

Research Article

Service quality in higher education: A literature review

Romain Patrick Bartolo¹ and Hasan Tinmaz^{2*}

AI & Big Data Department, Endicott College of International Studies, Woosong University, Daejeon, South Korea

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Abstract

In a time where the student experience increasingly mirrors a customer-centric approach, universities are tasked with fulfilling the role of comprehensive educational service providers. This paper presents a comprehensive literature review on service quality in higher education, focusing on various generic and industry-specific scales. The primary objective of this article is to analyse and compare prominent measurement scales such as SERVQUAL, SERVPERF, HEdPERF, UnivQual, and HiEduQual. Each scale is defined according to its original literature and provides a foundational understanding of their respective constructs and factors. To achieve a nuanced comparison, the paper examines these scales based on the number of factors extracted from studies and their characteristics. The analysis reveals a great diversity and specificity of factors in measuring service quality across different higher education contexts. Beyond that, the paper analyses a database of 49 selected peer-reviewed articles to understand the practical application of service quality scales in empirical research. This examination considers multiple dimensions such as the country of focus, the statistical procedures employed, and the research methods. These dimensions offer a rich comparative insight into the trends in service quality research within higher education. Additionally, the study delves into the number and names of factors identified in each article, mapping them against the established scales to uncover patterns and deviations in empirical findings. A notable aspect of the review is the exploration of gender differences in service quality perceptions, a critical yet often underexplored area. This gender-based analysis provides valuable insights into how male and female students may perceive service quality differently, thereby informing more nuanced and inclusive service quality enhancement strategies. The findings of this paper underscore the multifaceted nature of service quality in higher education and the importance of context-specific scales. By comparing different measurement approaches and analysing a broad spectrum of empirical studies, this review contributes to a deeper understanding of how service quality is conceptualised and measured in higher education. It also offers practical implications for researchers and practitioners aiming to enhance service quality and align it more closely with student expectations and experiences.

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Introduction

Academic interest towards service quality has grown in the 1980s with the increased importance of marketing practices and quality measurement. Defining, assessing and measuring quality became central to businesses. Academics addressed the issue of service quality with the objective to fill a gap in the literature. Service quality has been the subject of growing attention in a large array of fields and industries. To this day, service quality is yet to be commonly defined and accepted.

1 PhD Candidate, Graduate School of Management, Woosong University, Daejeon, South Korea. E-mail: romainbartolo1@gmail.com ORCID: 0009-0006-2731-4458

2 Asst.Prof.Dr., AI & Big Data Department, Endicott College of International Studies, Woosong University, Daejeon, South Korea. E-mail: hasan_tinmaz@hotmail.com ORCID: 0000-0003-4310-0848

The higher education sector is no stranger to the growing importance of service quality as a core component of the student experience. With the commodification of higher education and the implementation of tuition fees, students can be increasingly viewed as customers (Watjatrakul, 2014). In this regard, students pay for a service and expect higher education institutions to deliver a service that matches their needs. Measuring service quality in the higher education context has become an essential part of university management practices.

The objective of this article is to offer a comprehensive literature review on service quality in higher education. This paper will examine the different types of service quality theories and measurement scales that have been developed. A list of 49 articles focusing on service quality applied to the field of higher education was selected ($n = 49$). This research discusses and compares higher education service quality over distinctive characteristics, such as the measurement scale, the type of research methods, the service quality factors, as well as the country of focus, sample size, and number of involved institutions in research.

The genesis of service quality

In the services marketing literature, quality is an important component of customer satisfaction. Discussion on quality took place from the 1970s onwards. It was first defined as conformance to requirements (Crosby, 1979) and was attained depending on the count of internal and external failures (Garvin, 1983). In this thinking, quality was reached when the characteristics satisfied the customer.

Service quality goes beyond the concept of quality. Judging the quality of a service is by definition intangible and academics looked for scientific ways to measure and assess the performance of a given service or product. Parasuraman et al. (1985) acknowledged the importance to find ways to measure such performance and identified this gap in the existing literature. Until their article was published in 1985, few studies had addressed the question of service quality (Grönroos, 1982). These prior studies had established that measuring service quality was harder than measuring quality alone, and that judgement was based on a comparison between performance and expectations (Parasuraman et al., 1985).

To this day, a unique and common definition of service quality is lacking. However, in a competitive marketplace such as higher education with increasing commercial stakes, service quality gathers common characteristics such as the need to satisfy customers and produce performance according to the organisational point of view. Service quality has been frequently addressed as an academic concept to better understand the depending factors in service-related industries. Over the last decades, academics have attempted to define service quality. Grönroos's definition established the concept of service quality with the combination of corporate image, functional quality and technical quality (Grönroos, 1982). These works contributed to the making of the SERVQUAL measurement model developed by Parasuraman and his colleagues.

Service quality measurement scales

The scientific and quantifiable approach towards service quality has generated the conception of measurement scales to evaluate perceptions according to the customer point of view. In the field of higher education, studies have been conducted using generic or specific scales. This section discusses the various service quality scales.

General measurement scales

SERVQUAL

SERVQUAL was the first service quality measurement model developed in the mid-1980s. Service quality is a core element in the service industry measuring the degree of excellence of a service or product perceived by customers. According to this model, service quality is met when the service provided meets or exceeds the customer's expectations. In the case if performance is unable to meet expectations, service quality is not attained, and this situation has the potential to lead towards customer dissatisfaction. Parasuraman et al., (1985) acknowledged the importance to find ways to measure performance and filled a gap by developing the SERVQUAL scale.

In their exploratory research, the initial objective was to assess consumer perceptions about a service or product in the retail industry in the United States. The measurement scale was elaborated following focus group interviews with customers and interviews with executives in four different industries in the United States. Defined on Table 1, the five

factors are reliability, assurance, responsiveness, empathy and tangibles. Reliability focuses on the consistent and timely delivery of a service, with the objective to meet customer expectations. Assurance lies with the importance for staff to be able to answer questions and provide customers with accurate information. The responsiveness factor items measure the ability to address quickly customer inquiries and solve issues efficiently. Empathy relates to the importance for staff to understand customer needs, take time in offering a personalised service and show an interest in ensuring customer satisfaction. Lastly, the visual appearance of facilities and staff make up the tangibles factor.

Table 1. Definition of SERVQUAL dimensions (Parasuraman et al., 1988)

Factor	Definition	Number of items
Reliability	The ability to perform the promised service dependably and accurately	4
Assurance	The knowledge and courtesy of employees and their ability to convey trust and confidence	5
Tangibles	The appearance of physical facilities, equipment, personnel and communication materials	4
Empathy	The provision of caring, individualised attention to customers	5
Responsiveness	The willingness to help customers and to provide prompt service	4

The SERVQUAL measurement model was initially made up of ten factors and 97 items. Each item would require a dual measurement on expectations and performance, and the scale resulted in the collection of 194 items. Through stages of exploratory and confirmatory factor analysis, the model resulted in the generation of 22 items making up five factors, with a 7-point Likert scale (Parasuraman, Zeithaml & Berry, 1988). Service quality is a multifactorial phenomenon and the five SERVQUAL factors are reliability, assurance, tangibles, empathy and responsiveness.

This model is grounded in the expectancy – disconfirmation theory according to which quality is measured by the difference between the expected performance and perceived performance (Figure 1). The gap reflects the perceived service from the customer’s point of view and results in the positive, neutral or negative evaluation of quality. The disconfirmation model was confirmed in other studies (Abrate, Quinton & Pera, 2021; Rust & Oliver, 1994; Xu & Li, 2016).

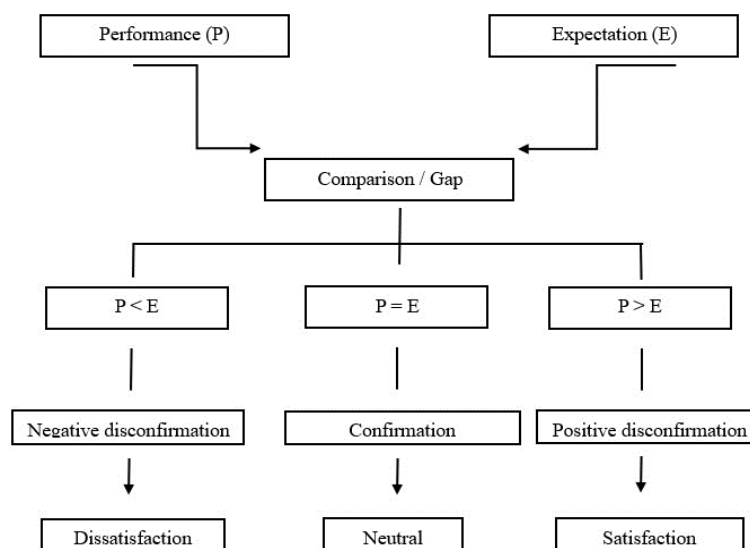


Figure 1. The disconfirmation model applied to SERVQUAL

Service quality (SQ) is the result of the gap between perception score (P) and expectation score (E). The scale measures both expectations and perceived performance with the same dimensions. Results of these measurements lead to the creation of a gap that reflects the perceived service on the customer’s point of view. To sum up, service quality is defined as follows:

$$SQ \text{ (service quality)} = P \text{ (perception)} - E \text{ (expectation)}$$

Service quality in Figure 1 is understood as a comparison between the pre-purchase expectation and post-purchase performance or perception about a service or product (Oliver, 1980). The SERVQUAL scale has been used widely across the literature in diverse fields such as the medical and health care sector (Akob et al., 2021; Meesala & Paul, 2018), e-commerce (van Iwaarden et al., 2003), sales, hospitality and tourism (Shafiq et al., 2019), sales (Shokouhyar et al., 2020), airlines (Rezaei, et al., 2018), Internet banking (D. T. Nguyen et al., 2020; Raza et al., 2020), banking (Pakurár et al., 2019), or higher education (Athiyaman, 1997; Ongo, 2019; Phonthanukitithaworn et al., 2022; Quintal et al., 2012; Tsiligiris, Keri & Cheah, 2022).

In the case of assessing service quality of a university, such a model refers to comparing the prospective student's expectations before enrolment with their actual university experience. Studies on service quality applied to higher education borrowed from the expectancy – disconfirmation model to measure the level of satisfaction of Asian students in Australia (Arambewela & Hall, 2009).

Debate on the SERVQUAL scale

There has been extensive literature and debate on the practicality and usefulness of the SERVQUAL measurement model over the years. In a comparative study about twenty years of SERVQUAL research, Ladhari (2009) identified eleven ongoing debates related to SERVQUAL, ranging from statistical measurements to the possible inadaptability to all sectors and cultural contexts. The SERVQUAL model was also criticised for using negatively worded questions as well as the lengthy duration of time needed to complete a questionnaire. Ladhari stressed the fact that SERVQUAL was developed in an American corporate context and that care should be applied when used in other countries or cultures. Buttle (1996) identified eleven different points of tension in the literature regarding the use of SERVQUAL, including the lack of evidence for the expectation – performance gap model and the boredom generated by the administration of items on expectations and performance. With the large number of SERVQUAL items, boredom is a serious issue to consider as it may reduce respondent engagement and alter the quality of responses in survey research (Bowling et al., 2021). Despite these debates, SERVQUAL remains one of the most successful and widely accepted scales to measure and manage quality. It allows for cross-industry, cross-functional and cross-country comparisons. To this day, SERVQUAL research initiated by Parasuraman et al. have been cited more than 90,000 times in the literature.

SERVPERF

In the early 1990s, Cronin and Taylor (1992; 1994) argued against the use of expectation measurements and claimed that a performance-only scale would be more appropriate to assess service quality. Cronin and Taylor devised the Service Performance measurement model, known as SERVPERF, as an alternative way to measure service quality by removing expectation items. SERVPERF is a variant of SERVQUAL and only focuses on measuring performance items borrowed from the SERVQUAL scale. Here, service quality is seen as an antecedent of customer satisfaction and is best measured with items related to perception and performance. This model halves the number of items from 44 to 22 and focuses on measuring the outcome perception. Here, service quality is understood as follows:

$$SQ(\text{service quality}) = P(\text{performance})$$

It is argued that SERVPERF is an improvement from SERVQUAL as it enables the reliable measurement of performance with a reduced number of items. Studies confirmed that the SERVPERF scale was a better alternative to SERVQUAL (Brady et al., 2002; Li & Kaye, 1998; Zhou, 2004). Prior SERVPERF studies included assessments of shopping and retail (Gong & Yi, 2018), student satisfaction in Saudi Arabia (Sohail & Hasan, 2021), or Thailand (Fuchs et al., 2022), hospitals (Akdere et al., 2020), and the airline industry (Leong et al., 2015). To this day, SERVPERF remains a primary measurement scale for service quality with over 40,000 citations.

Measurement scales specific to higher education

Unlike SERVQUAL and SERVPERF scales, other service quality scales have been developed with a specific focus on higher education.

HedPERF

Abdullah (2006a, 2006b) developed the Higher Education Performance measurement model (HedPERF) as an alternative measurement scale. Contrary to the generic character of SERVQUAL and SERVPERF scales, HedPERF is specifically designed and applied to the field of higher education from the student's point of view. The HedPERF scale consists of 41 items focusing on measuring service quality in higher education. 13 items are borrowed and adapted from the SERVPERF scale, while the remaining 28 items are generated through literature review and qualitative research procedures (Abdullah, 2006b). HedPERF's factor analysis lists six factors including academic and non-academic aspects, reputation, access, programme issues and understanding student needs (Abdullah, 2006b).

To assess the efficiency of HedPERF, Abdullah compared SERVPERF and HedPERF scales in a 2004 survey conducted in six Malaysian universities. The objective of this research was to compare SERVPERF and HedPERF scales alone, and also test the merger of SERVPERF and HedPERF items. The combined factor analysis of SERVPERF and HedPERF identified four factors, namely non-academic aspects, academic aspects, reliability and empathy. This combined factor analysis generated two SERVPERF and two HedPERF factors respectively (Abdullah, 2006a). This finding goes against the five-factor SERVPERF and six-factor HedPERF scales from the literature. Works on HedPERF developed by Abdullah have been cited over 3,000 times.

HiEduQual

The Higher Education Service Quality (HiEduQual) measurement scale is another industry-specific alternative (Annamdevula & Bellamkonda, 2012, 2016). HiEduQual is in fact an adapted version of SERVQUAL in the Indian higher education context. HiEduQual measures both expectations and perceptions. Focus group discussion and an extensive literature review generated 54 initial items dedicated to measure service quality. Results from exploratory factor analysis identified 34 items representing six factors, namely teaching, administrative services, academic facilities, campus infrastructure, support services, and internationalisation (Annamdevula & Bellamkonda, 2012). Following the CFA procedure, the final HiEduQual scale was made up of 27 items loading onto five factors. In that case, the internationalisation factor was deleted due to low factor loadings.

Interestingly, in a later study, the same authors conducted another survey to measure perceived service quality in India using the HiEduQual scale that they had developed (Annamdevula & Bellamkonda, 2016). Measurements were done with 42 service quality items. The performing of EFA and CFA retained 31 items and six factors. As seen on Table 2, the two studies identified a different number of service quality factors. The internationalisation factor was dropped in the 2012 study while it remained a part of the structural model in the 2016 study. The number of items also differed, ranging from 27 to 31. The number of items loading onto the support services factor also differed between the two studies. This finding indicates that measuring service quality in the Indian higher education context calls for additional research to be done and opens a door to replication.

Table 2. HiEduQual factors and number of items (Annamdevula & Bellamkonda, 2012, 2016)

Study 1 (2012)		Study 2 (2016)	
Factor	Number of items	Factor	Number of items
Teacher quality	8	Teacher quality	8
Administrative services	6	Administrative services	6
Academic facilities	7	Academic facilities	7
Campus infrastructure	4	Campus infrastructure	4
Support services	3	Support services	4
		Internationalisation	2

A second version of the HiEduQual scale was developed in Pakistan. Items were generated following focus group discussions with students, parents, academics and employers (Latif et al., 2019). Through successive stages of focus group interviews and a pilot study, 46 items and seven factors were identified. The exploratory factor analysis of the HiEduQual scale identified a six-factor solution with 37 items, explaining 70.3% of the total variance. As seen on Table 3, factors are teacher quality, administrative services, knowledge services, activities, continuous improvement and leadership quality.

The confirmatory factor analysis technique confirmed that the six-factor structure with 37 items indicated a good model fit.

Table 3. HiEduQual factors and number of items (Latif et al., 2019)

Factor	Number of items
Teacher quality	9
Administrative services	8
Knowledge services	7
Activities	5
Continuous improvement	4
Leadership quality	4

The study by Latif et al. (2019) indicates that teacher quality and administrative services are the two factors matching prior research by Annamdevula and Bellamkonda (2012, 2016). Continuous improvement and leadership quality were two new dimensions that emerged from this research and were not found in prior studies by Annamdevula and Bellamkonda. The three studies have a strong cultural tendency to focus on higher education in the South Asian context. Most studies using the HiEduQual survey instrument have been conducted in India (Singh, 2016; Subbarayudu & Ellaturu, 2021). Beyond South Asia, the HiEduQual model has also been adopted in China (Lekini et al., 2019), or Peru (Barrios-Ipenza et al., 2024).

UnivQual

Marimon et al. (2019) proposed the UnivQual scale to measure the university experience with a sample of 2,557 students in twelve Spanish universities. The objective of this new scale was to assess the perceived quality of students after the completion of their studies. The questionnaire is made up of 20 items with a 5-point Likert scale. Five items from the UnivQual scale are borrowed from SERVQUAL and SERVPERF scales. UnivQual items also address the themes of facilities, library resources and teaching support, student services, website information and complaint management. Contrary to SERVQUAL and SERVPERF scales, half the UnivQual scale items focus on academic issues such as syllabi structure, teaching methodology, learning evaluation systems, internship, thesis and mentoring. Four items question the impact of academic training on the alumni's communication, personal, leadership and future professional skills. Such items are not present in SERVQUAL and SERVPERF scales. Following an exploratory and confirmatory factor analysis, the UnivQual scale was eventually reduced to 17 items and three factors, namely curriculum, skills development, and services and facilities. Curriculum and skills development are two dimensions directed at academic issues. Only the services and facilities dimension relate to general service quality.

Comparison of service quality measurement scales

As generic measurement scales, SERVQUAL and SERVPERF do not focus on identifying factors related to academic quality. Rather, their factors evaluate the overall student experience beyond the classroom and the academic experience. On the contrary, with a specific focus on higher education, HEdPERF, HiEduQual and UnivQual scales include items similar to the SERVQUAL and SERVPERF models, and add factors related to academics and teaching. Such factors are labelled as academic aspects, reputation and programme for HEdPERF, teacher quality and knowledge services for HiEduQual, and curriculum and skill development for UnivQual.

As a result, the number of factors between scales differs. The comparison on Table 4 indicates that the number of identified factors ranges from 3 for UnivQual to 6 for HEdPERF and HiEduQual. A higher number of factors for the HEdPERF and HiEduQual scales can be explained by the inclusion of items related to academics and teaching, unlike SERVQUAL and SERVPERF.

Table 4. Characteristics of service quality measurement scales

	SERVQUAL	SERVPERF	HEDPERF	HiEduQual	UnivQual
NF	5	5	6	6	3
NF	44	22	41	37	20
Factors	Assurance	Assurance	Academic aspects	Teacher quality	Curriculum
	Empathy	Empathy	Non-academic aspects	Administrative services	Skill development
	Reliability	Reliability	Reputation	Knowledge services	Services and facilities
	Responsiveness	Responsiveness	Access	Activities	
	Tangibles	Tangibles	Programme Understanding student needs	Continuous improvement Leadership quality	

NF: Number of Factors

Service quality and higher education

With increasing competition between universities to attract students, providing excellent service quality is essential to enhance the student experience. Different measurement scales have been used to evaluate the factors regarding service quality perceptions and yielded diverse results.

Table 5 gathered 49 studies published between 1994 and 2024 whereby service quality is being measured in the higher education context. The selection of the 49 articles was conducted through a comprehensive search relevant keywords such as ‘service quality’ and ‘higher education’ on Google Scholar. The focus was on studies published between 1994 and 2024 with an explicit objective to address service quality in the higher education context, as alternative scales to SERVQUAL had been theorised from 1992 onwards. This approach ensured a representative sample of the literature covering a wide range of geographical contexts, methodologies, statistical procedures and service quality factors. The country of focus, statistical procedure, quantity, and name of factors are discussed. For studies using a single tool for measuring service quality, SERVQUAL, SERVPERF and HEDPERF were used ten times each respectively.

Table 5. Comparative analysis of service quality factors in higher education: Insights from 49 studies (1994 – 2024)

Author and year	Country of focus	Scale	Statistical procedure	No. factors	Service quality factors
Soutar et al., (1994)	Australia	SERVQUAL	CFA/SEM	5	Assurance; empathy; reliability; responsiveness; tangibles
Athiyaman (1997)	Australia	Other	SEM	3	Services ; core service 1 ; core service 2
Li & Kaye (1998)	United Kingdom	SERVQUAL SERVPERF	Multiple regression	5	Assurance; empathy; reliability; responsiveness; tangibles
Ford et al. (1999)	United States and New Zealand	Importance - performance	EFA	6	4 common factors: academic reputation, programme issues, physical aspects, cost/time
				7	Factors for United States: choice influences; others Factors for New Zealand: location; career opportunities; others
Tan & Kek (2004)	Singapore	Literature	EFA & CFA/SEM	8	Course organisation; assessment; teaching and advising; learning; university facilities; social activities; library facilities; computing facilities
Abdullah (2006a)	Malaysia	HEDPERF	EFA & CFA/SEM	6	Non-academic aspects; academic aspects; reputation; access; programme issues; understanding student needs
Abdullah (2006b)	Malaysia	Mix of HEDPERF SERVPERF	EFA & CFA/SEM	4	Non-academic aspects; academic aspects; reliability; empathy
Ilias et al. (2008)	Malaysia	SERVQUAL	T-tests and ANOVA	5	Assurance; empathy; reliability; responsiveness; tangibles
Yeo (2008)	Singapore	Qualitative interviews	Content analysis	3	Customer orientation; course design and delivery; support services
Carter (2009)	United States	SERVQUAL	CFA/SEM	5	Class availability; professor knowledge; job advancement; facility; tuition
Gruber et al. (2010)	Germany	Own model	EFA & multiple regression	15	Administrative and student services; atmosphere among students; city attractiveness; computer equipment; courses; library; lecturers; lecture theatres; cafeteria; relevance of teaching to practice; university reputation; school placement; support from lecturers; information presentation; university buildings

Author and year	Country of focus	Scale	Statistical procedure	No. factors	Service quality factors
Sultan & Wong (2010)	Japan	HEdPERF	EFA & CFA/SEM	8	Dependability; effectiveness; capability; efficiency; competencies; assurance; unusual situation management; semester & syllabus
Gallifa & Batallé (2010)	Spain	SERVPERF	EFA	5	Assurance; empathy; reliability; responsiveness; tangibles
Sultan & Wong (2012)	Australia	SERVPERF	EFA & CFA/SEM	3	Academics; administration; facilities
Cardona & Bravo (2012)	Colombia	5Q model	EFA	8	Teaching; learning process; physical resources; environment and campus life; academic programmes; support to student needs; information about activities
Sumaedi et al. (2012)	Indonesia	Literature	Multiple regression	7	Curriculum; facilities; contact personnel; social activities; education counselors; assessment; instruction medium
Sultan & Wong (2013)	Australia	ECSI	EFA & CFA/SEM	3	Academics; administration; facilities
de Jager & Gbadamosi (2013)	South Africa & Swaziland	Own model	Paired samples t-tests	13	Internationalisation; marketing & support; access and approach; international students and staff; academic reputation; student focus; academic quality; variety & reach; location & logistics; accommodation & scholarship; sports reputation & facilities; safety & security; parking
Chavan et al. (2014)	Australia	Qualitative interviews	Interviews	7	Assurance; empathy; reliability; responsiveness; tangibles; social benefits; participation/co-creation in knowledge learning
Casidy (2014)	Australia	SERVQUAL	EFA	3	Process; Empathy; Tangibles
Ansary et al. (2014)	Malaysia	SERVQUAL	Independent samples t tests	5	Assurance; empathy; reliability; responsiveness; tangibles
Min & Khoon (2014)	Singapore	SERVQUAL	CFA/SEM	5	Assurance; empathy; reliability; responsiveness; tangibles
Randheer (2015)	Saudi Arabia	CUL-HEdPERF	EFA & CFA/SEM	3	Gulf cultural area; professionalism in executing academic and non-academic activities; institutional level
Annamdevula & Bellamkonda (2016)	India	HiEduQual	EFA & CFA/SEM	6	Teaching; administrative services; support services; hostel facilities; library and lab facilities; internationalisation
Karatas et al. (2016)	Turkey	HEdPERF	Independent samples t-tests & ANOVA	6	Non-academic; academic; reputation; access; programmes; facilities
Babic-Hodovic et al., (2018)	Bosnia	SERVPERF	CFA/SEM	5	Assurance; empathy; reliability; responsiveness; tangibles
Tandilashvili, (2019)	Georgia	HEdPERF	EFA & CFA/SEM	3	Administrative aspects; study programmes; academic staff
Paul & Pradhan (2019)	India	HEdPERF	EFA	6	Functional value; customer intimacy; service quality; value; image; social value
Kim & Park (2019)	South Korea	HEdPERF	EFA	6	Faculty; educational environment; reputation; administrative support; student services; educational programme
Khattab (2019)	Lebanon	Literature	CFA/SEM	7	Quality of education; student services support; campus facilities; university image and reputation; social life on campus; interaction with faculty; interactions with administrative staff
Latif et al. (2019)	Pakistan	HiEduQual	EFA & CFA/SEM	6	Teacher quality; admin services; knowledge services; activities; continuous improvement; leadership quality
Marimon et al. (2019)	Spain	UnivQual	EFA & CFA/SEM	3	Curriculum & educational programme design; skill development; services and facilities
Darawong & Sandmaung (2019)	Thailand	SERVPERF	EFA & CFA/SEM	5	Facility; reliability; professionalism; empathy; responsiveness
Ongo (2019)	United States	SERVPERF	Multiple regression & MANOVA	5	Assurance; empathy; reliability; responsiveness; tangibles
Mulyono et al. (2020)	Indonesia	HEdPERF	CFA/SEM	5	Academic aspects; non-academic aspects; reputation; access; programme issues
Twum & Peprah (2020)	Nigeria	SERVQUAL	Linear regression	5	Assurance; empathy; reliability; responsiveness; tangibles
Abbas (2020)	Turkey	Qualitative	Interviews	6	Teaching quality; facilities; support staff quality; employability links; safety & security; extracurricular activities
Sohail and Hasan (2021)	Saudi Arabia	SERVPERF	CFA/SEM	5	Assurance; empathy; reliability; responsiveness; tangibles
Doan (2021)	Vietnam	Literature	SEM	1	Service quality seen as one dimension of a larger model
Ramzi et al. (2022)	Saudi Arabia	HEdPERF	CFA/SEM	3	Gulf cultural area; professionalism in executing academic and non-academic activities; institutional level
Moslehpour et al. (2020)	Taiwan	Literature	EFA & CFA/SEM	2	Academic aspects; non-academic aspects
Fuchs et al. (2022)	Thailand	SERVPERF	T-tests and ANOVA	5	Assurance; empathy; reliability; responsiveness; tangibles
Phonthanukitithaworn et al. (2022)	Thailand	Literature	CFA/SEM	1	Perceived education quality seen as one dimension of a larger model

Author and year	Country of focus	Scale	Statistical procedure	No. factors	Service quality factors
Tsiligiris et al. (2022)	United Kingdom	SERVQUAL	CFA/SEM	5	Assurance; empathy; reliability; responsiveness; tangibles
Ha et al. (2022)	Vietnam	SERVPERF	EFA & CFA/SEM	5	Assurance; empathy; reliability; responsiveness; tangibles
Sann et al. (2023)	Taiwan	UNIQUAL (derived from SERVQUAL)	EFA & CFA/SEM	4	Empathy; responsiveness; e-learning; accessibility & affordability
Hoque et al. (2023)	Bangladesh	SERVQUAL	CFA/SEM	5	Assurance; empathy; reliability; responsiveness; tangibles
Sari (2023)	Indonesia	SERVQUAL	Multiple linear regression	5	Assurance; empathy; reliability; responsiveness; tangibles
Nguyen et al. (2024)	Vietnam	Literature review	EFA	5	Academic aspects; non-academic aspects; programming issues; facilities; industry interaction

In a study with 128 MBA students from a large Midwestern American university, Carter (2009) found that expectations do not moderate the relationship between service quality and satisfaction in line with the findings of Cronin and Taylor (1992; 1994). A study on a Vietnamese university concluded that the SERVPERF scale was a reliable and valid model and provided a good fit to measure service quality (Ha et al., 2022). In a study on service quality, satisfaction and loyalty, Babic-Hodovic et al. (2018) found that satisfaction mediates service quality dimensions on student loyalty.

Service quality measurement scale

Over time, several generic or specific measurement scales have been used to assess service quality in higher education institutions. Table 6 addresses the count for the type of used measurement scales. Generic SERVQUAL and SERVPERF measurement scales remain the dominant scales used to evaluate service quality in higher education, with ten studies each respectively. An additional study uses both SERVQUAL and SERVPERF scales, while another study used a SERVQUAL version that has been adapted to higher education. With ten occurrences, the HEdPERF scale is the most widely used scale among the specific measurement scales. Variants and adaptations of HEdPERF have also been counted. As a variant to the HEdPERF scale, the CUL-HEdPERF scale was used twice in the specific cultural context of Saudi Arabia (n = 2). The HEdPERF scale has been mixed with other elements from the literature or the SERVPERF scale. Overall, SERVQUAL, SERVPERF and HEdPERF are the three most commonly used scales to measure service quality in higher education in the database. This finding is in line with the use of service quality measurement scales beyond higher education. Silva et al. (2017) counted 495 and 39 studies using SERVQUAL and SERVPERF.

Regarding other measurement scales specific to higher education, two studies used HiEduQual (Annamdevula & Bellamkonda, 2016; Latif et al., 2019), one used UnivQual (Marimon et al., 2019) and another one developed the Uniquial scale with some degree of inspiration from SERVQUAL (Sann et al., 2023). For example, HiEduQual has only been used in the case of universities in countries such as India, Pakistan (Latif et al., 2019), China (Lekini et al., 2019), Indonesia (Pradana et al., 2020) and Peru (Barrios-Ipenza et al., 2024). Beyond the generic and specific measurement scales listed above, some studies evaluated service quality perceptions using other scales such as the importance – performance scale (Ford et al., 1999) and the European Customer Satisfaction Index (Sultan & Wong, 2013). Finally, eleven studies that did not use commonly accepted quantitative measurement scales. As a result, three used qualitative interviews (Abbas, 2020; Chavan et al., 2014; Yeo, 2008). Seven developed their questionnaires based on literature review (Doan, 2021; Gruber et al., 2010; Khattab, 2019; Moslehpour et al., 2020; Sumaedi et al., 2012; Tan & Kek, 2004) and one built its own model (de Jager & Gbadamosi, 2013).

Table 6. Service quality measurement scales used (n = 49)

Measurement scale	n	Share (in %)
SERVPERF	10	20%
HEdPERF	10	20%
SERVQUAL	10	20%
Literature review	7	14%
Qualitative interviews	3	6%
HiEduQual	2	4%
Own model	1	2%
Importance - performance scale	1	2%
ECSI (European Customer Satisfaction Index)	1	2%
UnivQual	1	2%
Uniquial	1	2%
Other	2	4%

Region and country of focus

25 of the selected studies focus on measuring higher education service quality in Asian countries. Tables 7 and 8 highlight the geographic distribution of service quality studies by country and continent of focus. These include studies conducted in Malaysia (n = 4), Singapore (n = 3), Indonesia (n = 3), Vietnam (n = 3), and Thailand (n = 3), as well as India (n = 2), Taiwan (n = 2), Pakistan (n = 1), Japan (n = 1), Bangladesh (n = 1) and South Korea (n = 1). For Europe, the Middle East and Oceania, each region counts six studies. In Europe, studies focus on Spain (n = 2) and the United Kingdom (n = 2), followed by Bosnia (n = 1) and Germany (n = 1). In Oceania, Australia makes up the total number of six studies, while Saudi Arabia (n = 3) represents half of the six studies conducted in the Middle East, along with Turkey (n = 2) and Lebanon (n = 1). Africa and North America are less represented in the selected database, with two studies each.

Lastly, 94% of the sampled studies are single country studies. Only 6% focus on measuring service quality in higher education institutions located in two countries or more. Namely, these three studies focus on South Africa and Swaziland, the United Kingdom and the United States, and the United States and New Zealand.

Table 7. Country of focus for service quality studies (n = 49)

Country	n	Share (in %)
Australia	6	12%
Malaysia	4	8%
Saudi Arabia	3	6%
Singapore	3	6%
Indonesia	3	6%
Vietnam	3	6%
Thailand	3	6%
India	2	4%
Spain	2	4%
Turkey	2	4%
United Kingdom	2	4%
United States	2	4%
Taiwan	2	4%
Bosnia	1	2%
Georgia	1	2%
Germany	1	2%
Japan	1	2%
Lebanon	1	2%
Nigeria	1	2%
Pakistan	1	2%
South Korea	1	2%
Bangladesh	1	2%
South Africa & Swaziland	1	2%

Country	n	Share (in %)
United Kingdom and United States	1	2%
United States and New Zealand	1	2%

Table 8. Region of focus for service quality studies (n = 49)

Region(s)	n	Share (in %)
Asia	25	51%
Europe	6	12%
Middle East	6	12%
Oceania	6	12%
Africa	2	4%
North America	2	4%
Europe/North America	1	2%
North America/Oceania	1	2%

Factors

Service quality in higher education remains a multidimensional phenomenon. The number of identified factors remains a core element of the ongoing discussion in the literature on service quality. Results have shown that the number and characteristics of service quality factors differ depending on the type of measurement scale, the country of focus, the type of respondents as well as the research processes adopted by researchers.

The measurement technique influences the number of identified factors. Studies using a CFA technique with SERVQUAL or SERVPERF scales maintained a five-factor structure in numerous instances such as the United Kingdom (Tsiligiris et al., 2022), Saudi Arabia (Sohail & Hasan, 2021), Australia (Sultan & Wong, 2012), the United States (Carter, 2009; Ongo, 2019), Vietnam (Ha et al., 2022) or Singapore (Min & Khoon, 2014). Other SERVQUAL studies did not confirm the five-factor structure. In Indonesia, Sari (2023) found out that only the tangibles, assurance and empathy factors had a significant impact on service quality. It is also interesting to note that studies using the EFA technique with SERVQUAL and SERVPERF has generated different results. In Thailand, the exploratory factor analysis led to the identification of five factors, including two that differ from the traditional SERVQUAL model (Darawong & Sandmaung, 2019). Following the adaptation of SERVQUAL items and focus group interviews, the study identified professionalism and facility as a replacement for SERVQUAL's tangibles and assurance factors. Two other studies conducted in Australia with the EFA technique identified three factors instead of five (Casidy, 2014; Sultan & Wong, 2013). Adapted from the SERVQUAL scale, the study by Casidy (2014) identified process, empathy and tangibles as service quality factors. Derived from a mixed methods literature review that adopted SERVQUAL items, Sann et al. (2023) found that only two of their four identified factors – empathy and responsiveness - had a significant impact on service quality. Based on SERVPERF, Sultan and Wong (2013) identified service quality factors to be divided along academic, administrative, and facilities issues.

Similar differences were found in studies using the HEdPERF scale. Some studies aligned with the HEdPERF's original six-factor structure in South Korea (Kim & Park, 2019), India (Paul & Pradhan, 2019) and Turkey (Karatat et al., 2016). Other studies identified a lesser number of factors. In Indonesia, the understanding student need factor was found to be not significant (Mulyono et al., 2020). The use of an EFA technique with the HEdPERF scale led to the identification of three factors in Saudi Arabia and Georgia. In Saudi Arabia, an adapted version of the HEdPERF scale included a strong cultural dimension specific to the Gulf region along with professionalism and institutional issues (Ramzi et al., 2022; Randheer, 2015). In Georgia, the three factors were labeled administrative aspects, study programme quality, and academic staff (Tandilashvili, 2019). In Malaysia, an interesting finding lies with Abdullah's attempt to find the most appropriate measurement scale for higher education service quality (Abdullah, 2006b). First, survey results were compared with SERVPERF and HEdPERF scales separately. Second, a factor analysis of all 50 HEdPERF and SERVPERF items generated a scale merging both measuring instruments. This merged HEdPERF – SERVPERF scale identified four factors. Non-academic and academic aspects were two factors deriving from HEdPERF while reliability

and empathy originated from the SERVPERF scale. Interestingly, this merged scale borrowed two factors from each scale. The proposed structure differed from the six-factor HEdPERF scale and five-factor SERVQUAL structure.

The grouping of factors according to traditional measurement scales may not always be valid in cross-cultural settings. It is argued that the context could structure factors differently (Ford et al., 1999). In a joint analysis of higher education service quality with business students from the United States and New Zealand, Ford et al. (1999) found out that factors differed. Although four factors such as academic reputation, programme issues, physical aspects, and cost were common to both countries, their research identified unique country-specific factors. Location and career opportunities were factors specific to New Zealand, while choice influences were a significant factor in the United States only.

The dimensionality of service quality was not addressed in some studies in this database (Mai, 2005; Silva et al., 2017). Other studies have included service quality as a variable among a larger conceptual or theoretical framework. In this case, the question of service quality factors was not a main focus. Rather, service quality was part of measurement and structural models that tested its relationships with student satisfaction (Mai, 2005), or loyalty (Phonthanukitithaworn et al., 2022).

Gender

Literature examining the impact of gender on service quality perceptions in higher education presents diverse findings. Some studies found no statistically significant gender differences on service quality perceptions in Malaysia, Turkey and Saudi Arabia (Ansary et al., 2014; Karatas et al., 2016; Ramzi et al., 2022). On the contrary, the study by Min and Khoon (2014) reported gender disparities and reported higher perception levels for men in Singapore. Due to the lack of consensus on the impact of gender on service quality perceptions in higher education, these varied findings highlight the importance of further research for a better understanding.

Sample size and characteristics, including the number of institutions involved

Based on the database, sample size reports an average number of 482 participants and a median number of 345 participants (Table 9). The smallest sample size is 36 for a qualitative research project in Australia (Chavan et al., 2014) and Marimon et al. (2019) report the largest sample size with 2,557 respondents from Spain.

The three articles using qualitative methods report an average of 41 participants. Two focused on a case study method by interviewing participants from a single university in Australia and Singapore (Chavan et al., 2014; Yeo, 2008), while Abbas (2020) selected participants from three Turkish universities. As for quantitative studies, Twum and Peprah (2020) have the smallest sample size with 86 respondents in a Nigerian university.

Table 9. Sample size distribution and research methods in higher education service quality studies

	All	Quantitative methods	Qualitative methods
Number of articles	49	46	3
Average	482	480	41
Median	345	350	43
Minimum	36	86	36
Maximum	2,557	2,557	43

It is acknowledged that most service quality studies do not include respondents from a large number of universities. Convenience sampling is a frequently used method and researchers often carry use students from their own university as survey respondents. It contributes to a higher number of respondents and maximise response rate. In fact, based on the 49 articles in the database on Table 10, participants in service quality studies come from four universities on average. 26 of the 49 articles are based on single case studies. The case study method limits possibilities for generalisability and is often mentioned in the limitations section of these articles. Seven studies report an average of 10 to 20 participating universities, while two articles are based on respondents from more than 20 universities.

Table 10. Number of institutions involved in service quality studies applied to higher education

	All	Quantitative methods	Qualitative methods
Number of articles	49	46	3
Average	4	5	2
Median	1	1	1
Minimum	1	1	1
Maximum	33	33	3

Conclusion

This paper provides a comprehensive review of service quality measurement in higher education, analyzing and comparing prominent scales such as SERVQUAL, SERVPERF, HEdPERF, UnivQual, and HiEduQual. Each scale offers a unique approach to assessing service quality, with varying numbers and names of factors reflecting the diversity and specificity required in different educational contexts. Our analysis of 49 peer-reviewed articles demonstrates the practical application of these scales, revealing a preference for quantitative research methods and a strong reliance on exploratory and confirmatory factor analysis techniques.

The findings underscore the multifaceted nature of service quality in higher education, highlighting the need for context-specific scales. The diversity of factors identified across different studies suggests that a one-size-fits-all approach is inadequate for capturing the nuances of service quality. Additionally, the exploration of gender differences in service quality perceptions and various findings regarding the influence of gender on these perceptions suggest that further research could be undertaken. This review contributes to the existing literature by offering a detailed comparison of various measurement approaches and mapping empirical findings against established scales.

For higher education institutions, these insights are crucial for designing and implementing strategies that enhance service quality and align more closely with student desires and needs. Understanding the specific needs and perceptions of different student groups can lead to more targeted and effective interventions.

Future research should continue to explore new dimensions of service quality, considering other demographic factors and extending the analysis to a broader range of countries and contexts. More empirical studies are needed to validate and refine the existing scales, ensuring they remain relevant and effective tools for assessing service quality in a rapidly evolving educational landscape.

While this review provides a comprehensive overview, it is not without limitations. The selection of articles and potential biases in the reviewed literature may influence the findings. Nevertheless, the insights gained offer a solid foundation for further research and practical improvements in service quality in higher education.

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