

**BANKING SERVICE QUALITY, SATISFACTION,  
AND LOYALTY PERCEIVED BY STUDENTS:  
A HIERARCHICAL APPROACH**

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**Abstract**

Recommendations to consider service quality as a hierarchical construct formed by its dimensions (and not reflected through them) have existed in academic literature for more than two decades, and arose simultaneously with the conclusion that even in the most valued marketing journals, the problem of model misspecification was present to a large extent. The consequences of not respecting those recommendations are studies' inappropriate conclusions. Nevertheless, even nowadays, there is a need to embrace that approach in service quality research more broadly. In the case of banking service quality research valued from the students' perspective, according to the authors' knowledge, there are no other authors that implemented the recommended approach. In conditions of intense competition, banks should pay more attention to clients' needs. Domestic banks have a number of offers for the student market segment, taking into account its potential effect on the banks' future profitability. Therefore, this research considered banking service quality dimensions, satisfaction, and loyalty regarding the student population. Data was collected by using a questionnaire; the convenience sample consisted of 301 students from the University of Novi Sad. After performing all necessary analyses regarding constructs involved in the model, the main effects were examined in the SmartPLS4 software. Among quality dimensions, the largest contribution to banking service quality was recorded for responsiveness, followed by empathy. Banking service quality positively and significantly affected satisfaction, which, on the other hand, positively affected loyalty. Moreover, the indirect effect of banking service quality on loyalty was significant as well.

**Key words:** banking service quality, satisfaction, loyalty, students, hierarchical model.

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## КВАЛИТЕТ БАНКАРСКИХ УСЛУГА, САТИСФАКЦИЈА И ЛОЈАЛНОСТ ПЕРЦИПИРАНИ ОД СТРАНЕ СТУДЕНАТА: ХИЈЕРАРХИЈСКИ ПРИСТУП

### Апстракт

Препоруке да се квалитет услуге посматра као хијерархијски конструкт који формирају његове димензије (а не рефлектује се кроз њих) постоје у академској литератури више од две деценије и настале су истовремено са закључком да је проблем погрешне спецификације модела био присутан у великој мери чак и у најцењенијим маркетиншким часописима. Последице непоштовања ових препорука су неприкладни закључци студија. Ипак, чак и данас постоји потреба да се у истраживању квалитета услуга тај приступ шире прихвати. Према сазнањима аутора, у случају истраживања квалитета банкарских услуга вреднованог из перспективе студената, нема других аутора који су применили препоручени приступ. У условима интензивне конкуренције, банке треба да обрате више пажње на потребе клијената. Домаће банке имају низ понуда за сегмент тржишта који чине студенти, узимајући у обзир њихов потенцијални утицај на будућу профитабилност банака. У складу са тим, у раду су размотрене димензије квалитета банкарских услуга, задовољство и лојалност студената. Подаци су прикупљени коришћењем упитника; погодан узорак чинио је 301 студент са Универзитета у Новом Саду. Након спровођења свих потребних анализа у вези са конструктима укљученим у модел, главни ефекти су испитани у софтверу SmartPLS4. Међу димензијама нижег нивоа, највећи допринос квалитету банкарских услуга забележен је код одговорности, а затим код емпатије. Квалитет банкарских услуга позитивно и значајно утиче на задовољство, које, с друге стране позитивно утиче на лојалност. Такође, утврђен је и значајан индиректан утицај квалитета банкарских услуга на лојалност.

**Кључне речи:** квалитет банкарских услуга, сатисфакција, лојалност, студенти, хијерархијски модел.

### INTRODUCTION

When it comes to service quality, an important aspect is its operationalisation. Hereby, relying only on first-order subdimensions as separate latent constructs instead of using hierarchical models, as well as misspecifications in the selection of the construct mode – reflective or formative – can lead to biased results (Becker, Klein & Wetzels, 2012; Crocetta et al., 2021; Hallak, Assaker & El-Haddad, 2017; Roy, Tarafdar, Ragu-Nathan & Marsillac, 2012). In many studies, banking service quality was usually examined in regard to the application of the SERVQUAL approach, with its five main dimensions (Lau, Cheung, Lam & Chu, 2013): reliability (bank's ability to realise the promised service in an accurate and dependable way), responsiveness (willingness related to helping bank customers and providing well-timed services), empathy (dedicating individualised attention to bank's customers in order to understand their needs), assurance (courtesy and knowledge of bank's employees, as well as their ability to build customers' confidence) and tangibility (the ap-

pearance of the bank's premises, equipment, and employees). Contrary to research in which those dimensions were examined as separate constructs, in this research, service quality was operationalised as a hierarchical higher-order construct formed by the mentioned dimensions.

In order to get deeper insights, besides service quality, our analysis included customer satisfaction and loyalty. Customer satisfaction can be defined as "a personal assessment that is greatly affected by customer expectations" (Hussien & Aziz, 2013, p. 560). It can be related to the emotion that customers feel when comparing their experiences (Arcand, PromTep, Brun & Rajaobelina, 2017), i.e. when comparing actual and expected performance (Raza, Umer, Qureshi & Dahri, 2020). On the other hand, customer loyalty, as "an integral part of business" (Kostadinović & Stanković, 2021, p. 334), can be associated with "a strong, trusting relationship between the customer and the business" (Raza et al. 2020, p. 1448). Its measures usually include customers' recommendations, continuing to use services of the same company, and considering the company as the first choice (Ganguli & Roy, 2011).

Relations between service quality, satisfaction, and loyalty have been investigated in regard to the student population, which represents a potentially attractive segment to banks. Although students do not usually purchase a wide range of financial products throughout their studies, after graduation, they are expected to use a broad spectrum of bank services during their lifecycle (Tank & Tyler, 2005). In addition, students are more likely to obtain well-paid professional jobs contrary to those with lower educational levels (Narteh, 2013), and are used to dynamic living, mobility, and new technology (Ozretic-Dosen & Zizak, 2015), because of which the focus on this market segment may bring higher profits in the future.

According to the authors' knowledge, this is the first research in which the banking service quality, modelled as a hierarchical reflective-formative construct, was analysed in relation to students' satisfaction and loyalty. After discussing modelling service quality, presenting similar studies, and setting hypotheses in the literature review section, the model was developed in the methodological part of the paper. Research results are followed by the discussion and concluding remarks.

## *LITERATURE REVIEW*

### *Banking Service Quality – Students' Aspect*

Due to the intense competition in the retail banking industry, neglecting one or more market segments may have negative consequences on bank performance, especially in the long run. The segment that is interesting for many banks refers to the student population. Following academic literature, there are two main reasons for its attractiveness. First,

the student market can be considered a viable business venture (Mokhlis, Hasan & Yaakop, 2014, p. 361), as it is expected of them to become high-paid individuals (Lewis, Orledge & Mitchell, 1994) who may use various bank's products and services (Pass, 2006). Thus, the attraction of students at the early phase of their economic life cycle and maintaining relations with them are primarily motivated by reaping profits in the upcoming years (Narteh, 2013). The second reason relates to the application of mobile and internet banking, bearing in mind that according to Ganguli & Roy (2011, p. 173) students belong to the group of heavy users of banking technology. This is of special importance, taking into account the technological changes followed by the increase in the digital market.

The first banking service that students usually use relates to current accounts. Since a number of them leaves home to study and is forced to manage their own financial affairs (Lewis et al., 1994), this type of service may be of great help. In addition to online buying and paying bills, the current account is necessary for receiving different types of payments. Among them are student scholarships and loans, where according to the Ministry of Education of the Republic of Serbia (2023), there were 8.282 student scholarships and 6.798 student loans in the academic 2022/23 year.

Many banks in Serbia dedicated attention to young people and students by creating special service packages (Table 1), whereby most of those services are free of charge. The results in the table are provided by visiting the websites of the banks operating in Serbia.

Adapting the offer to students represents an important step in their retention, because of which banks should strive to improve the quality of their services. Banking service quality is the subject of analysis in many studies. When it comes to students, its evaluation was dominantly based on the application of the SERVQUAL approach (Bhengu & Naidoo, 2016; Bond & Hsu, 2011; Mokhlis et al., 2014; Ozretic-Dosen & Zizak, 2015; Pass, 2006). There is also research where banking service quality was analysed in relation to student satisfaction. Reddy and Karim (2014) investigated the quality of banking services, taking into account its six dimensions (tangibility, reliability, responsiveness, empathy, accessibility, and assurance), whereby the subject of the analysis was their impact on the students' satisfaction with those services; significant effects were detected in the case of reliability, empathy and assurance. The research of Hin, Wei, Bohari and Adam (2011) paid attention to the effects of service quality and bank selection criteria on students' satisfaction with a banking institution; their results revealed that both independent variables significantly and positively influenced the students' satisfaction.

Table 1. Student service packages in Serbia

Bank name	Segment	Services	Source
Postal Savings Bank	Students aged between 18-27	<ul style="list-style-type: none"> <li>▪ Current Account</li> <li>▪ Debit Cards (Dinacard and Mastercard)</li> <li>▪ Internet Banking</li> <li>▪ Mobile Banking</li> <li>▪ SMS notification</li> <li>▪ Standing orders</li> </ul>	<a href="https://www.posted.co.rs/stanovnistvo/platni-racuni/studentski-racun.html">https://www.posted.co.rs/stanovnistvo/platni-racuni/studentski-racun.html</a>
Erste Bank	Young people and students aged between 16-27	<ul style="list-style-type: none"> <li>▪ Current Account</li> <li>▪ Debit Card (Dinacard)</li> <li>▪ NetBanking</li> <li>▪ mBanking</li> <li>▪ Mastercard Youth card</li> </ul>	<a href="https://www.erstebank.rs/sr/Stanovnistvo/racuni/Omladinski-tekuci-racun">https://www.erstebank.rs/sr/Stanovnistvo/racuni/Omladinski-tekuci-racun</a>
OTP Bank	Unemployed young people and students aged between 18-27	<ul style="list-style-type: none"> <li>▪ Current Account (Dinar and EUR)</li> <li>▪ Mastercard – Fluo card</li> <li>▪ M-bank application</li> <li>▪ Google pay and Apple pay</li> <li>▪ ATMs EUR withdrawal</li> <li>▪ Discounts</li> </ul>	<a href="https://www.otpbanka.rs/stanovnistvo/fluo-ponuda-za-mlade/">https://www.otpbanka.rs/stanovnistvo/fluo-ponuda-za-mlade/</a>
ProCredit Bank	Young people aged between 18-26	<ul style="list-style-type: none"> <li>▪ Current Account (Dinar and EUR)</li> <li>▪ Debit Cards (Dinacard and Mastercard)</li> <li>▪ Google pay and Apple pay</li> <li>▪ eBanking</li> <li>▪ mBanking</li> <li>▪ FlexSave (Dinar and EUR)</li> <li>▪ Term deposit</li> <li>▪ Standing orders</li> </ul>	<a href="https://www.procreditbank.rs/stanovnistvo/racuni/racun-za-mlade">https://www.procreditbank.rs/stanovnistvo/racuni/racun-za-mlade</a>
UniCredit Bank	Students up to 26	<ul style="list-style-type: none"> <li>▪ Current Account</li> <li>▪ mBanking</li> <li>▪ Mastercard debit card</li> <li>▪ Google pay and Apple pay</li> <li>▪ Special discounts</li> </ul>	<a href="https://studenti.unicreditbank.rs/korisne-informacije.20.html#tekuci-racun">https://studenti.unicreditbank.rs/korisne-informacije.20.html#tekuci-racun</a>
Raiffeisen Bank	Unemployed young people aged between 18-26	<ul style="list-style-type: none"> <li>▪ Current Account</li> <li>▪ Mastercard debit card</li> <li>▪ eBanking and mBanking</li> <li>▪ Mobile cash</li> <li>▪ Apple Pay and RaiPay</li> </ul>	<a href="https://www.raiffeisenbank.rs/racuni/paket-racun-mladi/">https://www.raiffeisenbank.rs/racuni/paket-racun-mladi/</a>
NLB bank	Young people aged between 18-27	<ul style="list-style-type: none"> <li>▪ Current Account</li> <li>▪ mBanking, eBanking and SMS service</li> <li>▪ Debit card and Prepaid card</li> <li>▪ Foreign currency account</li> <li>▪ Favorable exchange rate</li> </ul>	<a href="https://www.nlbkb.rs/stanovnistvo/racuni/start-set-tekuci-racun">https://www.nlbkb.rs/stanovnistvo/racuni/start-set-tekuci-racun</a>

In addition to satisfaction, banking service quality was examined in relation to loyalty. Yilmaz, Ari, and Gürbüz (2018) analysed relationships between SERVQUAL dimensions (based on students' perceptions of banking services) and satisfaction, as well as the relationship between students' satisfaction and loyalty. In accordance with their findings, customer satisfaction was positively affected by assurance, reliability, tangibility, and accessibility, while it positively affected loyalty. In the study conducted by Narteh (2013), students' bank loyalty was investigated in the context of service quality, bank image, student satisfaction, and electronic banking. Similar to previous research, a positive and significant relationship was recorded between satisfaction with banking services and students' bank loyalty. Bank image and electronic banking were also found to be significant determinants of loyalty. However, the effect of the students' perceived service quality on bank loyalty was insignificant. In the case of internet banking service quality, Raza et al. (2020) used a model which included six e-service quality factors (site organisation, reliability, responsiveness, user-friendliness, personal need, and efficiency), electronic customer satisfaction, and electronic customer loyalty on a sample of students who belong to different higher education institutions. All factors positively influenced customers' satisfaction, which, on the other hand, positively influenced electronic customer loyalty. The research of Nguyen et al. (2020), which was focused on students and paid employees, included e-banking service quality, customer satisfaction, switching costs, and customer loyalty. Besides positive correlations between service quality factors (empathy, responsiveness, reliability, tangibility, and service capacity) and customer satisfaction, customer loyalty was positively correlated with customer satisfaction and switching costs. By analysing data obtained from undergraduate students, Ganguli and Roy (2011) identified four dimensions of service quality in technology-based banking (technology usage easiness and reliability, customer service, technology convenience, and technology security and information quality), and investigated their effects on customer satisfaction and loyalty. Technology usage easiness and reliability and customer service positively affected both customer satisfaction and loyalty, whereby the latter was positively affected by technology convenience. Moreover, a positive relation was detected between customer satisfaction and customer loyalty.

Following the previously mentioned studies, this research examined relations between banking service quality, students' satisfaction, and loyalty. Taking into account that a great volume of research in different sectors, including those associated with banking, direct relations between service quality, satisfaction, and loyalty were positive (Alkhouli, 2018; Darmawan, Mardikaningsih & Hadi, 2017; Manik, 2019), we set the following hypotheses.

H<sub>1</sub>: Banking service quality directly, positively, and significantly affects students' satisfaction;

H<sub>2</sub>: Students' satisfaction directly, positively, and significantly affects students' loyalty;

H<sub>3</sub>: Banking service quality directly, positively, and significantly affects students' loyalty.

Additionally, as banking service quality can have an indirect effect on loyalty through satisfaction (Bloemer, de Ruyter & Peeters, 1998; Caruana, 2002; Karatepe, 2011; Minh & Huu, 2016; Sasono et al., 2021; Sleimia, Musleh & Qubbaj, 2020; Supriyanto, Wiyono, & Burhanuddin, 2021), we set a fourth hypothesis.

H<sub>4</sub>: Banking service quality indirectly, positively, and significantly affects students' loyalty.

All variables (service quality, satisfaction, and loyalty), as well as the hypothesised relations among them are presented in Figure 1.

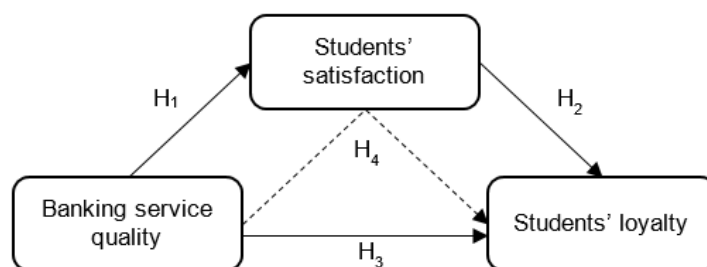


Figure 1. Conceptual model

#### Service Quality Modelling

The problem in service quality modelling identified in previous research leads theoreticians to the conclusion that considering “the majority of studies,” “one has to wonder how much we really know about the concept of service quality,” since the “methodological foundation that service quality was built upon is starting to show cracks and as a community we need to re-examine the concept of service quality along with our assumptions and inferences” (Collier & Bienstock, 2009, p. 292). In this part of the paper, we will deal with all the complexities of the issue leading to such a dramatic rethinking of the concept.

Generally, for examining complex phenomena and their relationships, one of the useful tools that can be applied refers to partial least squares path modelling (PLS-PM) (Crocetta, et al., 2021). PLS-PM has already been used in many management and marketing disciplines, such as organisation management, strategic management, international marketing, etc. (Cheah, Ting, Ramayah, Memon, Cham & Ciavolino, 2019).

An important question when implementing this approach concerns the operationalisation of multidimensional constructs. Hereby, two important topics arise. The first refers to the need to implement the hierarchical model. The second is related to the type of hierarchical model that should be used.

When it comes to the recommendation to use hierarchical models, there is a number of explanations suggesting the use of those models instead of models that include only lower-order dimensions. Hereby, the reduction of model complexity and better theoretical parsimony are some of them (Becker, Klein & Wetzels, 2012). In addition, in the context of service quality, relying only on first-order subdimensions as separate latent constructs can lead to empirical bias and create measurement errors (Hallak, Assaker & El-Haddad, 2017). In addition, Blut (2016) defines e-service quality even as a third-order factor model.

To previous explanations, we can add a purely theoretical observation leading to the need to model service quality as a higher-order construct. Namely, the theoretical foundation for such modelling can be found in means-end-chain theory (Parasuraman, Zeithalm, & Malhotra, 2005). Hereby, in this specific case, when developing the measure of electronic service quality, the authors (among whom are those who also developed widely used SERVQUAL) point out that concrete cues represent technical aspects that affect the evaluation of quality, perceptual attributes, and dimensions present the level at which the evaluation of quality happens, while higher-order abstractions correspond to consequences of quality evaluation, including overall service quality.

After opting for a hierarchical (higher-order) approach, the second important moment for researchers relates to the selection of the construct mode – reflective or formative (Crocetta et al., 2021). There are four basic types they can choose from: reflective-reflective, reflective-formative, formative-reflective, and formative-formative (Cheah et al., 2019). Hereby, it should be noted that wrong modelling leads to a misspecification error which influences the structural paths within the measurement model, and may result in erroneous path coefficients (Roy et al., 2012).

Bearing in mind that service quality is usually measured through several dimensions (mostly including SERVQUAL dimensions – reliability, responsiveness, assurance, empathy, and tangibles), it should be modelled as a higher-order construct. In this regard, following specific criteria and recommendations (Jarvis, Mackenzie & Podsakoff, 2003; Parasuraman et al., 2005), banking service quality should be presented as a formative second-order construct, which is determined by its reflective first-order constructs (dimensions). This can additionally be supported by relying on theoretical explanation provided by Jarvis et al. (2003, p. 203). We can firstly consider the relationship between individual items and corresponding dimensions. Hereby, those items can be understood as manifes-



tations of their dimensions; changes in items are not expected to cause changes in dimensions, although the opposite is expected; furthermore, the items belonging to individual dimensions have similar content, and dropping one of them should not alter the conceptual domain of the dimension; and, finally, a change in one of the items can be associated with changes in another, and they have the same antecedents and consequences. Therefore, it can be seen that the relationship of dimensions and their corresponding items is reflective. Then, we can consider the relationship between individual quality dimensions and quality as a higher-order construct. In contrast to the previous explanation, the dimensions are actually defining characteristics of the higher-order quality construct and changes in them should cause changes in the construct, but not the opposite; the dimensions neither have similar content, nor share a common theme; dropping one of them would alter the conceptual domain of the construct; additionally, they do not necessarily covary, nor have the same antecedents and consequences. Therefore, it can be concluded that the relation between quality dimensions and higher-order quality construct is formative.

According to Crocetta et al. (2021, p. 727), “formative models are becoming a standard tool in socio-economic research, particularly in the fields of causal modelling and multidimensional evaluation”, whereas, in the case of service quality measurement, formative perspective was already implemented in some research (e.g. Collier & Bienstock, 2009; Blut, 2016; Liu, Fu, Chao & Li, 2019; Pestovic, Milicevic, Djokic, and Djokic, 2021). Although the problem of model misspecification was identified in the majority of the research from the top marketing journals two decades ago (Jarvis et al., 2003), as were recommendations to consider service quality as a formative construct (Rossiter, 2002; Parasuraman et al., 2005; Collier & Bienstock, 2006), “academic researchers have been so mechanic in the application of reflective indicators in model specification” (Collier & Bienstock, 2009, p. 292) up until today.

To previous considerations, we can add the problems arising when the model is not correctly specified. Jarvis et al. (2003, p. 216) demonstrate in Monte Carlo simulation that “measurement model misspecification severely biases structural parameter estimates and can lead to inappropriate conclusions about hypothesised relationships between constructs”. In addition, Collier and Bienstock (2009) showed that modelling service quality as reflective instead of a formative construct resulted in a severe diminishing of the significance of a concrete dimension of quality, with all problems arising for managerial implications.

Having all previous problems in mind, we can present the treatment of the construct of banking service quality in previous research. It is presented in Table 2.

*Table 2. Modelling service quality in previous research*

Source	Construct is multidimensional	Construct is hierarchical	Construct is reflective-formative
Bhengu & Naidoo (2016)	No	-	-
Bond & Hsu (2011)	No	-	-
Hin et al. (2011)	No	-	-
Narteh (2013)	No	-	-
Mokhlis et al. (2014)	Yes	No	-
Ozretic-Dosen & Zizak (2015)	Yes	No	-
Pass (2006)	Yes	No	-
Reddy & Karim (2014)	Yes	No	-
Yilmaz et al. (2018)	Yes	No	-
Raza et al. (2020)	Yes	No	-
Nguyen et al. (2020)	Yes	No	-
Ganguli & Roy (2011)	Yes	No	-

The results provided in the table suggest that previous research in the field either does not consider banking service quality as a multidimensional construct or does not consider it as a hierarchical construct. Having that as a starting point, the methodology used in this research can be considered as the main contribution of our paper.

## METHODOLOGY

In this research conducted in 2022, we used a convenience sample of 301 students from the University of Novi Sad. Hereby, 61.13% of them were female, and the average age was 21.3. Data was collected by using a questionnaire, based on the studies of Lau et al. (2013) – for measuring banking service quality, and Yilmaz et al. (2018) – for measuring satisfaction and loyalty. Hereby, 15 statements were used for assessing banking service quality - 3 statements for each of the five dimensions (assurance (A1, A2, A3), empathy (E1, E2, and E3), reliability (Rel1, Rel2, and Rel3), responsiveness (Res1, Res2, and Res3), and tangibles (T1, T2, and T3)), and 3 statements each for satisfaction (S1, S2, and S3) and loyalty (L1, L2, and L3). All statements were rated on a scale from 1 to 7, where 1 refers to ‘strongly disagree’ and 7 to ‘strongly agree.’ The questionnaire was distributed through the Google Forms online platform and in physical form.

When modelling banking service quality as a hierarchical reflective-formative construct, the repeated indicator approach (Becker et al., 2012) was applied; it assumed the reuse of the manifest indicators of the first-order constructs for the second-order construct (van Riel, Henseler, Kemény & Sasovova, 2017), i.e. banking service quality was specified by using all 15 indicators of the underlying service quality dimensions. In

addition to variables related to quality, the model included students' satisfaction and loyalty, which were specified as reflective constructs (Figure 2). While relations between manifest variables and their respective latent variables are described by the measurement (or an outer) model, relations between latent variables are described by the structural model (Crocetta et al., 2021). The data was processed in 2023, by using the SmartPLS 4 software.

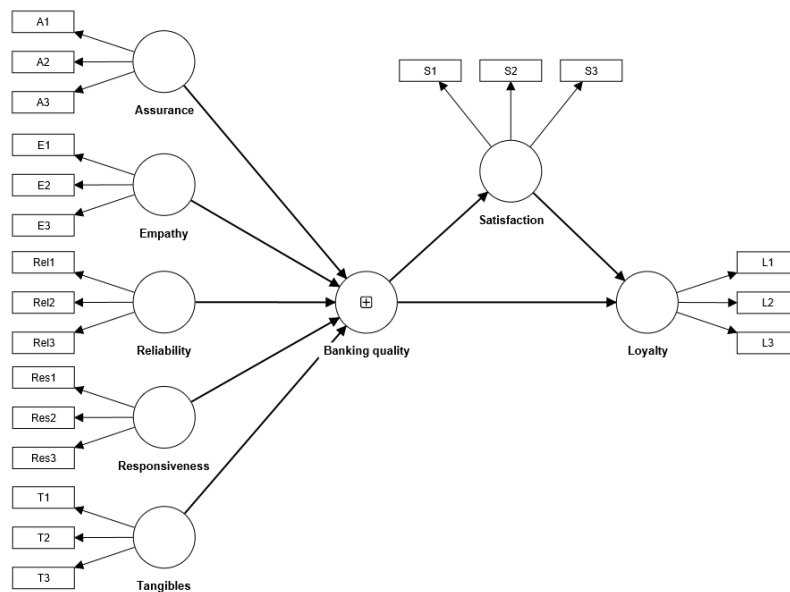


Figure 2. Hierarchical model - Banking service quality

## RESULTS

### Measurement Model

In accordance with certain studies (Hair, Sarstedt, Ringle & Mena, 2012; Hair, Ringle & Sarstedt, 2013), the following criteria were tested for all first-order reflective constructs (five quality dimensions, satisfaction, and loyalty): indicator reliability (outer loadings), composite reliability (CR), average variance extracted (AVE), and discriminant validity (the Fornell-Larcker criterion). All of them were satisfactory except for discriminant validity; the problem occurred in relation to the reliability dimension. Therefore, we excluded the indicator Rel3 from further analysis, as it was highly correlated with indicators from other dimensions. After those changes, the model was tested again.

Table 3. Reflective constructs - Outer loadings, AVE, and CR

Reflective constructs	Outer Ldgs.	AVE	CR
<i>Assurance</i>		0.766	0.907
The bank can provide customers the services as promised.	0.871		
The bank can provide accurate service to customers.	0.875		
The bank can honour their commitments.	0.880		
<i>Empathy</i>		0.772	0.910
Staffs are knowledgeable to solve customers' problems.	0.848		
Staffs have the enthusiasm to understand customer needs.	0.893		
Staffs consider customer needs in the first place.	0.894		
<i>Reliability</i>		0.754	0.860
Customers can feel a sense of secure during the transaction process.	0.853		
Banking service can increase customers' confident and trust in quality services.	0.883		
<i>Responsiveness</i>		0.805	0.925
Staffs can provide customers precise personal services.	0.884		
Staffs can understand customers' needs.	0.905		
Staffs are helpful to customers.	0.903		
<i>Tangibles</i>		0.693	0.871
The equipment of the bank is sufficient and visible for customers' usage.	0.815		
The bank facilities and designs make customers feel comfortable.	0.840		
Sufficient staffs are available to provide customers banking services.	0.843		
<i>Satisfaction</i>		0.890	0.960
I am satisfied to work with the bank.	0.942		
I am happy to use the services of the bank.	0.942		
In general, I have a good and positive impression about the bank.	0.946		
<i>Loyalty</i>		0.820	0.932
I will prioritise the bank when I have to choose a bank of the same type for my future banking needs.	0.927		
I will continue to prefer the products and services of the bank.	0.870		
Despite some minor issues, I will continue to prefer the bank.	0.919		

As shown in Table 3, all criteria were satisfactory; outer loading for each indicator was higher than 0.70, while AVE and CR values for each construct were higher than 0.50 and 0.70, respectively. Moreover, satisfactory results have been obtained in relation to the Fornell-Larcker criterion, where the square root of the constructs' AVE (for each reflective construct) was higher than correlations with other constructs (Table 4).

Table 4. Reflective constructs - Fornell-Larcker criterion

	Ass.	Emp.	Loy.	Rel.	Res.	Sat.	Tan.
Assurance	0.875						
Empathy	0.681	0.878					
Loyalty	0.575	0.665	0.906				
Reliability	0.787	0.699	0.540	0.869			
Responsiveness	0.718	0.835	0.740	0.681	0.897		
Satisfaction	0.661	0.727	0.904	0.610	0.805	0.943	
Tangibles	0.636	0.718	0.656	0.590	0.820	0.721	0.833

When it comes to the higher-order construct, the assessment included path coefficients between banking service quality and its lower-order dimensions, as well as the check of multicollinearity. Significant and positive path coefficients, and satisfactory VIF values (according to Kennedy, 2008) demonstrated no issues in the case of banking service quality as a higher-order construct.

#### Structural Model

In our structural model, there were three  $R^2$  values; because of the use of the repeated indicator approach, for banking service quality, it equalled 1, while it was 0.657 and 0.817 for satisfaction and loyalty, respectively. Figure 3 presents path coefficients and their p-values.

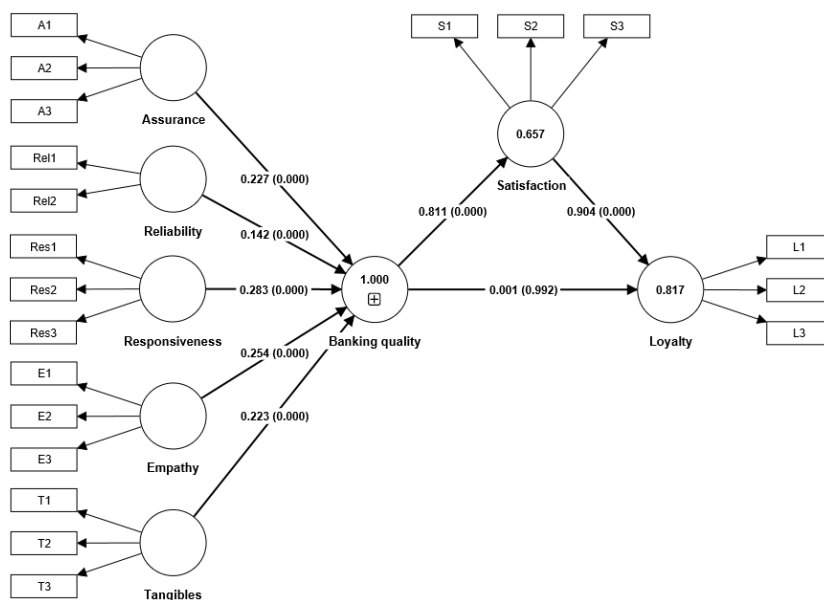


Figure 3. Path coefficients

As previously mentioned, all path coefficients related to quality dimensions were positive and significant, whereby the largest contribution to banking service quality was recorded for responsiveness (0.283), followed by empathy (0.254). Positive and significant path coefficients were detected between banking service quality and satisfaction (0.811), as well as between satisfaction and loyalty (0.904); on the other hand, the path coefficient between banking service quality and loyalty was positive (0.001), but non-significant, as p-value was higher than 0.05. However, banking service quality had a significant and positive indirect effect (0.732) on loyalty, indicating full mediation (Nitzl, Roldan & Cepeda, 2016) through satisfaction (Table 5).

Table 5. Direct and indirect effects

Relations	Total effects	Direct effects	Indirect effects
Banking quality -> Loyalty	0.733*	0.001	0.732*
Banking quality -> Satisfaction	0.811*	0.811*	-
Satisfaction -> Loyalty	0.904*	0.904*	-

In accordance with the obtained results, hypotheses  $H_1$ ,  $H_2$ , and  $H_4$  are confirmed, which was not the case with hypothesis  $H_3$ .

### DISCUSSION AND CONCLUSION

The paper was focused on banking service quality and its relations with satisfaction and loyalty taking into account the student population. This market segment was considered having in mind its potential effect on banks' future profitability. Besides examining those relations, the significance of the research is reflected in modelling banking service quality, which was presented as a hierarchical (higher-order) construct. Hereby, in accordance with certain suggestions, it was specified as a second-order construct determined (formed) by five first-order reflective dimensions (responsiveness, reliability, assurance, tangibles, and empathy).

Among those dimensions, responsiveness and empathy made the largest contribution to banking service quality. This is in line with the research of Karatepe, Yavas and Babakus (2005), who identified interaction quality (dimension partly overlapping with responsiveness) and empathy as the two main dimensions of service quality. In addition, Kant and Jaiswal (2017) singled out responsiveness as the perceived service quality dimension with the largest impact on customer satisfaction. The obtained result only emphasised the role of bank staff in providing services; their helpfulness and effort to understand customers' needs are of special importance when establishing relations with students. Therefore, certain

courses and training could be held with the aim of preparing bank staff to comprehend customer wants and adequately respond to them. According to Karatepe (2011, p. 294), these training programs could include “case studies centering on interpersonal skills, product knowledge, empowerment, and effective customer complaint management.” Moreover, banks should try to individualise attention to customers, by applying customer lifecycle management (CLM). Accordingly, Crain and Main (2022) have suggested several activities, among which are relevant content sharing (through web sites and social media platforms), provision of adequate support options during and immediately after customer decision, and personalisation of customers’ experience by informing them about offers that may be in their sphere of interest. Having in mind the large base of customers, different customer lifecycle software can be used for this purpose (Crain and Main, 2022).

Following the research findings, the increase in banking service quality directly leads to an increase in customer satisfaction. A positive relationship between service quality (or its dimensions) and satisfaction in the banking sector was also found in a number of other studies (Abbasi, Khan & Rashid, 2011; Ali & Raza, 2017; Kaura & Datta, 2012; Supriyanto et al., 2021). Banking service quality significantly and positively affected students’ loyalty, but only indirectly (through satisfaction), which can be supported by the study of Supriyanto et al. (2021). Indriastuti, Putri, Robiansyah and Anwar (2022) also found that, in the context of internet banking, e-service quality significantly affected loyalty only through customer satisfaction, while its direct effect was non-significant. When it comes to the student population, the non-significant relation between perceived service quality and bank loyalty was identified in the research of Narteh (2013, p. 163), implying that “satisfaction with services alone is not enough to guarantee loyalty to banks by the student customers.” Full mediation effect of satisfaction on the relationship between service quality and customer loyalty was confirmed in other sectors as well, such as telecommunication (Solimun & Fernandes, 2018) and insurance (Fachmi, Modding, Kamase & Damis, 2020). In addition, similar to Narteh (2013) and Yilmaz et al. (2018), our research has shown that loyalty was directly and positively affected by student satisfaction. As mentioned in the research of Helgesen (2006), customer loyalty is usually perceived as the main consequence of customer satisfaction.

Having in mind the positive influence of customer satisfaction and/or loyalty on profitability in banking and some other sectors (Eklof, Podkorytova & Malova, 2020; Helgesen, 2006; Pooser & Browne, 2018; Yeung & Ennew, 2001), banks need to improve the quality of their services; They should constantly monitor students and offer them delightful services, well above their expectations; hereby, every service failure should be followed by an apology and proper compensation (Narteh,

2013). Once again it should be stressed that all the above-presented results, as well as recommendations, gain significance in the context of the modelling applied in this research, which is also the main theoretical contribution of this paper. Namely, only considering service quality as higher-order construct (Blut, 2016; Hallak et al., 2017; Parasuraman et al., 2005), as well as presenting the relations of quality dimensions and overall quality as formative (Rossiter, 2002; Parasuramana et al., 2005; Collier & Bienstock, 2006), which has never been employed by some other authors in the field of banking service quality perceived by students measurement before, leads to neither inappropriate conclusions (Jarvis et al., 2003) nor to incorrect managerial implications (Collier & Bienstock, 2009).

In order to gain a deeper insight into this topic, future research may include additional variables associated with students (for example gender, income, or other socio-demographic characteristics) that could be used as moderators. In addition, banking quality, satisfaction, and loyalty could be analysed in a broader context, including some banks' financial performances. Finally, some other segments, like employed young people, can be of special importance to be the focus of future research.

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## **КВАЛИТЕТ БАНКАРСКИХ УСЛУГА, САТИСФАКЦИЈА И ЛОЈАЛНОСТ ПЕРЦИПИРАНИ ОД СТРАНЕ СТУДЕНАТА: ХИЈЕРАРХИЈСКИ ПРИСТУП**

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### **Резиме**

Због активне улоге у различитим привредним секторима, а полазећи и од важности у погледу економског развоја, анализа банкарског пословања је једна од тема која привлачи пажњу већег броја аутора. Имајући у виду промене на банкарском тржишту и интензивне конкурентске односе међу његовим учесницима, придобијање нових и задржавање постојећих клијената представља предуслов остваривања позитивних пословних резултата. Међу различитим сегментима, пажњу би требало посветити и студентима, који због својих друштвених и економских специфичности, као клијенти могу утицати на будућу профитабилност банака.

Анализа квалитета банкарских услуга може представљати основу за предузимање различитих активности у циљу задовољавања потреба клијената. У складу са тим њено мерење је неопходно када су у питању пословне банке. Водећи се сличним студијама у овом раду је истражен квалитет банкарских услуга перципиран од стране студената, као и његов однос са сатисфакцијом и лојалношћу. При томе, квалитет банкарских услуга је моделован као хијерархијски (рефлексивно-формативни) конструкт, детерминисан са пет димензија нижег нивоа: поузданост, сигурност, одговорност, емпатија и опипљиви елементи. Према сазнањима аутора, ово је прво истраживање у којем је квалитет банкарских услуга, моделиран на овај начин, анализиран у односу на задовољство и лојалност студената. За ту сврху примењен је приступ понављајућих индикатора. Узорак су чинили студенти Универзитета у Новом Саду, а прикупљени подаци су обрађени помоћу софтвера

SmartPLS 4. Након тестирања поузданости и валидности рефлексивних конструкта (димензија нижег нивоа, сатисфакције и лојалности), уследила је евалуација квалитета банкарских услуга, као конструкта вишег нивоа. По испуњењу основних критеријума, анализиран је квалитет банкарских услуга, као и односи између поменутог конструкта, сатисфакције и лојалности. Резултати су показали да у најзначајније димензије квалитета банкарских услуга спадају одговорност и емпатија. Такође, потврђено је постојање позитивног и статистички значајног утицаја квалитета на сатисфакцију и сатисфакције на лојалност. Када је у питању однос између квалитета банкарских услуга и лојалности, забележен је само статистички значајан индиректни утицај, што указује на пуно посредовање конструкта сатисфакција.

Добијени резултати указују да би у циљу побољшања конкурентске позиције на тржишту, банке требало да унапреде квалитет својих услуга, са посебним освртом на обуку и усавршавање запослених.