

Perceived service quality and student satisfaction in higher education: A SERVQUAL-based study

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Abstract: The paper investigates the relationship between service quality and student satisfaction in higher education by using the SERVQUAL model. Data was collected from the students at Serbian universities. In order to investigate the influence of students' expectations, perceptions, and the gap between them (perceived service quality) on student satisfaction, three regression analyses were conducted. The obtained results showed that students' perceptions of their experience and perceived service quality are more significant predictors of student satisfaction than students' expectations if taken alone. From all SERVQUAL dimensions, only tangibles, empathy, and assurance were proven to be key drivers of student satisfaction. On the other hand, responsiveness turns out with no significant impact on students' satisfaction. Findings from the study highlight the importance of harmonization of service delivery and students' perceptions at the higher education institutions in order to attain higher levels of student satisfaction. These institutions may work on improving their tangible infrastructure, emotional support by the staff, as well institutional trust. Results from this research may contribute to discussions on quality assurance in higher education, as well may offer practical insights regarding service quality improvements in higher education institutions.

Keywords: *student satisfaction, SERVQUAL, higher education, expectations, perceptions, quality gap*

JEL Classification: *M3, I2*

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1. INTRODUCTION

Institutions of higher education have become highly student-centered and also very competitive in recent decades. Therefore, service quality at universities comes to the forefront. Gone are the days when institutions were evaluated solely on the basis of their academic programs. Nowadays, they are also judged on their ability to meet students' expectations. The ease with which institutions understand students' perceptions of service quality may be essential to improving their performance. This creates a challenge for higher education institutions - how to systematically identify which aspects of service quality strongly influence student satisfaction and, consequently, institutional competitiveness and sustainability.

SERVQUAL was initially developed to evaluate service quality in commercial sectors. Over the last few decades, this framework has been adopted by various HE institutions to measure the discrepancy between students' expectations and perceptions. Despite critics who question its relevance to education and its focus on consumers, SERVQUAL remains a valuable and adaptable method for identifying institutional shortcomings. However, previous studies that applied SERVQUAL in higher education have produced inconsistent results regarding the relative importance of individual service quality dimensions. Also, empirical evidence from transition economies, such as Serbia, remains limited so far, which limits the generalizability of existing findings and their practical applicability in different institutional contexts.

The present study has used the SERVQUAL framework in the Serbian higher education context to analyze the impact of service quality on student satisfaction, and provides the theoretical framework, as well as practical recommendations for universities. This research aims to examine the relationship between service quality and student satisfaction by analyzing students' expectations, perceptions, and the gap between them (perceived service quality), across the five SERVQUAL dimensions. The motivation for this study arose from addressing the context-specific

evidence and clarifying whether student satisfaction is more driven by expectations, actual experiences, or perceived service quality.

This study differs from previous research in three key ways. Firstly, it focuses on the Serbian higher education system, which has been less researched in prior studies. Secondly, it used three models to compare the explanatory power of expectations, perceptions, and perceived service quality, rather than relying on a single aggregated approach. Lastly, it provided empirical evidence on the relative importance of SERVQUAL dimensions, highlighting dimensions that do not significantly influence satisfaction, offering guidance for quality improvements in higher education institutions.

2. LITERATURE REVIEW

The SERVQUAL model was first created to measure service quality in commercial settings, but over the past decades, it has also been widely used in higher education around the world. It assesses service quality by comparing what students expect with what they actually experience.

Using SERVQUAL in different educational contexts shows both its practical value and its limitations. Many studies have shown that SERVQUAL is effective in finding and correcting quality issues (Đonlagić & Fazlić, 2015; Fuchs & Fangpong, 2021; Galeeva, 2016; Goumairi et al., 2020; Sahney et al., 2004; Shekarchizadeh et al., 2011; Tan & Kek, 2004; Van Antwerpen & Van Schalkwyk, 2024; Yousapronpaiboon, 2014). Still, some critics argue that treating students like customers can threaten academic integrity (Gupta & Kaushik, 2018; Manunggal & Afriadi, 2023; Rolo et al., 2023; Sultan & Wong, 2011). To address these problems and account for contemporary challenges, some authors are expanding the model to include digital service metrics and sustainability criteria, while also considering the specific requirements of education systems (Delgado et al., 2022; Liu et al., 2022; Mathew & Cherian, 2025; Ozdemir et al., 2020; Pan, 2025). Even with its critics, SERVQUAL is still a key tool for higher education institutions working to improve service quality.

The SERVQUAL model is the most widely used tool for measuring service quality in higher education. It evaluates the gap between students' expectations and their actual experiences across five dimensions: tangibles, reliability, responsiveness, assurance, and empathy. These dimensions enable institutions

to identify areas for improvement to enhance student satisfaction and overall service quality (Hoque et al., 2023; Mathew & Cherian, 2025).

Tangibles refer to the physical and digital tangible elements of higher education institutions. It includes classrooms, laboratories, equipment, and the institution's online presence (Fuchs & Fangpong, 2021; Goumairi et al., 2020; Mathew & Cherian, 2025; Pan, 2025).

Reliability refers to the ability of faculty members to provide accurate and reliable services from the outset and continuously (Hoque et al., 2023; Utkirov, 2024).

Responsiveness measures the willingness of staff members to provide timely support to students, which includes administrative responsibilities as well as faculty assistance (Fuchs & Fangpong, 2021; Khan et al., 2021).

Assurance encompasses the competence, friendliness, and credibility of faculty staff, which influence student trust and confidence (Arthur et al., 2022; Hoque et al., 2023).

Empathy refers to the personalized attention and care shown to students, taking into account their individual academic needs (Goumairi et al., 2020; Mathew & Cherian, 2025).

Previous research highlighted several recurring insights. On the one hand, some researchers (Alemu, 2023; Suting et al., 2020) argue that tangibles and reliability have the most significant gaps between students' expectations and perceptions of service quality, pointing out that HEI infrastructures and staff consistency may be the key areas which requiring urgent institutional attention. Another group of researchers (Fuchs & Fangpong, 2021; Khan et al., 2021) had different results, in which assurance and responsiveness were identified as the strongest predictors of student satisfaction.

Also, some dimensions were often shown to vary across cultures, such as empathy. This SERVQUAL dimension appears to be very difficult to measure consistently across educational settings and cultures (Hoque et al., 2023). Even though, all five SERVQUAL dimensions offer a powerful analytical lens for quality assessment in higher education institutions. Some researchers (Mbise & Tuninga, 2016; Sahin et al., 2024) also confirm the relevance of these dimensions, and in the same time point out the need for modifications in order to reflect technological advancements regarding student expectations.

A substantial body of research confirms that all five SERVQUAL dimensions—tangibles, reliability, responsiveness, assurance, and empathy—are significantly and positively associated with student satisfac-

tion in higher education contexts (Abu-Rumman & Qawasmeh, 2022; Al-Alak & Alnaser, 2012; Fuchs & Fangpong, 2021; Magasi et al., 2022; Rahmawati et al., 2023; Rashid. et al., 2021; Rodić Lukić & Lukić, 2020; Thapa, 2022). The relationship between perceived service quality and satisfaction has been investigated across institutions and countries. All of them indicate that students' evaluations of educational services extend beyond academic instruction to encompass the entire service environment (Athiyaman, 1997; Dado et al., 2012; Hasan et al., 2008; Helgesen & Nettet, 2007; Malik et al., 2010; Rojas-Méndez et al., 2009).

Empirical studies (Hasan et al., 2008; Khan et al., 2021; Sibai et al., 2021) consistently indicated that, although all dimensions contribute to overall satisfaction, reliability, responsiveness, assurance, and empathy are the most influential predictors. These dimensions capture students' perceptions of consistent, dependable services, timely assistance, professional competence, and individualized support from both academic and administrative staff. For example, Hasan et al. (2008) found that assurance and empathy were the two strongest determinants of satisfaction among Malaysian students, while Dado et al. (2012) confirmed that perceived service quality has a direct positive effect on satisfaction, which subsequently influences students' behavioral intentions such as loyalty and positive word-of-mouth communication.

Also, previous research (Helgesen & Nettet, 2007) implied that satisfaction positively affects institutional reputation and student loyalty. Athiyaman (1997) reported that there is a reciprocal relationship between perceived quality and satisfaction. While satisfaction shapes perceptions of quality, perceived quality also reinforces positive behavioral intentions. Other studies have highlighted the role of emotional and relational factors in shaping satisfaction (Rojas-Méndez et al., 2009), and have shown that service quality and satisfaction enhance trust and commitment, which ultimately drive student loyalty.

When taking into account the tangibles (physical facilities, technological infrastructure, and the general learning environment), they tend to exert a moderate yet statistically significant effect on satisfaction (Hanaysha et al., 2011; Malik et al., 2010). One study (Malik et al., 2010) indicates that both high-quality teaching environments and modern learning facilities can significantly contribute to student satisfaction. This is highlighted chiefly in the contexts where academic interaction and the physical setting are central to learning effectiveness. The strength of these correlations, however, may vary across contexts.

Assurance was found to have the strongest predictive power of student satisfaction in settings where faculty expertise and institutional trust play important role for the participants (Al-Alak & Alnaser, 2012; Rahmawati et al., 2023; Seitova et al., 2024). Although there are many contextual variations, consensus across studies remains that all SERVQUAL dimensions collectively shape the student experience, influencing both satisfaction and loyalty outcomes (Dado et al., 2012; Helgesen & Nettet, 2007; Khan et al., 2021).

Findings from the previous research consistently demonstrate that perceived service quality represents a strong predictor of student satisfaction in higher education. This highlights the need for universities to adopt a comprehensive approach to quality management—one that goes beyond improving physical facilities to also strengthen relational, emotional, and trust-centered aspects of service delivery. By addressing all facets of the student experience, institutions can effectively enhance satisfaction, promote engagement, and encourage lasting loyalty among students.

In this research, the following hypotheses, based on the results of previous findings, were tested:

H1: There is a statistically significant relationship between expectation of service quality and student satisfaction.

H2: There is a statistically significant relationship between perception of service quality and student satisfaction.

H3: There is a statistically significant relationship between perceived service quality dimensions and student satisfaction.

3. METHODOLOGY

3.1. Research objective

This study investigates the relationships among service quality, student satisfaction, and behavioral intentions in the context of higher education. The research is based on the SERVQUAL model, which conceptualizes perceived service quality as the gap between students' expectations and perceptions across five key dimensions: tangibles, reliability, responsiveness, assurance, and empathy.

The primary objective is to explore whether service quality dimensions are associated with student satisfaction.

3.2. Sample

Data for this study were collected by using a structured, self-administered questionnaire. Questionnaires were distributed online to students at higher education institutions in Serbia. A convenience sampling method was used, involving participants who were readily accessible and agreed to participate voluntarily in the study. While this non-probability sampling approach limits generalizability, it is appropriate for research focused on examining theoretical relationships among variables.

Participation was completely voluntary and anonymous. The online format allowed for extensive reach and efficient data collection within the intended timeframe. Prior to analysis, all responses were screened for completeness. Only fully completed questionnaires were included.

The research sample consisted of 445 students. The majority identified as female (76%), while 23.8% identified as male. Most respondents were in their second (52.6%) or third year (25.2%) of study, with smaller proportions from the first year (22.2%). Additionally, 9.9% were senior undergraduates, while 10.1% were enrolled in masters or doctoral programs. Academic performance was diverse, with the largest share reporting their grade point average 7.5 – 8.4 (40.7%), followed by 8.5 – 9.4 (28.6%). A smaller portion achieved a 9.5-10 (11.7%), while lower averages were less common. Regarding student status, 71% of respondents were full-time students, and 27% were employed while studying, indicating a balanced mix of academic engagement and professional activity within the sample.

3.3. Instrument

The modified SERVQUAL questionnaire was the primary instrument which is used in this research. It was adapted for the application in higher education set-

tings, following prior validated implementations (Al-emu, 2023; Al-Refaei et al., 2024; Bahadori et al., 2011; Dado et al., 2011; Fuchs & Fangpong, 2021; Goumairi et al., 2020; Khan et al., 2021; Legčević, 2009; de Oliveira & Ferreira, 2009; Rodić Lukić & Lukić, 2020; Shekarchizadeh et al., 2011; Sultan & Wong, 2011; Utkirov, 2024). The instrument consisted of 48 items, divided equally into two parts: 24 items measuring students' expectations (E) regarding what a world-class faculty should provide, and 24 items measuring students' perceptions (P) of the actual service quality at their current institution.

Each expectation item had a corresponding perception item with identical wording but a different referent. Students were instructed to rate all items on a 5-point Likert scale (1 = strongly disagree; 5 = strongly agree). The 48 items were mapped onto the original five SERVQUAL dimensions as shown in table 1.

The perceived service quality score (PSQ) was calculated by subtracting perceptions from expectations for each item ($PSQ = P - E$), and then aggregated across dimensions. All dimensions demonstrated strong internal consistency, with Cronbach's alpha ranging from 0.84 to 0.96, indicating high measurement reliability.

In addition to the SERVQUAL scale, a second instrument was used to measure student satisfaction. It included 4 items also rated on a 5-point Likert scale. The satisfaction scale was developed following previous studies by Helgesen and Nasset (2007) and Rojas-Méndez et al. (2009). It comprised four items, assessing students' overall satisfaction, their positive perception of the faculty, perceived value of services received, and the extent to which their pre-enrollment expectations were fulfilled.

3.4. Data analysis procedures

The collected data were analyzed using the Statistical Package for the Social Sciences (SPSS). Descriptive

Table 1: SERVQUAL dimensions

Dimension	Items per section (E or P)	Description
Tangibles	8	Physical environment, infrastructure, digital presence, academic surroundings
Reliability	4	Consistency, dependability, accurate service delivery
Responsiveness	4	Timeliness, helpfulness, availability of academic and administrative staff
Assurance	4	Professionalism, competence, communication, and institutional trust
Empathy	4	Personalized attention, student understanding, and supportive academic culture

Source: Authors

statistics were first computed to examine the demographic profile of respondents and assess the distributional properties of key variables. Reliability of the measurement scales was tested using Cronbach's alpha, with values above 0.70 considered acceptable for internal consistency.

To test the study's hypotheses, multiple linear regression analysis was performed to examine the relationships between service quality dimensions and outcome variable - student satisfaction. Separate regression models were constructed for:

- Expectation of service quality (E) - Students' expectations regarding service quality;
- Perceptions of service quality (P) - Students' perceptions of the actual service received;
- Perceived service quality (P-E) - Discrepancy between perceptions and expectations of service quality.

Regression diagnostics were conducted to verify assumptions of linearity, normality, homoscedasticity, and multicollinearity. Statistical significance was set at $p < .05$, with $p < .01$ indicating strong evidence against the null hypothesis.

4. RESULTS

This section presents the findings from three separate multiple regression analyses conducted to explore the relationship between service quality and student satisfaction in higher education. Each analysis examined a different aspect of service quality as the predictor variable: first, expectations of service quality; then, perceptions of service quality; and lastly, perceived service quality (the gap between perception and expectation). In all three models, the dependent variable was student satisfaction, while the five SERVQUAL dimensions: tangibles, reliability, responsiveness, assurance, and empathy, served as the independent variables.

By structuring the analysis this way, the study aimed to identify which specific dimensions of service quality are most strongly associated with satisfaction, depending on whether students' expectations, actual experiences, or the discrepancy between the two were considered. This comparative research approach enables a deeper understanding of how different dimensions of service quality contribute to student satisfaction.

4.1. Model 1: Expectation of service quality → Student satisfaction

The first regression analysis was conducted to assess the relationship between expectation of service quality dimensions and student satisfaction. The overall model was statistically significant at the 0.05 level ($F = 2.505$; $p = 0.030$), suggesting that students' expectations regarding service quality have a modest but meaningful influence on their satisfaction.

The coefficient of determination ($R^2 = 0.028$) indicates that the five SERVQUAL expectation dimensions explain approximately 2.8% of the variance in student satisfaction, with a multiple correlation coefficient ($R = 0.167$) showing a weak but present linear relationship between the predictors and the dependent variable.

Among the five predictors, only reliability exhibited a statistically significant relationship with student satisfaction ($\beta = -0.137$, $p = 0.021$), with the effect in a negative direction. This unexpected finding may suggest that higher expectations for reliable service, if unmet, can lead to decreased satisfaction, possibly because students are disappointed when anticipated standards are not met. The remaining dimensions—tangibles, responsiveness, assurance, and empathy—did not demonstrate significant predictive power in this model. These findings imply that students' expectations alone are a weak predictor of overall satisfaction unless they align with perceived or actual service delivery.

Table 2: Relationship between expectation of service quality and student satisfaction

R = .167		R² = .028		F-ratio = 2.505		Sig. F = 0.030*	
No.	Dimension	β	Part	t-value	Sig. t		
1.	Tangibles	.021	.017	.358	.720		
2.	Reliability	-.137	-.109	-2.312	.021*		
3.	Responsiveness	.035	.026	.547	.585		
4.	Assurance	-.090	-.067	-1.414	.158		
5.	Empathy	.001	.001	.021	.983		

Note: ** $p < 0.01$; * $p < 0.05$

Source: Authors

Based on this analysis, Hypothesis H1, which posits a relationship between expected service quality and student satisfaction, is partially supported: only one dimension (reliability) contributes significantly and even then in a negative direction.

4.2. Model 2: Perceptions of service quality → Student satisfaction

To examine how perceptions of service quality influences student satisfaction, a multiple regression analysis was conducted with the five SERVQUAL dimensions (as perceived by students) as independent variables. The results, summarized in Table 3, indicate that the model is statistically significant ($F = 144.213$, $p < 0.001$), demonstrating a strong predictive relationship.

The coefficient of determination ($R^2 = 0.623$) shows that approximately 62.3% of the variance in student satisfaction can be explained by the perceptions of service quality dimensions, with a multiple correlation coefficient ($R = 0.789$) suggesting a strong positive association between perceived quality and satisfaction. The Durbin-Watson statistic of 2.024 indicates no autocorrelation in the residuals, supporting the reliability of the regression results.

The perceptions of service quality scale comprised 24 items, distributed across five SERVQUAL dimensions, and demonstrated high internal consistency (Cronbach's $\alpha = 0.96$). The student satisfaction scale, consisting of four items, also showed excellent reliability (Cronbach's $\alpha = 0.94$).

Among the predictors, tangibles ($\beta = 0.358$, $p < 0.001$), empathy ($\beta = 0.348$, $p < 0.001$), and assurance ($\beta = 0.141$, $p = 0.014$) were statistically significant. These results suggest that the physical learning environment, staff attentiveness and understanding, and the professionalism and trustworthiness of institutional staff are the most influential factors driving student satisfaction. Meanwhile, reliability and responsiveness did not significantly predict satisfaction in this model.

Based on these findings, Hypothesis H2, which posits a positive relationship between perceptions of service quality and student satisfaction, is strongly supported. The results reinforce the importance of delivering high-quality educational services that not only meet but exceed students' expectations in tangible and relational aspects.

4.3. Model 3: Perceived service quality (Gap score) → Student satisfaction

A third regression model was conducted to evaluate the relationship between perceived service quality, defined as the gap between students' perceptions and expectations ($P - E$), and their overall satisfaction. The five SERVQUAL gap dimensions (tangibles, reliability, responsiveness, assurance, and empathy) were used as independent variables, while student satisfaction served as the dependent variable.

As shown in Table 4, the model is statistically significant ($F = 118.263$, $p < 0.001$), confirming that perceived service quality significantly predicts student satisfaction. The model explains 57.5% of the variance in student satisfaction ($R^2 = 0.575$, $R = 0.758$), indicating a strong positive relationship. The Durbin-Watson value of 1.985 suggests that residuals are independent, meeting a key regression assumption.

The perceived service quality scale was constructed from 24 gap scores, calculated as the difference between students' perceptions and expectations ($P - E$), and organized according to the five SERVQUAL dimensions. The scale demonstrated excellent internal consistency, with a Cronbach's α of 0.96, while the student satisfaction scale also showed high reliability ($\alpha = 0.94$).

The regression analysis revealed that four of the five perceived service quality dimensions significantly influenced student satisfaction. Tangibles, empathy, assurance, and reliability showed positive and statistically significant relationships with satisfaction, indicating that improvements in these areas, such as the

Table 3: Relationship between perceptions of service quality and student satisfaction

R = 0.789		R² = 0.623		F-ratio = 144.213		Sig. F = 0.000**	
No.	Dimension	β	Part	t-value	Sig. t		
1.	Tangibles	0.358	0.229	7.803	0.000**		
2.	Reliability	0.079	0.043	1.453	0.147		
3.	Responsiveness	-0.060	-0.031	-1.042	0.298		
4.	Assurance	0.141	0.073	2.472	0.014*		
5.	Empathy	0.348	0.174	5.925	0.000**		

Note: ** $p < 0.01$; * $p < 0.05$

Source: Authors

Table 4: Relationship between perceived service quality and student satisfaction

R = 0.758		R² = 0.575		F-ratio = 118.263		Sig. F = 0.000**	
No.	Dimension	β	Part	t-value	Sig. t		
1.	Tangibles	0.283	0.186	5.964	0.000**		
2.	Reliability	0.156	0.087	2.792	0.005**		
3.	Responsiveness	-0.068	-0.035	-1.120	0.263		
4.	Assurance	0.169	0.089	2.845	0.005**		
5.	Empathy	0.302	0.157	5.027	0.000**		

Note: **p < 0.01; *p < 0.05

Source: Authors

quality of physical facilities, personalized support, trust in staff and consistency of service, are likely to enhance the overall student experience. In contrast, the responsiveness dimension did not significantly predict satisfaction within this model.

These findings provide strong support for Hypothesis H3, confirming that perceived service quality is a significant predictor of student satisfaction. They also underscore the importance of reducing the gap between expectations and actual experiences across multiple service dimensions to foster greater satisfaction in higher education settings.

5. DISCUSSION

The findings of this study provide insights into the relationship between service quality and student satisfaction within the framework of the SERVQUAL model. While existing literature has consistently confirmed a positive association between the five SERVQUAL dimensions and student satisfaction in higher education (Abu-Rumman & Qawasmeh, 2022; Al-Alak & Alnaser, 2012; Fuchs & Fangpong, 2021; Magasi et al., 2022; Rahmawati et al., 2023; Rashid et al., 2021; Rodić Lukić & Lukić, 2020; Thapa, 2022) this study reveals that the strength and nature of these associations are contingent upon whether expectations, perceptions, or the gap between them are considered.

In line with past research (Helgesen & Nasset, 2007; Dado et al., 2012), perceived service quality emerged as the strongest predictor of student satisfaction, explaining over 62% of the variance. These findings strongly supported Hypothesis H2, which assumes a positive relation between perceptions of service quality and student satisfaction. Of all dimensions, tangibles, empathy, and assurance have a statistically significant influence on student satisfaction. This highlights that the physical environment, emotional support from faculty staff as well as institutional trust are the most important factors in stu-

dent experiences and satisfaction, consistent with prior findings that quality perceptions extend beyond academic content to include interpersonal and infrastructural aspects (Malik et al., 2010; Rojas-Méndez et al., 2009). The prominence of tangibles in this model aligns with Hanaysha et al. (2011), emphasizing that well-maintained facilities and modern infrastructure enhance the educational experience.

Our study suggests that reliability and responsiveness are not significantly predictive of satisfaction when only perceptions are considered, which partially diverges from earlier studies (Hasan et al., 2008; Sibai et al., 2021). These results indicate that Hypothesis H2 is not completely supported and there is a certain place for future research. This may suggest that in mature or resource-constrained higher education contexts, students take baseline levels of consistency and promptness for granted, and thus assign greater weight to affective and relational factors.

When only perceived service quality (gap scores) were investigated, the obtained results further support these observations and demonstrate that minimizing gaps in tangibles, empathy, assurance, and reliability positively influence satisfaction. These findings give strong confirmation for Hypothesis H3, which assumes that perceived service quality is a significant predictor of student satisfaction. This aligns with the gap theory underpinning SERVQUAL, where satisfaction is enhanced when perceived performance meets or exceeds (Parasuraman et al., 1988). The significance of reliability in this model, but not in the perception-only model, indicates that discrepancies between expected and actual dependability can markedly affect satisfaction, likely because unmet expectations are salient.

One fascinating result in this study was that responsiveness did not significantly predict satisfaction in any of the models, contradicting some prior research (Khan et al., 2021; Sibai et al., 2021). These results show that none hypothesis has been fully confirmed, although

two of them – Hypothesis 2 and 3 have been confirmed to a significant extent, so through future studies should additionally test relevant dimensions. This finding could reflect contextual differences in student priorities or institutional limitations on staff availability, in which students may have adjusted their expectations downward over time. Alternatively, responsiveness may interact with other variables such as communication clarity or digital engagement, suggesting a need for future studies to explore moderating effects.

The model based solely on expectations yielded the weakest explanatory power, with only reliability emerging as a significant (albeit negatively related) predictor. These results show that Hypothesis H1, which assumes a relationship between expected service quality and student satisfaction, is just partially supported. This finding underscores the limitations of assessments based only on expectations, as satisfaction is fundamentally shaped by real experiences rather than abstract anticipations (Athiyaman, 1997). The negative coefficient for reliability may reflect a disconfirmation effect, in which unfulfilled expectations lead to dissatisfaction, which is a well-known phenomenon supported by expectation-disconfirmation theory (Oliver, 1980).

Overall, these results confirm and refine the SERVQUAL model's applicability in higher education by demonstrating that students' perceptions and perceived service quality are far more consequential for student satisfaction than expectations alone. This suggests the need for ongoing service quality evaluations in order to identify areas for improvement, that directly shape student experiences, specifically infrastructure, staff engagement, and institutional trust.

6. CONCLUSION

Regarding the theoretical implications, the presented study examined the relationship between perceived service quality and student satisfaction in higher education by using the SERVQUAL framework, while also analyzing the influence of expectations, perceptions, and the perception-expectation gap (perceived service quality) across five dimensions: tangibles, reliability, responsiveness, assurance, and empathy. Using a robust empirical design involving multiple regression analyses, the findings affirm that perceived service quality is a stronger predictor of student satisfaction than expectations alone.

Among the five dimensions, tangibles, empathy, and assurance consistently emerged as the most in-

fluential across models. This underscores the critical importance of the physical learning environment, personalized support, and professional credibility of staff in shaping students' academic experiences. In contrast, responsiveness, despite being a central tenet of traditional service models, did not significantly impact satisfaction in any model, suggesting a potential reevaluation of its relevance or measurement in modern higher education contexts.

These results have important practical implications – in the domain of their quality improvements, higher education institutions should focus their activities on modernizing their facilities and digital infrastructure (tangibles), strengthening interpersonal engagement (empathy), and improving institutional trust (assurance). Thus, requests are not solely for capital investments. There is also a need for staff training to increase staff engagement and to create student-centered policies. Aligning service delivery with student expectations, particularly in reliability, can mitigate dissatisfaction driven by unmet expectations. That further underscores the need for effective expectation management and proactive service design in higher education institutions.

In conclusion, this research reinforces the enduring relevance of the SERVQUAL framework in evaluating higher education service quality, while also calling for its thoughtful adaptation to contemporary educational realities. Institutions that prioritize tangible enhancements, relational quality, and alignment between promises and performance are better positioned to foster meaningful, lasting student satisfaction.

Possible limitations of this study are reflected in used transversal research design, selection of relevant SERVQUAL dimensions and specifics of the sample of participants. Given these limitations, recommendations for their overcoming have been made, through suggestions for future studies.

In the context of previous insights, recommendations for future research include expanding the scope of analysis through longitudinal and mixed-method designs to capture the evolution of satisfaction over time and the underlying drivers of student perceptions. Future studies should also explore modern adaptations of SERVQUAL by incorporating dimensions such as online engagement quality, virtual staff responsiveness, and online service delivery. Finally, cross-cultural comparative studies would help validate the generalizability of the findings and uncover contextual differences in the drivers of student satisfaction across diverse educational ecosystems.

References

1. Abu-Rumman, A., & Qawasmeh, R. (2022). Assessing international students' satisfaction of a Jordanian university using the service quality model. *Journal of Applied Research in Higher Education*, 14(4), 1742–1760. <https://doi.org/10.1108/jarhe-05-2021-0166>
2. Al-Alak, B., & Alnaser, A. S. M. (2012). Assessing the Relationship Between Higher Education Service Quality Dimensions and Student Satisfaction. *Australian Journal of Basic and Applied Sciences*, 6(1), 156–164.
3. Alemu, A. (2023). Assessing service quality in tertiary Education using adapted SERVQUAL scale. *Cogent Education*, 10(2), 2259733. <https://doi.org/10.1080/2331186x.2023.2259733>
4. Al-Refaei, A. A.-A. H., Ali, H. M., Aldaba, A. M., & Zumrah, A. R. (2024). Determinants of customer-perceived service quality in higher education: The roles of job satisfaction and organizational commitment. *International Journal of Quality and Service Sciences*, 16(1), 1–18. <https://doi.org/10.1108/ijqss-08-2022-0089>
5. Arthur, Y. D., Dogbe, C. S. K., & Asiedu-Addo, S. K. (2022). Modeling students' mathematics achievement and performance through teaching quality: SERVQUAL perspective. *Journal of Applied Research in Higher Education*, 14(4), 1509–1523. <https://doi.org/10.1108/JARHE-06-2021-0243>
6. Athiyaman, A. (1997). Linking student satisfaction and service quality perceptions: The case of university education. *European Journal of Marketing*, 31(7), 528–540. <https://doi.org/10.1108/03090569710176655>
7. Bahadori, M., Sadeghifar, J., Nejati, M., Hamouzadeh, P., & Hakimzadeh, M. (2011). Assessing quality of educational service by the SERVQUAL model: Viewpoints of paramedical students at Tehran University of Medical Science. *Technics Technologies Education Management*, 6(4), 1058–1065.
8. Dado, J., Táborecká-Petrovičová, J., Cuzovic, S., & Rajic, T. (2012). An empirical examination of the relationships between service quality, satisfaction and behavioral intentions in higher education setting. *Serbian Journal of Management*, 7(2), 203–218. <https://doi.org/10.5937/sjm7-1245>
9. Dado, J., Táborecká-Petrovičová, J., Riznic, D., & Rajic, T. (2011). International review of management and marketing an empirical investigation into the construct of higher education service quality. *International Review of Management and Marketing*, 1(3), 30–42.
10. de Oliveira, O. J., & Ferreira, E. C. (2009). Adaptation and application of the SERVQUAL scale in higher education. *POMS 20th Annual Conference*. Orlando, FL: Production and Operations Management Society.
11. Delgado, B. C., Júnior, A. F., Mergulhão, R. C., & Silva, D. (2022). Assessment of the quality of digital services provided by an e-learning platform focused on sustainability issues. *Production*, 32, e20210110. <https://doi.org/10.1590/0103-6513.20210110>
12. Đonlagić, S., & Fazlić, S. (2015). Quality assessment in higher education using the SERVQUAL model. *Management: Journal of Contemporary Management Issues*, 20(1), 39–57.
13. Fuchs, K., & Fangpong, K. (2021). Using the SERVQUAL Framework to Examine the Service Quality in Higher Education in Thailand. *Education Quarterly Reviews*, 4(2), 363–370. <https://doi.org/10.31014/aior.1993.04.02.286>
14. Galeeva, R. (2016). SERVQUAL application and adaptation for educational service quality assessments in Russian higher education. *Quality Assurance in Education*, 24(3), 329–348. <https://doi.org/10.1108/qae-06-2015-0024>
15. Goumairi, O., Aoula, E.-S., & Souda, S. B. (2020). Application of the SERVQUAL Model for the Evaluation of the Service Quality in Moroccan Higher Education: Public Engineering School as a Case Study. *International Journal of Higher Education*, 9(5), 223–229. <https://doi.org/10.5430/ijhe.v9n5p223>
16. Gupta, P., & Kaushik, N. (2018). Dimensions of service quality in higher education – critical review (students' perspective). *International Journal of Educational Management*, 32(4), 580–605. <https://doi.org/10.1108/ijem-03-2017-0056>
17. Hanaysha, J., Abdullah, H. H., & Warokka, A. (2011). Service Quality and Students' Satisfaction at Higher Learning Institutions: The Competing Dimensions of Malaysian Universities' Competitiveness. *Journal of Southeast Asian Research*, 2011(2011), 855931. <https://doi.org/10.5171/2011.855931>
18. Hasan, H. F. A., Ilias, A., Rahman, R. A., & Razak, M. Z. A. (2008). Service quality and student satisfaction: A case study at private higher education institutions. *International Business Research*, 1(3), 163–175. <https://doi.org/10.5539/ibr.v1n3p163>
19. Helgesen, Ø., & Nettet, E. (2007). What accounts for students' loyalty? Some field study evidence. *International Journal of Educational Management*, 21(2), 126–143. <https://doi.org/10.1108/09513540710729926>
20. Hoque, U. S., Akhter, N., Absar, N., Khandaker, M. U., & Al-Mamun, A. (2023). Assessing Service Quality Using SERVQUAL Model: An Empirical Study on Some Private Universities in Bangladesh. *Trends in Higher Education*, 2(1), 255–269. <https://doi.org/10.3390/higheredu2010013>

21. Khan, S. K., Siddiqui, T. A., & Rais, M. (2021). Assessing the relationship among service quality dimensions in higher education institution and student satisfaction by applying the SERVQUAL model. *Pakistan Journal of Educational Research*, 4(4), 129–140. <https://doi.org/10.52337/pjer.v4i4.336>
22. Legčević, J. (2009). Quality gap of educational services in viewpoints of students. *Ekonomika Misao i Praksa*, 18(2), 279–298.
23. Liu, Y., Bao, T., Zhao, D., Sang, H.-Y., & Fu, B. (2022). Evaluation of Student-Perceived Service Quality in Higher Education for Sustainable Development: A Fuzzy TODIM-ERA Method. *Sustainability*, 14(8), 4761. <https://doi.org/10.3390/su14084761>
24. Magasi, C., Mashenene, R. G., & Ndengenesa, D. M. (2022). Service Quality and Students' Satisfaction in Tanzania's Higher Education: A Re-examination of SERVQUAL Model. *International Review of Management and Marketing*, 12(3), 18–25. <https://doi.org/10.32479/irmm.13040>
25. Malik, M. E., Danish, R. Q., & Usman, A. (2010). The impact of service quality on students' satisfaction in higher education Institutes of Punjab. *Journal of Management Research*, 2(2), 1–11.
26. Manunggal, B., & Afriadi, B. (2023). SERVQUAL in higher education institutions. *International Journal of Business, Law, and Education*, 4(1), 107–114. <https://doi.org/10.56442/ijble.v4i1.132>
27. Mathew, B., & Cherian, M. (2025). Assessing Service Quality Dimensions in Open and Adaptive Pedagogies: A SERVQUAL Model for 21st Century Teaching–Learning Ecosystems. *Power System Technology*, 49(2), 2109–2133. <https://doi.org/10.52783/pst.1998>
28. Mbise, E., & Tuninga, R. (2016). Measuring Business Schools' Service Quality in an Emerging Market Using an Extended SERVQUAL Instrument. *South African Journal of Business Management*, 47(1), 61–74. <https://doi.org/10.4102/sajbm.v47i1.53>
29. Mohammad, A., Narges, S., & Zahra, A. (2023). Evaluation of universities service quality through Servqual method. *Journal of Engineering Management and Competitiveness*, 13(1), 3–10. <https://doi.org/10.5937/jemc2301003a>
30. Oliver, R. L. (1980). A Cognitive Model of the Antecedents and Consequences of Satisfaction Decisions. *Journal of Marketing Research*, 17(4), 460–469. <https://doi.org/10.2307/3150499>
31. Ozdemir, Y., Kaya, S. K., & Turhan, E. (2020). A scale to measure sustainable campus services in higher education: "Sustainable Service Quality". *Journal of Cleaner Production*, 245, 118839. <https://doi.org/10.1016/j.jclepro.2019.118839>
32. Pan, M. (2025). Online Service Quality Assessment in Higher Education: Development, Validation, and Implementation of an e-Tool. *South Asian Journal of Social Studies and Economics*, 22(1), 38–52. <https://doi.org/10.9734/sajsse/2025/v22i1943>
33. Parasuraman, A., Zeithaml, V., & Berry, L. (1988). Servqual: A multiple-item scale for measuring consumer perceptions of service quality. *Journal of Retailing*, 64(1), 12–40.
34. Rahmawati, R., Permana, J., Nurdin, D., Triatna, C., & Fadhli, F. (2023). Analysis of University Student Satisfaction Levels with the Learning Process on Five Dimensions of Service Quality (SERVQUAL). *AL-ISHLAH: Jurnal Pendidikan*, 15(2), 1944–1957. <https://doi.org/10.35445/alishlah.v15i2.2355>
35. Rashid, N., Ismail, T., & Thomas, B. (2021). The Correlation between Servqual Dimensions and Student Satisfaction. *Advances in Business Research International Journal*, 7(2), 7–19. <https://doi.org/10.24191/abrij.v7i2.4201>
36. Rodić Lukić, V., & Lukić, N. (2020). Assessment of student satisfaction model: Evidence of Western Balkans. *Total Quality Management & Business Excellence*, 31(13–14), 1506–1518. <https://doi.org/10.1080/14783363.2018.1489227>
37. Rojas-Méndez, J. I., Vasquez-Parraga, A. Z., Kara, A., & Cerda-Urrutia, A. (2009). Determinants of student loyalty in higher education: A tested relationship approach in Latin America. *Latin American Business Review*, 10(1), 21–39. <https://doi.org/10.1080/10978520903022089>
38. Rolo, A., Alves, R., Saraiva, M., & Leandro, G. (2023). The SERVQUAL instrument to measure service quality in higher education – A case study. *SHS Web of Conferences*, 160, 01011. <https://doi.org/10.1051/shsconf/202316001011>
39. Sahin, A., Imamoglu, G., Murat, M., & Ayyıldız, E. (2024). A holistic decision-making approach to assessing service quality in higher education institutions. *Socio-Economic Planning Sciences*, 92, 101812. <https://doi.org/10.1016/j.seps.2024.101812>
40. Sahney, S., Banwet, D. K., & Karunes, S. (2004). A SERVQUAL and QFD approach to total quality education: A student perspective. *International Journal of Productivity and Performance Management*, 53(2), 143–166. <https://doi.org/10.1108/17410400410515043>
41. Seitova, M., Temirbekova, Z., Kazykhankyzy, L., Khalmatova, Z., & Çelik, H. (2024). Perceived service quality and student satisfaction: A case study at Khoja Akhmet Yassawi University, Kazakhstan. *Frontiers in Education*, 9, 1492432. <https://doi.org/10.3389/educ.2024.1492432>
42. Shekarchizadeh, A., Rasli, A., & Hon-Tat, H. (2011). SERVQUAL in Malaysian universities: Perspectives of international students. *Business Process Management Journal*, 17(1), 67–81. <https://doi.org/10.1108/14637151111105580>

43. Sibai, M. T., BayJr, B., & dela Rosa, R. (2021). Service Quality and Student Satisfaction Using ServQual Model: A Study of a Private Medical College in Saudi Arabia. *International Education Studies*, 14(6), 51-58. <https://doi.org/10.5539/ies.v14n6p51>
44. Sultan, P., & Wong, H. Y. (2011). Service quality in a higher education context: Antecedents and dimensions. *International Review of Business Research Papers*, 7(2), 11-20.
45. Suting, A., Lal, V., & Varaprasad, G. (2020). Higher education quality assessment using SERVQUAL. *Proceedings of the 2020 International Conference on System, Computation, Automation and Networking (ICSCAN)* (pp. 1-5). Pondicherry, India: IEEE. <https://doi.org/10.1109/icscan49426.2020.9262310>
46. Tan, K., & Kek, S. (2004). Service quality in Higher Education using an enhanced SERVQUAL approach. *Quality in Higher Education*, 10(1), 17-24. <https://doi.org/10.1080/1353832242000195032>
47. Thapa, M. (2022). Impact of Service Quality on Student Satisfaction: A Case Study of Public Sector Higher Secondary Institution. *The Batuk*, 8(1), 1-15. <https://doi.org/10.3126/batuk.v8i1.43500>
48. Utkirov, A. (2024). SERVQUAL as a tool for measuring and enhancing higher education service quality. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.5029422>
49. Van Antwerpen, S., & Van Schalkwyk, R. (2024). SERVQUAL Gap Analysis Between Two Private Higher Education Institution Campuses in South Africa. *The Journal of Quality in Education*, 14(2), 105-119. <https://doi.org/10.37870/joqie.v14i24.446>
50. Yousapronpaiboon, K. (2014). SERVQUAL: Measuring Higher Education Service Quality in Thailand. *Procedia - Social and Behavioral Sciences*, 116, 1088-1095. <https://doi.org/10.1016/j.sbspro.2014.01.350>

Apstrakt

Percipirani kvalitet usluge i zadovoljstvo studenata u visokom obrazovanju: studija zasnovana na SERVQUAL modelu

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Rad istražuje odnos kvaliteta usluge i zadovoljstva studenata u visokom obrazovanju primenom SERVQUAL modela. Podaci su prikupljeni od studenata na univerzitetima u Srbiji. Kako bi se ispitao uticaj očekivanja studenata, percepcija i jaza između njih (percipirani kvalitet usluge) na zadovoljstvo studenata, sprovedene su tri regresione analize. Dobijeni rezultati pokazuju da su percepcije studenata o njihovom iskustvu i percipirani kvalitet usluge značajniji prediktori zadovoljstva studenata nego sama očekivanja. Od svih SERVQUAL dimenzija, samo opipljivost, empatija i sigurnost pokazale su se kao ključni pokretači zadovoljstva studenata. S druge strane, spremnost da se odgovori nije pokazala značajan uticaj na zadovoljstvo studenata. Nalazi

istraživanja ukazuju na značaj usklađivanja pružanja usluge i percepcija studenata u institucijama visokog obrazovanja kako bi se postigao viši nivo zadovoljstva studenata. Ove institucije mogu raditi na unapređenju svoje materijalne infrastrukture, emocionalne podrške od strane osoblja, kao i institucionalnog poverenja. Rezultati ovog istraživanja mogu doprineti diskusijama o obezbeđenju kvaliteta u visokom obrazovanju, kao i pružiti praktične uvide u unapređenje kvaliteta usluga u institucijama visokog obrazovanja.

Ključne reči: *zadovoljstvo studenata, SERVQUAL, visoko obrazovanje, očekivanja, percepcije, jaz u kvalitetu*

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