service quality positively affects behavioral loyalty;
- H3: Attitudinal loyalty is positively related to behavioral loyalty.

Conceptual model which integrates proposed relationships is presented in Figure 1.



Figure 1. Conceptual model



### 3. Methodology

Quantitative study has been performed by means of self-administered questionnaire. Responses have been collected on a convenience sample of undergraduate students attending small public faculty in the region of Eastern Serbia. Students attending classes at particular days chosen for data collection participated in the study. Prior to data collection lecturers have been approached and asked for their permission for data collection at the end of classes. This approach resulted in high response rate. In total, 300 questionnaires have been distributed, whereas analyses have been performed on 234 completely fulfilled questionnaires, yielding a response rate of 78%.

Prior to quantitative research extensive review of literature on higher education service quality has been performed. In order to address the construct of service quality in higher education setting in Serbia as thoroughly as possible four group discussions with students have also been performed. Service quality attributes deemed important from the perspective of students have been discussed as well as SERVQUAL items adapted to the setting of higher education. Finally prior to a large scale survey, a pilot test has been performed in order to check comprehensibility of questionnaire items. In addition to service quality, the questionnaire also included items measuring the constructs of attitudinal and behavioral loyalty, which have been adapted from previous studies (Mandhachitara & Poolthong, 2011; Quach et al., 2016). The construct of attitudinal loyalty has been measured by one item, whereas two items have been used for the measurement of behavioral loyalty. As a measure of attitudinal loyalty students were asked to indicate how likely they were to recommend the faculty to a friend or family member who were faced with the decision of choosing higher education institution. Students were asked to indicate the likelihood of choosing the same course and the same faculty, if they had been faced with the enrollment of university studies again, and these measures represented behavioral loyalty items. All items were measured on a 7-point Likert-type scale, ranging from 1-strongly disagree to 7-strongly agree.

The construct of service quality and its underlying factor structure have been examined by means of exploratory factor analysis (EFA). Due to acceptable reliability of service quality dimensions, composite indicators have been calculated as mean values of respective service quality items and entered into further analysis as indicators of overall service quality construct. Structural equation modeling (SEM), using maximum likelihood as a method of parameter estimation, has been performed to examine hypothesized relationships among latent constructs, whereas following Anderson and Gerbing's (1988) suggestions confirmatory factor analysis (CFA) has been performed first, to examine whether theoretical relationship between measurement items and their respective constructs have been supported by the data, followed by the analysis of structural model. Data analyses have been performed using SPSS v.16 and LISREL 8.80.

### 4. Results and discussion

In order to condense multiple observed variables into a few underlying latent factors, service quality items have been subjected to exploratory factor analysis. Suitability of data for factor analysis has been examined first, by calculating Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) and



Bartlett's Test of Sphericity. KMO measure of 0.929 and significant value of Bartlett's test indicated that the data could be properly submitted to factor analysis. Factor loadings lower than 0.40 have been suppressed and items loading highly onto more than one factor have been excluded from further analysis, one by one. The extraction method was based on Kaiser's criterion of eigenvalues being greater than 1. Out of 26 items initially entered into factor analysis the aforementioned iterative procedure yielded 21 items grouped under four dimensions of service quality, which explained 63% of variance in the sample. On the basis of strong association of observed variables to certain latent factors, higher education service quality dimensions have been named as follows – employees' behavior, outcome of educational process, tangibles and timeliness. The content of service quality dimensions is presented in Table 1, which displays rotated component matrix. Reliability, which refers to the ability of measurement instrument to produce consistent results in repeated measurements, was assessed by calculating Cronbach's Alpha coefficient. Reliability analysis which resulted in Cronbach's Alpha values higher than the lower threshold of 0.70 indicated consistency of service quality dimensions. On the basis of item-to-total correlation one additional item has been excluded from further analysis (Q46), after which the transformation of service quality dimensions into composite indicators has been carried out.

Table 1. Rotated Component Matrix

		Component			
		1	2	3	4
<b>Employees' behavior</b>					
Q28	Professors are never too busy to respond to students' requests.	.725			
Q27	Professors are consistently courteous with students	.715			
Q36	When a student has a problem, professors show a sincere interest in solving it	.693			
Q37	Professors perform services right the first time	.613			
Q43	Professors are always willing to help students	.612			
Q34	Professors give students individual attention	.602			
Q35	Professors look professional	.573			
Q32	Professors instil confidence in students	.545			
Q44	Professors adhere to high standards in performing their activities	.510			
Q47	Professors have students' best interests at heart	.421			
<b>Outcome of educational process</b>					
Q51	Studies at this faculty prepare students for career development		.887		
Q50	This faculty trains students for work in leading world companies		.873		
Q52	This faculty trains students for practical application of acquired knowledge		.828		
Q49	This faculty prepares students to continue their studies at leading universities in the world		.824		
<b>Tangibles</b>					
Q39	Materials associated with the services of professors (such as handouts and syllabi) are visually appealing			.762	
Q33	The physical facilities at the faculty are visually appealing			.760	
Q38	Faculty has up-to-date equipment			.728	
<b>Timeliness</b>					
Q30	Professors tell students exactly when services will be performed				.837
Q29	Professors provide their services at the time they promise to do so				.786
Q40	When professors promise to do something by a certain time, they do so				.552
Q46*	Class times and office hours are convenient to students				.439
Eigenvalue		4.261	3.779	2.777	2.479
% of Variance		20.289	19.993	13.224	11.806
Cumulative%		20.289	38.282	51.506	63.312
Cronbach's Alpha		0.893	0.932	0.794	0.753
Extraction Method: Principal Component Analysis					
Rotation Method: Varimax with Kaiser Normalization					
*Excluded on the basis of Item-to-total correlation					

Source: Authors' calculation

In the following stage confirmatory factor analysis has been performed to examine whether theoretical relationships among measurement items and their corresponding latent variables were supported by the data. Although the analysis yielded statistically significant  $\chi^2$  value ( $\chi^2_{(12)}=30.958$ ,  $p<0.01$ ), other goodness-of-fit indices suggested acceptable fit of the model to the data (GFI=0.962; AGFI=0.911; CFI=0.973; NFI=0.957; NNFI=0.953; RMSEA=0.082). The construct of attitudinal loyalty has been measured with single item. The reliability of single-item measure has been set at 0.80 and in line with the suggestions of Yieh et al. (2007) error variance of the observable variable has been set at  $\sigma^2(1-\alpha)$ , whereas  $\sigma^2$  is the variance of the observable variable and  $\alpha$  is item's reliability. As latent constructs



have been measured using indicators which have been adapted from previous studies, and formulated on the basis of focus groups, as is the case with the items measuring service quality, conditions for face validity have been fulfilled. Statistically significant factor loadings which standardized values are higher than 0.50 provide evidence in support of convergent validity (Fornell & Larcker, 1981). Adequate convergent validity has been also indicated by average variance in indicators of service quality and behavioral loyalty explained by their corresponding factors which exceeded the value of 0.50 (AVEsq=0.52; AVEbl=0.70). Composite reliabilities of service quality and behavioral loyalty constructs being higher than 0.70 also indicate acceptable convergent validity (CRsq=0.810; CRbl=0.824). As average variance extracted for service quality and behavioral loyalty are higher than the squared correlation between these constructs (0.166) evidence in support of discriminant validity has been provided (Fornell & Larcker, 1981). Results of measurement model analysis are presented in Table 2. Discriminant validity has been also tested following Anderson and Gerbing's (1988) suggestions of constraining correlations among each pair of latent variables to one and performing a chi-square difference test on the values obtained for constrained and unconstrained model. For all pairs of variables the chi-square difference test is significant at the  $p < 0.01$  level indicating that latent variables are not perfectly correlated. i.e. discriminant validity has been supported. The smallest change in chi-square value has been recorded for service quality and attitudinal loyalty ( $\Delta\chi^2_{(1)} = 9.124$ ,  $p < 0.01$ ).

Table 2. Measurement model analysis

	St. factor loadings	T values	AVE	CR	Cronbach's Alpha
sq1	.887	9.392	0.52	0.810	0.788
sq2	.656	8.127			
sq3	.698	8.504			
sq4	.619	-			
bl1	.730	12.122	0.70	0.824	0.683*
bl2	.935	-			
al	n.a**	n.a.	n.a.	n.a.	n.a.

\*Inter-item correlation

\*\* n.a. – Not applicable, as the construct has been measured with one item

Source: Authors' calculation

Analyses of structural relations have been performed in the following stage. In spite of statistically significant chi-square value ( $\chi^2_{(12)} = 30.958$ ,  $p < 0.01$ ), other fit indices met recommended criteria for acceptable model-fit (CFI=0.973, NFI=0.957, NNFI=0.953, RMSEA=0.08). Results of the study indicate significant positive effect of students' overall perceptions of service quality on their attitudinal loyalty ( $\gamma = 0.473$ ,  $t = 5.648$ ) as well as significant impact of attitudinal loyalty on students' behavioral intentions ( $\beta = 0.903$ ,  $t = 9.797$ ). Therefore, hypotheses H1 and H3 have been supported. The impact of overall service quality on students' behavioral intentions has not reached the level of significance ( $\gamma = -0.019$ ,  $t = 0.313$ ) and hypothesis H2 has been rejected. However, lack of significance of the direct impact of service quality on students' behavioral loyalty does not imply that service quality perceptions are irrelevant for students' behavioral intentions, as the impact of service quality on students' behavioral loyalty is mediated via attitudinal loyalty (0.408). Significant impact of service quality on attitudinal loyalty and mediated impact of quality on behavioral loyalty have been also supported by Quach et al.'s (2016) empirical study of Internet providers' service quality. Results of hypotheses testing are presented in Table 3.

Table 3. Results of hypotheses testing

Hypotheses	St. path coefficients	t-values	R <sup>2</sup>
H1: Service quality → attitudinal loyalty	0.473	5.648	R <sup>2</sup> <sub>al</sub> = 0.224
H2: Service quality → behavioral loyalty	-0.019	0.313	R <sup>2</sup> <sub>bl</sub> = 0.798
H3: Attitudinal loyalty → behavioral loyalty	0.903	9.797	

Source: Authors' calculation

Viability of proposed model is supported by explained variance of the behavioral loyalty construct (R<sup>2</sup><sub>bl</sub> = 0.798), which indicates that both quality and attitudinal loyalty are important determinants of students' behavioral loyalty. However, explained variance of attitudinal loyalty indicates that, in addition to service quality, there are some other constructs which exert significant effect on students' attitudinal loyalty and their impact on students' willingness to recommend higher education institution would be an avenue worthy of further examination. This assumption is also corroborated by recent



studies in the area of higher education which empirically support the mediating role of student satisfaction in the relationship between perceptions of service quality and students' behavioral intentions (Ali et al., 2016; Subrahmanyam & Bellamkonda, 2016)

## 5. Conclusions

Over recent years the construct of higher education service quality has been extensively examined across educational settings. As this important research topic has stayed mainly under-researched in Serbia, this study represents an endeavour to examine the content and dimensionality of service quality construct in Serbian higher education setting and its impact on students' attitudinal and behavioral loyalty, i.e. students' willingness to recommend the faculty and enroll higher level of studies within the same institution. Students' conative and action loyalty are of particular relevance for contemporary higher education institutions, due to ever-rising competitive pressures, proliferation of study options worldwide and limited public revenue for financing higher education institutions. Findings of this study indicate significant direct impact of service quality on students' attitudinal loyalty, as well as the direct relatedness of attitudinal loyalty to behavioral loyalty, whereas the direct impact of service quality on students' behavioral loyalty has not reached acceptable level of significance ( $p > 0.05$ ). By no means does this imply that investments in service quality improvement would be futile in an attempt to build long-term relationships with students. Service quality emerged as an important, but indirect determinant of students' behavioral loyalty. Coefficients of determination of attitudinal loyalty and behavioral loyalty point to the importance of more thorough examination of the determinants of students' loyalty, their interrelatedness and relative effects on loyalty.

Principal component analysis yielded four dimensions of service quality construct in Serbian higher education, namely employees' behavior, outcome of educational process, tangibles and timeliness. As questionnaire items have been derived from SERVQUAL scale and group discussions with students, certain resemblance with Parasuraman et al.'s findings (1988) is evident, i.e. interdimensional overlap among assurance, responsiveness and empathy items which in this study grouped around the factor named as employees' behavior. Similarity with the original dimensions of SERVQUAL scale is noticeable regarding two additional dimensions resulting from this study, tangibles and timeliness, which correspond to tangibles and reliability of the original SERVQUAL instrument. Group discussions indicated students' concern about being qualified for future career development and placement within world-class companies and higher level studies at leading universities in the world upon graduation from the faculty they currently attend. These four dimensions explained 63% of variance in the sample, indicating an acceptable representation of service quality construct in Serbian higher education setting. However these findings also point to the necessity of more thorough examination of the construct of higher education service quality, which would be an avenue worthy of further research. In addition, future studies should attempt to determine relative importance of service quality dimensions, as this knowledge would provide administrators of higher education institutions with useful directions for taking corrective actions. Whereas the focus of this study have been students' perceptions of higher education service quality, with the aim of proper allocation of limited resources on eventual remedial actions it would be prudent to measure both students' expectations and perceptions of service quality, as only by comparison of expectations and perceptions could possible negative gaps be discerned.

In spite of its contribution, this study is not without limitations. The main drawback of this research is the scope and size of the sample. Therefore findings of this study should not be generalized to student population and Serbian higher education setting as a whole. Findings of this study should be regarded rather as a baseline for future research which should be conducted on a more representative sample of student population in Serbian higher education setting.

## References

- Ali, F., Zhou, Y., Hussain, K., Kumar, N. P., & Ari, R. N. (2016). Does higher education service quality effect student satisfaction, image and loyalty?, A study of international students in Malaysian public universities, *Quality Assurance in Education*, 24(1), 70 – 94.
- Anderson, J. C. & Gerbing, D. W. (1988). Structural Equation Modeling in Practice: A Review and Recommended Two-Step Approach, *Psychological Bulletin*, 103(3), 411-423.



- Bloemer, J., de Ruyter, K., & Wetzels, M. (1999). Linking perceived service quality and service loyalty: a multi-dimensional perspective, *European Journal of Marketing*, 33(11/12), 1082-1106.
- Brexendorf, T. O., Mühlmeier, S., Tomczak, T., & Eisend, M. (2010). The impact of sales encounters on brand loyalty, *Journal of Business Research*, 63, 1148-1155.
- Buttle, F. (1996). SERVQUAL: review, critique, research agenda, *European Journal of Marketing*, 30(1), 8-32.
- Boulding, W., Kalra, A., Staelin, R., & Zeithaml, V. A. (1993). A dynamic process model of service quality: from expectations to behavioral intentions, *Journal of Marketing Research*, 30, 7-27.
- Carpenter, J. M. (2008). Consumer shopping value, satisfaction and loyalty in discount retailing, *Journal of Retailing and Consumer Services*, 15, 358-363.
- Cuthbert, P. F. (1996). Managing service quality in HE: is SERVQUAL the answer? Part 1, *Managing Service Quality*, 6(2), 11-16.
- Dick, A. S., & Basu, K. (1994). Customer Loyalty: Toward an Integrated Conceptual Framework, *Journal of the Academy of Marketing Science*, 22(2), 99-113.
- Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error, *Journal of Marketing Research*, 18, 39-50.
- Hennig-Thurau, T., Langer, M. F., & Hansen, U. (2001). Modeling and Managing Student Loyalty, *Journal of Service Research*, 3(4), 331-344.
- Javalgi, R. G., & Moberg, C. R. (1997). Service loyalty: implications for service providers, *The Journal of Services Marketing*, 11(3), 165-179.
- Lam, S. Y., Shankar, V., Erramilli, K. M., & Murthy, B. (2004). Customer Value, Satisfaction, Loyalty, and Switching Costs: An Illustration From a Business-to-Business Service Context, *Journal of the Academy of Marketing Science*, 32(3), 293-311.
- Ledden, L., Kalafatis, S., & Mathioudakis, A. (2011). The idiosyncratic behaviour of service quality, value, satisfaction, and intention to recommend in higher education: An empirical examination, *Journal of Marketing Management*, 27(11-12), 1232-1260.
- Mandhachitara, R., & Poolthong, Y. (2011). A model of customer loyalty and corporate social responsibility, *Journal of Services Marketing*, 25(2), 122-133.
- Narang, R. (2012). How do management students perceive the quality of education in public institutions?, *Quality Assurance in Education*, 20(4), 357-371.
- Oldfield, B. M., & Baron, S. (2000). Student perceptions of service quality in a UK university business and management faculty, *Quality Assurance in Education*, 8(2), 85-95.
- Oliver, R. L. (1999). Whence Consumer Loyalty?, *Journal of Marketing*, 63(4), 33-44.
- Owlia, M. S., & Aspinwall, E. M. (1996). A framework for the dimensions of quality in higher education, *Quality Assurance in Education*, 4(2), 12-20.
- Parasuraman, A., Zeithaml V., & Berry L. (1988). SERVQUAL: A Multiple-Item Scale for Measuring Consumer Perceptions of Service Quality, *Journal of Retailing*, Vol.64, pp. 12-40.
- Petrick, J. F. (2004). The Roles of Quality, Value, and Satisfaction in Predicting Cruise Passengers' Behavioral Intentions, *Journal of Travel Research*, 42, 397-407.
- Quach, T. N., Thaichon, P., & Jebarajakirthy, C. (2016). Internet service providers' service quality and its effect on customer loyalty of different usage patterns, *Journal of Retailing and Consumer Services*, 29, 104-113.
- Reichheld, F. F. (1996). Learning from Customer Defections, *Harvard Business Review*, 74(2), 65-69.
- Sohail, S., & Shaikh, N. (2004). Quest for excellence in business education: a study of student impressions of service quality, *The International Journal of Educational Management*, 18(1), 58-65.
- Stodnick, M., & Rogers, P. (2008). Using SERVQUAL to Measure the Quality of the Classroom Experience, *Decision Sciences Journal of Innovative Education*, 6(1), 115-133.
- Subrahmanyam, A., Bellamkonda, R. S. (2016). Effect of student perceived service quality on student satisfaction, loyalty and motivation in Indian universities, *Journal of Modelling in Management*, 11(2), 488 - 517.
- Teeroovengadum, V., Kamalanabhan, T. J., & Seebaluck, A. K. (2016). Measuring service quality in higher education: Development of a hierarchical model (HESQUAL), *Quality Assurance in Education*, 24(2), 244-258.
- Yeo, R. K., & Li, J. (2014). Beyond SERVQUAL: The competitive forces of higher education in Singapore, *Total Quality Management & Business Excellence*, 25(1-2) 95-123.
- Yieh, K., Chiao, Y. C., & Chiu, Y. K. (2007). Understanding the Antecedents to Customer Loyalty by Applying Structural Equation Modeling, *Total Quality Management*, 18(3), 267-284.
- Zeithaml, V. A., Berry, L. L., & Parasuraman, A. (1996). The Behavioral Consequences of Service Quality, *Journal of Marketing*, 60, 31-46.