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Abstract

The aim of this paper is to compare five alternative models in terms of service quality in higher education institutions of Lahore, Pakistan. The current study used the five service quality models named Higher Education Performance (HEDPERF), Service Quality (SERVQUAL), Weighted SERVQUAL, Service Performance (SERVPERF) and Weighted SERVPERF to draw the inferences. Data was gathered from 400 students by utilizing the structured questionnaire from four universities of Lahore, Pakistan. Gathered data was then arranged in a consequential way and then five models were compared in terms of reliability, validity and explained variance. Results of the study revealed that two out of five models HEDPERF and SERVPERF are more feasible in terms of reliability, validity and explained variance. Since the study only examined the measurement capabilities of the five instruments at Lahore city only, the collection of more data in other cities is required in order to provide more general results. All the multiple-item scale express insights about the features that can be studied or observed in order to maintain or handle the underrated quality service. All higher education institutions can be benefitted with these measurement scales to cope with the quality service-related issues. The results of the study are much helpful for the HE leaders to remove deficiencies in different service quality dimensions.

Keywords: Service quality, Service Performance, Higher Education, Student Satisfaction, Pakistan

1. Introduction

The importance of service quality in higher education (HE) has remarkably increased in last three decades. Therefore, it is very crucial for the HE institutions to ensure and manage change in consumer's perceived service quality by providing the best service quality encounters. While HE institutions admit the importance of service quality issues in HE, they normally face difficulty in finding the right measurement tool to assess service quality perception; therefore, it is very important to find out the right instrument to measure the perceived service quality. It will also benefit the HE managers to maintain and improve services quality at HE institutions. A comprehensive review of the literature has revealed that most widely used service quality measurement tools in higher education are service quality (SERVQUAL) (Parasuraman et al., 1988) and service performance (SERVPERF) (Cronin and Taylor, 1992). However, another tool Higher education performance (HEDPERF) was developed by (Firdaus, 2006a) to measure service performance in special context of higher education. Many researchers have used these instruments to assess service quality in higher education institutions but most of them conducted by using only one scale at a time. However, exceptions are there, (Firdaus, 2006b) used a HEDPERF, SERVPERF and merged HEDPERF - SERVPERF and compared them in a higher education setting and (Brochado, 2009) used these instruments altogether in a higher education setting.

This paper is structured as follows. It starts with the concept of service quality in higher education and then detailed explanation of different scales available to measure service quality construct. Afterwards, its methodology is described. Then, it measures the reliability and validity of the scales, and presents some managerial implications. Finally, implications, limitations and future directions are presented as a result of research conclusions. To carry out our study we gathered information from sample of 400 students of four different universities of Lahore.

2. Background

2.1. Service quality in HE

Education is very important for the development of any country, and due to its importance, service quality in education has become a popular topic in recent times. Since students are the primary customers in any educational institution, their perception about the service quality matters a lot (Polyakova & Mirza, 2015). Since services are quite different from physical entities and have a behavioral nature, it can be described as acts, performances or deeds (Berry, 1980). If we consider Higher education as a service, then measurement of its quality would be a complex issue due to its typical features of services (Knight, 2008; Marc et al., 2023). Services have distinctive features and are intangible (Madeira et al., 2022). They also have perishable features because it is not possible to store them, even with the introduction of video technology. Another unique feature of services is the concurrent production and consumption, demanding the active participation of the customer in the service delivery process. Thus, it can also be concluded that the customers directly contribute in the quality of services being delivered. The debate that higher education can be categorized as service motivated many researchers (Mazzarol, 1998) to conduct research into service marketing literature from an educational perspective (Breen & Jonsson, 2005; Senturk & Ali, 2022). In a service context, (Parasuraman, Zeithaml and Berry, 1985) consider service quality as a degree to evaluate how the service level is delivered and to what extent it matches with customer's expectations. Some other researchers are also agreeing with this concept that perceived service quality shows the opinion of the customer regarding the global excellence or superiority of the product or service (Zeithaml, 1988). The literature on service quality suggests Higher education institutions to look for continuous improvements.

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On the other hand, it is also a very difficult task to find the best way to describe the service quality in Higher education (Becket & Brookes, 2006). It is pointed out that the “education quality is a rather vague and controversial concept” (Cheng & Tam, 1997). However, it is well recognized that “universities are increasingly finding themselves in an environment that is conducive to understanding the role and importance of service quality” (Shank et al., 1995).

2.2. Service quality measurement in HE

Parasuraman, Zeithaml and Berry (1985) consider service quality as a degree to evaluate in how the service level is delivered and to what extent it matches with customer expectations. In a service industry the delivery of service through customer expectations has been the product of a gradual evolution from quality is excellence, to quality is value, to quality is conformance to specifications, to most recently, quality is meeting and/or exceeding customers' expectations (Pargfiseau & McDaniel, 1997). Service quality evolved with the passage of time around the ‘disconfirmation paradigm’. Cardozo (1965) introduced ‘disconfirmation paradigm’ and said, it depends on the service receiver’s expectations before the encounter of services and their observation after delivering the service. If the service receivers’ expectations meet the service provider’s quality, then it will be considered as a good service and success for the service provider. In case if the service receivers’ expectations do not meet the service provider’s quality then it will be considered as the failure of the service provider.

A comprehensive review of the literature reveals two main approaches to measure the service quality in a higher education setting: SERVQUAL (Parasuraman et al., 1988) and SERVPERF (Cronin and Taylor, 1992).

2.2.1. SERVQUAL

Parasuraman et al. (1988) proposed a model then named it as SERVQUAL model with aim to measure the quality of the service. SERVQUAL model uses the phenomena of disconfirmation paradigm. They proposed that the difference among customer’s expected service quality and perceived service quality defines the customer’s inclusive experience of service quality.

In SERVQUAL model there are five features and 22 statements which are allotted to these five features. Five-point or seven-point Likert scale used to get answer against each statement by the respondents. After getting the answers from the respondents mean scores against each statement is computed. Mean scores use to find and to measure the service quality by use of the formula $P-E=Q$ (service quality). If the value of Q’s is in minus it shows service providers is not meeting the service receiver’s expectations. If the Q’s value is positive it means the services providers are exceeding the customer’s expectations. This Model is comprised of five features: tangibility, reliability, responsiveness, assurance, and empathy.

1. Tangibles: Bodily proof in every service facility for example employees and equipment.
2. Reliability: Capability to produce services properly and reliably.
3. Responsiveness: Willingness or swiftness in reacting to customers' desires.
4. Assurance: Politeness of the workers and their aptitude to carry trust and assurance.
5. Empathy: Considerate and personalized kindness providing to customers.

Though, SERVQUAL model is a breakthrough in commission quality analysis and standard but it was criticized by wide-ranging scholars in the literature. Cronin and Taylor (1992) was the prominent voices who criticized SERVQUAL model on the basis that Expectations measure is inadequate to measure service quality. In 1992 Cronin and Taylor proposed a model which was different from the SERVQUAL model. They used performance measure for service delivery instead of disconfirmation principle. They named their model as SERVPERF model.

2.2.2. SERVPERF

Cronin and Taylor (1992) developed a model which measures only Performance and named it as SERVPERF model. They rejected the SERVQUAL model and added that SERVQUAL model was inadequate to quantify the service quality. SERVPERF scale measures service quality only through perception of the customer. It does not include expectations of the customers (Fragoso & Espinoza, 2017). In SERVPERF model quality of service is equal to the perception of the customers $SQ=P$.

SERVPERF scale is more acceptable among researchers on the basis that it provides more accurate results about the service quality provided by the institutions to its students (Jain & Gupta, 2004). Perceived service quality can predict client satisfaction and that client satisfaction plays a stronger role in future purchase intention than service quality (Cronin & Taylor, 1992).

2.2.3. Weighted SERVPERF, SERVQUAL

SERVQUAL and SERVPERF do not consider the relational significance that is associated with the five dimensions by the students (Aklmawati & Hartatri, 2019). So, the weighted scores can be calculated for these two scales. That’s why, more than a few researches validate that it is important for relational significance of five features of service quality to be valued and discussed by the customers and yielding a composite, weighted score of the perceived service quality measure for each dimension, and of the overall service quality according to the gap model (Cronin & Taylor, 1992; Parasuraman et al., 1991; Ali & Rehman, 2015). Questionnaire about course experience has remained a famous instrument in regard to Higher Education for evaluation of perception of students associated with teaching and performance learning subsequently (Ramsden, 1991; Wilson, Lizzio, & Ramsden., 1997; Ginns & Ellis, 2007; Ali, 2015).

1. Weighted SERVQUAL: a weighted difference between expectations and perceptions [$W \times (E-P)$].
2. Weighted SERVPERF: a weighted (W) performance-based measurement ($W \times P$).

2.2.4. HEDPERF

According to Abdullah (2005) the generalization of the SERVQUAL and SERVPERF scale is still obscured whenever they replicate for identifying and quantifying the service quality in HEI’s. Therefore, in 2005 Abdullah formed a new measurement tool using the SERVPERF scale and he named it as a HEdPERF scale, which is very useful to check service quality in HE institutions (Silva et al., 2017). He well-defined the determinants of HEdPERF in his research as non-academic aspects, academic aspects, reputation, access, and program issues. The author has identified the five dimensions of this concept which is being called service quality notion:

1. Non-academic aspects are things which are other than academic items for example admin Staff.
2. Academic aspects should be considered as responsibilities specifically relevant to academia.
3. Reputation is importance of upper learning establishments in projected knowledgeable image.
4. Access basically includes issues related to accessibility and approachability, easy contact, obtainability and opportuneness.
5. Programme issues include importance of offering the extensive range of trustworthy and well-reputed academic programmes, majors, and specializations with a flexibility in structures and proper health services.

Table 1: Comparison of service quality models

Instrument	Service quality concept	No of items	Service quality dimensions
SERVQUAL (Parasuraman et al., 1988)	Perceptions' of performance- expectations	22×2	Tangibles reliability, responsiveness, assurance, empathy
SERVPERF (Cronin and Taylor, 1992)	Perceptions' of performance	22	
Weighted SERVQUAL (Parasuraman et al., 1991)	Dimension's importance (perceptions' of performance - expectations)	22×2 + 5	
Weighted SERVFERF (Cronin and Taylor, 1992)	Dimension's importance × perceptions' of performance	22 ×2 + 5	
HEDPERF (Firdaus, 2006a)	Perceptions' of performance	41	Non-academic aspects, academic aspects, reputation, programmes issues

3. Methodology

3.1. The compared scales

This study was conducted to explain different instruments which are being used to check service quality. On the other hand, a comparative study was conducted to compare these instruments to check service quality in higher education sector and to analyze which instrument is best in determining service quality in HE sector.

3.2. The questionnaire

Primary data was gathered by the instrument, in which first part comprised of demographics, second part comprised of 41 items of HEDPERF scale with options of likert scale (7 point likert scale), third part consist 22 items of SEVPERF scale, fourth part comprised of 22 items of SERVQUAL scale, 05 items of statements to measure weighted responses in the fifth part. In the end in part 06, three open ended questions was asked from the students. (See Appendix-I). The questionnaire was adopted from (Brochado, 2009) to measure all the items in the questionnaire for collection of data from respondents and analysis. The division of the questionnaire comprised following parts:

Part 1: questions are related to the demographics of the respondents.

Part 2: questions from Q1-Q41 are related to the Higher Education Performance Scale.

Part 3: questions from Q42-Q63 are related to the Service Performance Scale.

Part 4: questions from Q64-Q85 are related to the Service Quality Scale.

Part 5: questions from Q86-Q90 are related to Weighted Service Quality and Weighted Service Performance.

Part6: question from 91 to 93 consist of three open ended questions and opinions gathered from the respondents about the service quality, their visit in the imminent future and word of mouth with others about the institution.

Keeping in view the ease of social media, electronic channels was used to get responses from the students. Since a large number of the students are mostly active on social media a questionnaire was advanced on Google drive and its link was uploaded on the Facebook pages of all the selected universities. Responses of the students were imported from the Google drive after submission of the responses from the students. Questionnaire was programmed in a way that it was not possible to submit the questionnaire without filling it completely. By using this technique missing value was also avoided. Furthermore, those universities which had lower representation in the data collected by using electronic resources, was then visited physically to administer the questionnaires from the students personally who were ready to participate in the study.

3.3. Sample size and profile

The student survey was performed in June 2018. Data was gathered from 400 students of four universities in Lahore. Out of 400 respondents 280 were between ages 18-22 with 70%, 88 of the respondents were between 23-27 with 22% and 32 were above 28-35 with 08%. Out of 400 respondents 190 were from under graduation programs with 47 per cent, 126 were from masters with 32%. 80 were from M.Phil. With 20% and 04 were from P.H.D program with 01 %.

3.4. Scale evaluation methodology

As the employed scales are multi item scales, so they will be analyzed for accuracy and applicability, which will Involves procedures of;

- Reliability
- Validity
- Explained Variance

4. Data Analysis & Results

Data was carefully managed step by step into a substantial form to take outputs from it. Furthermore, data was analyzed by Statistical package for social sciences (Windows version 20.0 SPSS Inc.).

To express the measurement and deviation of the scores from the population, Z-scores were calculated, because Z-scores are very helpful to standardize the values for normal distributions of data (Mwangome & Berkley, 2014). Student's responses against Weighted SERVPERF, SERVQUAL, WEIGHTED SERVPERF, WEIGHTED SERVQUAL, and HEDPERF, calculated with the Z-score in SPSS for measuring all the variables (See Appendix 2).

Table 2: Z-Score Average

Dimensions	SERV PERF	Weighted SERVPERF	SERQUAL	Weighted SERQUAL	Dimensions	HED PERF
Tangibles	-0.045	-0.1892	0.6601	-0.2563	Non-academic aspects	1.1856
Reliability	-0.2332	-0.5514	-0.1637	-0.4496	Academic aspects	-0.0661
Responsiveness	0.1852	0.4091	0.7312	0.4843	Reputation	-0.5378
Assurance	-0.3104	-0.9678	0.1903	-1.0282	Access	1.142
Empathy	0.4386	0.5089	0.0054	0.4549	Programme issues	0.4257

4.1. Comparative test of Reliability

Reliability denotes the property of a measurement instrument to produce consistent results if repeated measurements are made (Malhotra & Mukherjee 2004). Reliability of the scales can be checked through the internal consistency reliability concept (Vehkalahti, 2000). In the current study an effort has been made to analyze the five different dimensions of five prescribed quality measurement scales with coefficient α Cronbach alpha values lies between 0 to 1, and the value of 0.7 or less is considered unacceptable internal consistence reliability (Cronbach, 1951).

As mentioned in table 3, Cronbach alpha coefficient values ranged from .723 (tangibility) to .887 (empathy) for SERQUAL scale dimensions, from .728 (tangibles) to .842(reliability) for weighted SERQUAL scale dimensions, from .775 (responsiveness) to .835 (assurance) for SERVPERF scale dimensions, from .854 (responsiveness) to .934 (assurance) for weighted SERVPERF scale and from .823 (program issues) to .929 (non-academic concerns) for HEDPERF scale dimensions.

The results revealed a high internal consistency between the items of the dimensions for the five scales, indicating that all these five scales give better results regarding reliability. However, results also revealed that weighted SERVPERF is superior among five scales in terms of reliability, and after weighted SERVPERF, HEDPERF gives best results. Results also showed that SERVPERF is relatively superior to SERQUAL. Weighted scales of SERQUAL and SERVEPRF are more reliable than their original version.

Table 3: Cronbach Alpha Coefficient

Dimensions	SERV PERF	Weighted SERVPERF	SERQUAL	Weighted SERQUAL	Dimensions	HED PERF
Tangibles	.807	.910	.723	.728	Non-academic aspects	.929
Reliability	.827	.916	.855	.842	Academic aspects	.832
Responsiveness	.775	.854	.730	.740	Reputation	.841
Assurance	.835	.934	.761	.732	Access	.881
Empathy	.800	.932	.887	.829	Programme issues	.823

4.2. Comparative test of Validity

Validity is generally considered as actual concept representation of the study which is being measured by the instrument (winter, 2000). In current study, three validity tests applied for evaluating the validity of these five scales. Tests deployed for this purpose were Content validity, criterion validity, and the construct validity. Content validity is also known as face validity (Taberdoost, 2016). Content validity is a procedure which discusses the subjective but systematic assessment of the demonstrations of a scale for the measurement task at hand (Rubio et al., 2003). For content validity, scales were designed after a wide-ranging literature review and then these scales further evaluated by an expert for feedback. By means of focus group student's evaluation was also included for validation of the five scales. Based on all these steps it can be concluded that items used in scales can project the all dimensions and whole sphere of service quality.

Criterion validity shows whether a scale performs as expected in relation to other variables, selected as meaningful criteria (Malhotra & Mukherjee, 2004). Also, when the data related to scale is being analyzed, the variables ascertaining criteria gathered

at the same time and concurrent validity is ensured and assessed (Sarouphim, 2001). All these five scales been further assessed with regard to validity check by analyzing either the mean of score for each scale is significantly associate on empirical basis with prescribed measures of conceptually interrelated variables. Overall variables also defined as criterion variables were used to perform comparison among five scales are as following: a) overall satisfaction; b) intention of future visits; and c) the intent for suggesting the university to a friend. Ensuring that high level customer satisfaction and provision of all-time service quality positively impact the loyalty of customers, and it really produces various positive forms of behavior of customers. For example, if customer is loyal to the organization (HEI's), he/she will not only rely on the organization for future purchases but also, he/she will make his/her referrals to bring business to his/her tested organization (Douglas, 2006). Table no.4 shows the Pearson Correlations between all criterion variables and all five alternative measures for the service quality.

For the open-ended questions, the results show that the customers are satisfied from the service quality of the institute. Furthermore, the customers are willing to visit the institution in the likely future and intended to share positive word of mouth with other customers also. All these scales are in a positive relationship with overall satisfaction, intent to suggest to a friend, and expected future visits. Among all five scales, SERVPERF is at top in correlating with the criterion variables including intention of future visits, overall satisfaction, and intent to suggest the institution to a friend. After SERVPERF, the other measurement scale HEDPERF is second in showing strong correlation with the criterion variables. And as a whole, these two measurement scales demonstrated relatively best correlation with criterion variable in comparison with the other three service quality measurement scales. Findings of the study related to overall satisfaction of customers/students, repurchase commitment, quality and word of mouth are matching with those of previous studies (Cronin, Brady & Hult, 2000).

Table 4: Correlations between service quality global scores and the criteria

	Overall satisfaction	Behavioral intentions	Word of mouth
SERVPERF	0.71	0.41	0.45
WEIGHTED SERVPERF	0.66	0.28	0.37
SERQUAL	0.56	0.22	0.34
WEIGHTED SERQUAL	0.55	0.21	0.34
HEDPERF	0.70	0.39	0.44

*All the Correlations are significant at 0.01 levels)

Construct validity basically determines “the question of what construct or characteristic the scale is, in fact, measuring” (Malhotra & Mukherjee 2004). Current study considers the approach of convergent validity in determining the validity of these five scales. Convergent validity compares the scales and extent to which they correlate with each other (Rubio, 2016). The correlation coefficient evaluated by combining the two scales for assessing the type of relationship between these scales in terms of convergent validity. After comparing, researcher finds high pairwise correlation among five service quality measurement scales who signposts the strong convergence among these alternative measurement scales. Demonstrating in the following table, showing superior construct validity, SERVPERF scale projected a significant correlation in contrast with the other measurement scales.

Table 5: Correlation between alternative Service Quality Scales

	1	2	3	4
SERVPERF				
WEIGHTED SERVPERF	0.85			
SERQUAL	0.79	0.81		
WEIGHTED SERQUAL	0.84	0.82	0.81	
HEDPERF	0.84	0.73	0.78	0.76

*All Correlations are significant at 0.01 levels.

4.3. Explanatory power of alternative measurement scales

For measuring the ability of a scale to measure the variations in overall service quality, perceived attributes of service quality as per respondent's perception was regressed, and comparison among scales was monitored. The values of Table no.6 explain the details about comparisons among scales. According to results, SERVPERF has ability to explain the higher level of fluctuations in service quality which is 49 percent, while HEDPERF explains these variations 47 percent, Weighted SERVPERF explains at level of 45 percent; Weighted SERVQUAL explains at level of 39 percent, SERVQUAL explains at a level of 36 percent.

It is also observable that by adding some other weights, the predictive ability or explanatory ability of unweighted SERVQUAL and SERVPERF couldn't get higher. In results of current study, the predictive capacity of SERVQUAL and SERVPERF measurement scales remained greater in comparison with the results of earlier study (as an example, Abdullah, 2006b) got determination coefficient 35 percent for the HEDPERF and 24 percent for the SERVPERF).

The comparative impact of all dimensions of service quality can also be recognized by the drawn outputs of this study. Tangibles, reliability, assurance and responsiveness have been identified as arithmetically essential dimensions of service quality. It gives meaning of no significant contribution of empathy in expressing the variance of general assessment by SERVPERF as a dimension while in case of importance weighted SERVPERF, entire dimensions are significant statistically. For SERVQUAL scale, empathy

and tangibles are not recognized as essential dimensions, while, in case of importance weighted SERVQUAL, all the dimensions are essential statistically. Results implied that HEDPERF does not rely mainly on dimensions of program issues and access. The following table is showing the relational importance of each dimension.

Table 6: Relative Importance of the Individual dimensions

Quality dimensions	SERVPERF	Weighted SERVPERF	SERVQUAL	Weighted SERVQUAL	Quality dimensions	HEDPERF
Tangibles	0.18	0.21	0.05	0.24	Non-academic aspects	0.29
	0.01	0.01	0.06	0.01		0.10
Reliability	0.22	0.19	0.15	0.17	Academic aspects	0.22
	0.01	0.01	0.01	0.01		0.13
Responsiveness	0.16	0.20	0.16	0.18	Reputation	0.21
	0.01	0.01	0.01	0.01		0.14
Assurance	0.18	0.19	0.13	0.17	Access	0.04
	0.01	0.05	0.05	0.01		0.09
Empathy	0.07	0.20	0.03	0.21	Programme issues	0.05
	0.08	0.01	0.08	0.00		0.10
R ² (%)	49	45	39	36	R (%)	47

(Statistically significant at *0.01, **0.05 and ***0.1 levels)

5. Practical Implications

All the multiple-item scales express insights about the features that can be studied or observed in order to maintain or handle the underrated quality service. All higher education institutions can be benefitted with these measurement scales to cope with the quality service-related issues. The findings of this study have shown that the essential administrative and supervisory interventions that can be performed on basis of SERVQUAL, SERVPERF, weighted SERVPERF, and weighted SERVQUAL are explicit and physical aspects of service. The inefficiencies and deficiencies of non-academic constructs of higher education institutional service can be measured by HEDPERF (Abdullah, 2006). For performing better and providing premium quality service, the ranking of the constructs is just like the ranking of dimensions in SERVQUAL and SERVPERF scales but incorporating different weights has changed this ranking for weighted and un-weighted scales. In the current study, most significant and integral dimensions of service quality are considered as reliability, responsiveness, assurance, empathy, and tangibles and these results are strongly equivalent to the results of previous studies (Datta, 2003; Hill, Lomas & Macgregor, 2003; Douglas, Douglas & Barnes, 2006), and those previous studies have remarked the academic aspects of service quality as the integral ones to be dealt. In addition to that, the explicit contents of service quality should be given less importance in comparison with the academic aspects.

6. Discussion and conclusions

The study of literature on higher education advocates how crucial it is for the HEI (Higher education institutions) to monitor the services they are providing to the students and to engage themselves in continuous progresses (Astin, 2012). Therefore, it is also very essential to use a reliable instrument for measuring service quality in a higher education setting (Kahu, 2013). Current study is consisted of comparison of five different alternative instruments which are being used by researchers to check service quality in different organizational settings. In these five instruments four (SERQUAL, SERVPERF, WEIGHTED SERVQUAL, WEIGHTED SERVPERF) are being used by researchers in different settings and HEDPERF is specifically designed by Abdullah (2005) to measure service quality in a higher education setting.

This study was organized to:

- i. To empirically compare five alternative measures of service quality in HE, in terms of reliability, validity and explained variance.
- ii. To find which service quality dimensions are more important for the satisfaction of the students.

Broadly interpreting the results, all aforementioned service quality measurement scales are providing good results adequate to measure the service quality in institutions and organizations. Among all five scales, SERVPERF is strongly projected as the best measurement scale for measuring service quality in terms of reliability and after SERVPERF, weighted SERVPERF is considered as second-best scale.

As for as there is concern of predetermined criteria for ensuring the validity of measurement of service quality, both HEADPERF and SERVPERF scales gave the best results. The predetermined criteria comprise; a) overall satisfaction of students, b) intention of future visits in the same organization, c) word of mouth and all these criteria supported the concrete validity of HEADPERF and SERVPERF measuring scale at a best possible extent.

Measuring ability for the actual construct that is supposed to be measured by the instrument expresses the construct validity of instrument and SERVPERF measuring scale is identified as the most suitable service quality measuring scale in terms of construct validity. After SERVPERF, the second-best scale is HEADPERF.

The capability of a scale to explain the differences among overall service quality fluctuations that occur with the passage of time is calculated on basis of relapsing the participant's perception about service quality in relevance with the all dimensions of service

quality, and in this case, SERVPERF scale has adequately treated the paradox about service quality fluctuations, while presenting the maximum variations of service quality 49 percent. Following the SERVPERF there is second best measurement scale is HEADPERF that depicts these variations at an extent of 47 percent. After HEADPERF, WEIGHTED SERVPERF comes at third number with the value of 45 percent. With these results, current study has expressed the maximum predictive ability of the SERVPERF and HEADPERF in comparison with the previous studies which identified the explanatory power of measurement scale at an extent of 35 percent for HEADPERF and 24 percent for SERVPERF (Abdullah, 2006b). Brochado, (2009) has also found in another study the explanatory power of measurement scale at an extent of 48 for SERVPERF and 46 percent for HEADPERF that is also less than the results of current study.

It is interpreted on the basis of analysis of results that measurement ability in terms of validity and reliability of instrument, and on basis of explanatory power along with predictive ability of measurement scale, the order of most supportive and suitable to least supportive and suitable measurement scale is SERVPERF, HEDPERF, WEIGHTED SERVPERF, WEIGHTED SERQUAL, and SERQUAL.

The educational institute and organization must take extensive care of all the relevant dimensions of service quality, while determining and analyzing the possible fluctuations in offered and practiced quality. The most suitable measurement scale would be helpful to recognize not only the under and overestimations of service quality but also the gaps that cause these variations.

6.1. Limitations

For data collection, two universities from public sector and two universities from private sector was selected on the basis of net enrolments. The selection of universities is itself a limitation because of selection criteria as net enrollments of universities can be increased or decreased in upcoming years.

In addition to this, considering the universities of Lahore is also a limitation because it limits the scope of generalizability of sample on a population comprising all other universities out of Lahore. The significant cultural and environmental differences in big and small cities cannot be taken together to take a broad view of student's perception about service quality in HEI's.

Keeping in mind the efficacy of resource utilization in regard to time and finances, this study has deposed the noteworthy differences relevant to gender, discourse of study, recent year of study, socioeconomic position and the ranking of the university declared by HEC, all these factors also develop or modify the perception of the students.

Future research areas are widely open by handling the existing limitations of current research study to abscond from uncertainties and reservations of this study. The measurement of service quality is not keenly associated with the perceptions of the students, but all the other stakeholders including faculty, staff, and executives, and parents of students also possess the worthwhile comments in this regard to explore the topic further.

The measurement capabilities of different instruments should also be tested in future research keeping in mind all these differences mentioned above. It is needed to be known either change in environmental and social settings of universities or socioeconomic, cultural, and religious background of students can significantly impact the measuring ability of all these scales or not.

References

- Abdullah, F. (2005). HEdPERF versus SERVPERF: The quest for ideal measuring instrument of service quality in higher education sector. *Quality Assurance in education*, 13(4), 305-328.
- Abdullah, F. (2006). The development of HEdPERF: a new measuring instrument of service quality for the higher education sector. *International journal of consumer studies*, 30(6), 569-581.
- Aklimawati, L., & Hartatri, F. S. (2019). Assessment of Service Quality Using Weighted SERVPERF Approach. *Pelita Perkebunan (a Coffee and Cocoa Research Journal)*, 35(1), 70-84.
- Ali, A. (2015). The Impact of Macroeconomic Instability on Social Progress: An Empirical Analysis of Pakistan. Ph.D Dissertation. *NCBA&E, Lahore, Pakistan.*, 1-152.
- Ali, A., & Rehman, H. U. (2015). Macroeconomic instability and its impact on gross domestic product: an empirical analysis of Pakistan. *Pakistan Economic and Social Review*, 285-316.
- Alves, H.M.B. (2003), Uma abordagem de marketing à satisfação do aluno no ensino universitário riopublico: índice, antecedentes e consequências. Doctoral dissertation, Departamento de Gestão e Economia, Universidade Beira Interior, Covilhã, 42(2), 291-306.
- Astin, A. W. (2012). Assessment for excellence: The philosophy and practice of assessment and evaluation in higher education. Rowman & Littlefield Publishers.
- Becket, N. and Brookes, M. (2006). Evaluating quality management in university departments. *Quality Assurance in Education*, 14, 123-42.
- Berry, L.L. (1980). Service quality is different. *Business*, 30, 24-9.
- Breen, R., & Jonsson, J. O. (2005). Inequality of opportunity in comparative perspective: Recent research on educational attainment and social mobility. *Annu. Rev. Sociol.*, 31, 223-243.
- Brochado, A. (2009). Comparing alternative instruments to measure service quality in higher education. *Quality Assurance in education*, 17(2), 174-190.
- Bronnemann, M. R., & Silveira, A. (2003). Marketing em instituições de ensino superior: a promoção do processo seletivo.
- Cardozo, R.N. (1965). An experimental study of customer effort, expectation, and satisfaction. *Journal of Marketing Research*, 2, 244-9.
- Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *psychometrika*, 16(3), 297-334.
- Cronin Jr, J. J., Brady, M. K., & Hult, G. T. M. (2000). Assessing the effects of quality, value, and customer satisfaction on consumer behavioral intentions in service environments. *Journal of retailing*, 76(2), 193-218.

- Cronin, J.J. Jr and Taylor, S.A. (1992). Measuring service quality: a reexamination and extension. *Journal of Marketing*, 56(3), 55-68.
- Douglas, J., Douglas, A., & Barnes, B. (2006). Measuring student satisfaction at a UK university. *Quality assurance in education*, 14(3),251-67.
- Firdaus, A. (2006a). The development of HEdPERF: a new measuring instrument of service quality for the higher education sector. *International Journal of Consumer Studies*, 30, 569-81
- Firdaus, A. (2006b). Measuring service quality in higher education: three instruments compared”, *International Journal of Research and Method in Education*, 29, 71-89.
- Fragoso, J. T., & Espinoza, I. L. (2017). Assessment of banking service quality perception using the SERVPERF model. *Contaduría y administración*, 62(4), 1294-1316.
- Hill, Y., Lomas, L., & MacGregor, J. (2003). Students’ perceptions of quality in higher education. *Quality assurance in education*, 11(1), 15-20
- Icli, G.E. and Anil, N.K. (2014). The HEDQUAL scale: a new measurement scale of service quality for MBA programs in higher education. *South African Journal of Business Management*. 45(3), 31-43.
- Jain, S. K., & Gupta, G. (2004). Measuring service quality: SERVQUAL vs. SERVPERF scales. *Vikalpa*, 29(2), 25-38.
- Kahu, E. R. (2013). Framing student engagement in higher education. *Studies in higher education*, 38(5), 758-773.
- Knight, J. (2008). *Higher education in turmoil: The changing world of internationalization* (Vol. 13). Brill.
- Malhotra, N., & Mukherjee, A. (2004). The relative influence of organizational commitment and job satisfaction on service quality of customer-contact employees in banking call centers. *Journal of services Marketing*, 18(3), 162-174
- Marc, A., Poulin, M., & Ali, A. (2023). Determinants of Human Wellbeing and its Prospect Under the Role of Financial Inclusion in South Asian Countries. *Journal of Applied Economic Sciences*, 18 (4(82)), 296-311.
- Mazzarol, T. (1998). Critical success factors for international education marketing. *International Journal of Educational Management*, 12, 163-75.
- Mwangome, M. K., & Berkley, J. A. (2014). The reliability of weight-for-length/height Z scores in children. *Maternal & child nutrition*, 10(4), 474-480.
- Parasuraman, A., Zeithaml, V.A. and Berry, L.L. (1985). A conceptual model of service quality and its implications for future research. *Journal of Marketing*, 49, 41-50.
- Parasuraman, A., Zeithaml, V.A. and Berry, L.L. (1988). SERVQUAL: a multiple item scale for measuring consumer perceptions of service quality. *Journal of Retailing*, 64, 12-40.
- Pargfiseau, S.E. and McDaniel, J.R. (1997). Assessing service quality in schools of business *International Journal of Quality & Reliability Management*, 14(3), 204-18.
- Pearce, M., Tivey, A. R., Basutkar, P., Lee, J., Edbali, O., ... & Lopez, R. (2022). Search and sequence analysis tools services from EMBL-EBI in 2022. *Nucleic acids research*, 50(W1), W276-W279.
- Polyakova, O., & Mirza, M. (2015). Perceived service quality models: are they still relevant?. *The Marketing Review*, 15(1), 59-82.
- Rubio, D. M., Berg-Weger, M., Tebb, S. S., Lee, E. S., & Rauch, S. (2003). Objectifying content validity: Conducting a content validity study in social work research. *Social work research*, 27(2), 94-104.
- Rubio-Codina, M., Araujo, M. C., Attanasio, O., Muñoz, P., & Grantham-McGregor, S. (2016). Concurrent validity and feasibility of short tests currently used to measure early childhood development in large scale studies. *PloS one*, 11(8), e0160962.
- Sarouphim, K. M. (2001). DISCOVER: Concurrent validity, gender differences, and identification of minority students. *Gifted Child Quarterly*, 45(2), 130-138.
- Senturk, I., & Ali, A. (2022). The Relationship between Institutional Quality and Welfare: Panel-SUR Analysis on BRICS-T Countries. *Journal of Policy Research (JPR)*, 8(1), 45-52.
- Shank, M.D., Walker, M. and Hayes, T. (1995). Understanding professional service expectations: do you know what our students expect in a quality education? *Journal of Professional Service Marketing*, 13, 71-89.
- Silva, D. S., Moraes, G. H. S. M. D., Makiya, I. K., & Cesar, F. I. G. (2017). Measurement of perceived service quality in higher education institutions: A review of HEdPERF scale use. *Quality Assurance in Education*, 25(4), 415 439.
- Taherdoost, H. (2016). Validity and reliability of the research instrument; how to test the validation of a questionnaire/survey in a research. *How to test the validation of a questionnaire/survey in a research (August 10, 2016)*.
- Vehkalahti, K. (2000). Reliability of measurement scales.
- Winter, G. (2000). A comparative discussion of the notion of validity in qualitative and quantitative research. *The qualitative report*, 4(3), 1-14.
- Zeithaml, V.A. (1988). Consumer perceptions of price, quality and value: a means-end model and synthesis of evidence. *Journal of Marketing*, 52, 2-22.

**Appendix: 1
Questionnaire**

Questions given below must be answered according to the likert scale.

Strongly disagree	Disagree	More or less disagree	Undecided	More or less agree	Agree	Strongly Agree
1	2	3	4	5	6	7
Age						
a) 18-22		b) 23-27		c) 28-35		d) above 35

Education a) Graduation b) Masters c) M. PHIL d) P.H. D e) Other

Higher Education Performance (HEDPERF)

Tick the only one option from 1 (strongly disagree) to 7 (strongly agree)

Sr.no	Questions	Options						
1	Academic staff have the knowledge to answer my questions relating to the course content.	1	2	3	4	5	6	7
2	Academic staff deal with me in a caring and courteous manner.	1	2	3	4	5	6	7
3	Academic staff are never too busy to respond to my request for assistance.	1	2	3	4	5	6	7
4	When I have a problem, academic staff show a sincere interest in solving it.	1	2	3	4	5	6	7
5	Academic staff show positive attitude towards students.	1	2	3	4	5	6	7
6	Academic staff communicate well in the classroom	1	2	3	4	5	6	7
7	Academic staff provide feedback about my progress.	1	2	3	4	5	6	7
8	Academic staff allocate sufficient and convenient time for consultation.	1	2	3	4	5	6	7
9	The institution has a professional appearance/image.	1	2	3	4	5	6	7
10	The hostel facilities and equipment are adequate and necessary.	1	2	3	4	5	6	7
11	Academic facilities are adequate and necessary.	1	2	3	4	5	6	7
12	The institution runs excellent quality programmes	1	2	3	4	5	6	7
13	Recreational facilities are adequate and necessary	1	2	3	4	5	6	7
14	Class sizes are kept to minimum to allow personal attention	1	2	3	4	5	6	7
15	The institution offers a wide range of programmes with various specializations.	1	2	3	4	5	6	7
16	The institution offers programmes with flexible syllabus and structure.	1	2	3	4	5	6	7
17	The institution has an ideal location with excellent campus layout and appearance	1	2	3	4	5	6	7
18	The institution offers highly reputable programmes.	1	2	3	4	5	6	7
19	Academic staff are highly educated and experience in their respective field	1	2	3	4	5	6	7
20	The institution's graduates are easily employable.	1	2	3	4	5	6	7
21	When I have a problem, administrative staff show a sincere interest in solving it.	1	2	3	4	5	6	7
22	Administrative staff provide caring and individual attention.	1	2	3	4	5	6	7
23	Inquiries/complaints are dealt with efficiently and promptly.	1	2	3	4	5	6	7
24	Administrative staff are never too busy to respond to a request for assistance	1	2	3	4	5	6	7
25	Administration offices keep accurate and retrievable records.	1	2	3	4	5	6	7
26	When the staff promise to do something by a certain time, they do so.	1	2	3	4	5	6	7
27	The opening hours of administrative offices are personally convenient for me.	1	2	3	4	5	6	7
28	Administrative staff show positive work attitude towards students.	1	2	3	4	5	6	7
29	Administrative staff communicate well with students.	1	2	3	4	5	6	7
30	Administrative staff have good knowledge of the systems/procedures	1	2	3	4	5	6	7
31	I feel secure and confident in my dealings with this institution.	1	2	3	4	5	6	7
32	The institution provides services within reasonable/expected time frame. .	1	2	3	4	5	6	7
33	Students are treated equally and with respect by the staff.	1	2	3	4	5	6	7
34	Students are given fair amount of freedom.	1	2	3	4	5	6	7
35	The staff respect my confidentiality when I disclosed information to them.	1	2	3	4	5	6	7
36	The staff ensure that they are easily contacted by telephone.	1	2	3	4	5	6	7
37	The institution operates an excellent counseling service.	1	2	3	4	5	6	7
38	Health services are adequate and necessary.	1	2	3	4	5	6	7
39	The institution encourages and promotes the setting up of student's union.	1	2	3	4	5	6	7
40	The institution values feedback from students to improve service performance.	1	2	3	4	5	6	7
41	The institution has a standardized and simple service delivery procedures.	1	2	3	4	5	6	7

Service Performance (SERVPERF) Tick the only one option from 1 (strongly disagree) to 7 (strongly agree)

Sr.no	Questions	Options						
1	The institution has up-to-date equipment.	1	2	3	4	5	6	7
2	The institution's physical facilities are visually appealing	1	2	3	4	5	6	7
3	The institution's employees are well dressed and appear neat.	1	2	3	4	5	6	7
4	The appearance of the physical facilities of the institution is in line with the type of service provided.	1	2	3	4	5	6	7
5	When the institution promises to do something by certain time, it does so.	1	2	3	4	5	6	7
6	When you have problems, the institution is sympathetic and reassuring	1	2	3	4	5	6	7

7	The institution is dependable.	1	2	3	4	5	6	7
8	The institution provides its services at the time it promises to do so	1	2	3	4	5	6	7
9	The institution keeps its records accurately.	1	2	3	4	5	6	7
10	The institution does not tell its students exactly when services will be performed	1	2	3	4	5	6	7
11	You do not receive prompt service from the institution's employees.	1	2	3	4	5	6	7
12	Employees of the institution are not always willing to help students.	1	2	3	4	5	6	7
13	Employees of the institution are too busy to respond to student requests promptly.	1	2	3	4	5	6	7
14	You can trust employees of the institution.	1	2	3	4	5	6	7
15	You can feel safe in your transaction with the institution's employees	1	2	3	4	5	6	7
16	Employees of the institution are polite.	1	2	3	4	5	6	7
17	Employees get adequate support from the institution to do their jobs well.	1	2	3	4	5	6	7
18	The institution does not give you individual attention.	1	2	3	4	5	6	7
19	Employees of the institution do not give you personal attention.	1	2	3	4	5	6	7
20	Employees of the institution do not know what your needs are.	1	2	3	4	5	6	7
21	The institution does not have your best interests at heart	1	2	3	4	5	6	7
22	The institution does not have operating hours convenient to all their customers.	1	2	3	4	5	6	7

(SERVQUAL) Tick the only one option from 1 (strongly disagree) to 7 (strongly agree)

Sr.no	Questions	Options						
1	Universities should have up-to-date equipment.	1	2	3	4	5	6	7
2	Universities' physical facilities should be visually appealing.	1	2	3	4	5	6	7
3	Universities' employees should be well dressed and appear neat	1	2	3	4	5	6	7
4	The appearance of the physical facilities of universities should be in keeping with the type of services provided	1	2	3	4	5	6	7
5	When universities promise to do something by a certain time, they should do so.	1	2	3	4	5	6	7
6	When students have problems, universities should be sympathetic and reassuring.	1	2	3	4	5	6	7
7	Universities should be dependable.	1	2	3	4	5	6	7
8	Universities should provide their services at the time they promise to do so.	1	2	3	4	5	6	7
9	Universities should keep their records accurately.	1	2	3	4	5	6	7
10	Universities should not be expected to tell their students exactly when services will be performed.	1	2	3	4	5	6	7
11	It is not realistic for students to expect prompt service from the universities' employees	1	2	3	4	5	6	7
12	Universities' employees do not always have to be willing to help students.	1	2	3	4	5	6	7
13	It is ok if they are too busy to respond to student requests promptly	1	2	3	4	5	6	7
14	Students should be able to trust universities' employees.	1	2	3	4	5	6	7
15	Students should be able to feel safe in their transactions with universities' employees	1	2	3	4	5	6	7
16	Universities' employees should be polite.	1	2	3	4	5	6	7
17	Their employees should get adequate support from universities to do their jobs well	1	2	3	4	5	6	7
18	Universities should not be expected to give students individual attention	1	2	3	4	5	6	7
19	Universities' employees cannot be expected to give students personal attention	1	2	3	4	5	6	7
20	It is unrealistic to expect employees to know what the needs of their students are.	1	2	3	4	5	6	7
21	It is unrealistic to expect universities to have students' best interests at heart.	1	2	3	4	5	6	7
22	Universities should not be expected to have operating hours convenient to all their students.	1	2	3	4	5	6	7

Give your opinion about the service quality, future visit and word of mouth statement in your words.

1. How much you are satisfied with the service quality of this institution?
2. Will you intentionally inclined to visit again this institute in near future?
3. Are you willing to recommend this institute with positive word of mouth to other customers?

Thank you very much for your valuable time.

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