

EXPLORING THE FACTORS AFFECTING PERCEIVED SERVICE QUALITY IN HIGHER EDUCATION

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ABSTRACT

This study examines the dimensional structure of perceived service quality in higher education and evaluates the reliability of its measurement framework. Service quality in educational institutions is increasingly viewed as a multidimensional construct shaped by academic delivery, administrative processes, infrastructure, and student support experiences. To empirically validate this structure, the study adopts a quantitative exploratory design using survey data collected from 615 respondents through a structured questionnaire consisting of 27 Likert-scale indicators. Exploratory Factor Analysis (EFA) was employed to uncover latent dimensions underlying student perceptions. The identified dimensions correspond to responsiveness and institutional engagement, infrastructure quality, academic support, administrative coordination, and non-academic assistance. High communalities and clear rotated loadings demonstrate meaningful clustering of indicators, supporting construct validity and dimensional clarity. Reliability analysis further established excellent internal consistency across all dimensions, with Cronbach's alpha values ranging from 0.938 to 0.951. These findings confirm that the measurement instrument operates with strong stability and cohesion. Overall, the results demonstrate that perceived service quality in higher education is structured across distinct experiential domains rather than a single generalised perception. The validated framework provides a robust empirical foundation for institutional evaluation, targeted service improvement, and future research on student-centred quality assessment.

Key words: Perceived Service Quality, Higher Education, Exploratory Factor Analysis, Measurement Reliability, Multidimensional Constructs, Student Perception, Service Evaluation, Institutional Quality Assessment.

INTRODUCTION

The quality of services has become a focal point of the analysis of organisational performance within the service industry, and higher education is not an exception. The study of service quality has ancient origins in commercial life, when (Parasuraman, Zeithaml & Berry, 1985) turned to the conceptualisation of quality as a multidimensional measure of service delivery to the customer. The rise in the consumerism of students as educational service providers in the higher education context, this is now being viewed as influencing the reputation of the institution as well as its sustainability (Hill, Lomas & MacGregor, 2003). However, the perceived service quality in higher education is multidimensional, making it a distinction between the perceived service contexts and the traditional ones. In comparison to transactional services, services in the sphere of education represent long-term interaction, complicated service processes, and interpersonal interactions, which take place on both academic and administrative levels (Sultan & Wong, 2010). Consequently, the conceptual frameworks and measurement instruments, which have been constructed in the field of

commercial services (e.g., SERVQUAL), may need to be modified and tested on an empirical basis in the educational context (Abdullah, 2006).

The change in the delivery system to hybrid and digitally mediated models of higher education during the pandemic has only reinforced the significance of the perceived service quality. (UNESCO,2023) reports that over 90 percent of institutions of higher learning around the globe have gone through a period of long-term virtual migration due to COVID-19, and this has essentially changed the expectations of students in terms of responsiveness, technological infrastructure, and academic services. According to the (World Bank, 2022), digital readiness and institutional adaptability have become determining factors of perceived institutional effectiveness. In recent empirical research, it has been confirmed that the quality of online learning, the digital availability of information, and the transparency of communication between the institutions have a significant impact on student satisfaction and trust (Dwivedi et al., 2020; Aristovnik et al., 2020; Daniel, 2020; Pokhrel & Chhetri, 2021). A rapid digitisation in the emerging economies has highlighted disparities in infrastructures, which further increases the necessity to assess the quality of services regarding technological, administrative, and academic aspects (Crawford et al., 2020; OECD, 2022). These design transformations point to the fact that in order to remain relevant today, the service quality measurement should incorporate both physical and digital aspects of services at the same time.

Educational institutions these days are more appreciating the fact that student perception of service quality has an impact on satisfaction, persistence, institutional image and competitive positioning. Nevertheless, even with extensive application of quality assurance systems, most institutions continue to use discontinuous satisfaction detectors or generic feedback systems that cannot reflect the latent, multidimensional nature of service quality. The models of measurement have traditionally been based on modified versions of commercial services, which are not completely applicable to academic settings where student experiences are a product of interplay between instructional delivery, administrative systems, infrastructure and interpersonal interactions (Abdullah, 2006). One of the enduring and methodological issues is the lack of empirically tested factor structures in higher education. Survey instruments are often used by institutions where construct dimensionality has not been carefully studied, and hence create ambiguous interpretations with poor diagnostic properties. In the absence of statistically-based factor identification, managerial interventions are likely to focus on the symptoms of the problem instead of quality dimensions (Hill, Lomas & MacGregor, 2003; Byrne, 2016). Higher education service quality is perceived, and this perception has a substantive implication. It does not merely impact student satisfaction and retention, but also the engagement of alumni, the perceptions of employers, and finally the institutional competitiveness (Elliott &Shin, 2002; Al-Khattab & Aldehayyat, 2022).

Moreover, higher education service experience is fundamentally different from transactional services as it is co-created, requires more time for engagement, and involves subjective assessment experience (Teas, 1993).These traits require strong multivariate methods that can help in the discovery of latent constructs that may be hidden in the observed indicators. Such a mechanism is offered by exploratory factor analysis, but its general use in institutional studies is not uniform, which restricts comparability and theoretical progress (Fabrigar & Wegener, 2012; Cronin & Taylor, 1992). As a result, there is an acute lack of knowledge linking the conceptual acknowledgement of service quality as a strategic priority and the empirical confirmation of its structural aspects in the context of higher education. To fill this gap, a methodologically rigorous analysis is needed to detect the underlying dimensions, assess the adequacy of the measurement and determine internal consistency. This evidence is needed to transform the data on student perceptions into action-based quality improvement strategies, which are theoretically sound and operationally significant (Elliott &Shin, 2002; Tsinidou, Gerogiannis & Fitsilis, 2010).

Therefore, the research gap gives rise to the research questions, viz., RQ1: What latent dimensions underlie students' perceptions of service quality in higher educational institutions? RQ2: How do the extracted dimensions group and structure the observed service quality attributes? RQ3: What is the relative contribution and reliability of each factor in assessing the overall perceived service quality? The present study aims to identify and empirically validate the key factors that influence students' perceptions of service quality in higher education institutions. It investigates how various observed service attributes are grouped to form underlying latent dimensions of perceived service quality. By employing exploratory statistical techniques, the study seeks to uncover the structural composition of these dimensions. Furthermore, it examines the coherence and consistency of the identified constructs through reliability analysis (United Nations, 2023). This approach helps ensure that the measurement framework accurately captures students' evaluations of institutional services. Ultimately, the study provides empirical evidence to better understand the multidimensional nature of service quality in higher education. Section two of the study presents a review of existing literature, which articulates the statement of the problem. Methods of the study, along with operationalisation of the instrument to collect the data for the survey, are explained in the third section. Sections four and five present the results of the analysis, followed by the discussion and implications of the study in the fifth section. The final section paves the way for possible future studies in this area (Anderson & Gerbing, 1988).

LITERATURE REVIEW

The origin of service quality as a multidimensional construct focused on the difference between the expectations and perceived performance. Early researchers had determined that service evaluation is subjective in nature and is influenced by experiential engagement and not objective results (Parasuraman, Zeithaml & Berry, 1985). The conceptualisation, when applied to higher education, broadens much since the process of educational services implies long-term relationships, cognitive growth, and institutional exchange. According to researchers, the quality of education cannot be attained solely through the academic output, but it also includes the administrative efficiency, faculty responsiveness, sufficiency of infrastructure and the student support systems. The institution is rated by students as a whole impression of service experiences that transcend both the academic and non-academic sectors (Tran, 2021). Accordingly, the quality of service in education can be learned as a latent multidimensional construct that needs to be identified empirically but not theorised. Empirical studies support this multidimensional perspective and show that student satisfaction and institutional quality as perceived are products of clustered service dimensions and not as individual indicators (Hill, Lomas & MacGregor, 2003). This view forms the conceptual basis of analysing the quality of the service using factor-based measurement systems (Bagozzi & Yi, 1988; Tabachnick, Fidell & Ullman, 2007).

Perceived service quality is latent and multidimensional and therefore needs strong measurement systems. Even though traditional service quality instruments are influential, they need to be contextually adjusted to display educational settings (Abdullah, 2006). The research points to the fact that a direct importation of commercial service models carries the danger of neglecting sector dynamics (e.g. pedagogical interaction, institutional governance, academic support). Multivariate statistical methods are becoming more and more popular in measurement research in the field of higher education to reveal structural dimensions that lie in the depths of the indicators of the survey. Exploratory techniques come in very handy where theoretical agreement on the factor structure is lacking. Researchers point out that dimensional clarity improves interpretability, targeted quality interventions and reduces redundancy of measurement (Sultan & Wong, 2010; Pinar, Girard & Basfirinci, 2020). The

literature is thus convergent with the need to derive dimensions of service quality in an empirical manner as opposed to the need to impose some predetermined structures. This supports the applicability of factor analytic methods in determining consistent groups of service attributes that can be used to capture student perceptions. Globalisation and the escalating pace of higher education have changed the environment of an institutional service greatly. Tertiary enrolment is currently up to 235 million students worldwide (UNESCO, 2023), and India alone has over 43 million (AISHE, 2022), which only increases competition and the complexity of operation. With the transition of participation systems to mass structures more than to elite ones (Marginson, 2016; Altbach, Reisberg & Rumbley, 2019), the institutions become increasingly liable to accreditation bodies and ranking agencies (Hazelkorn, 2018; OECD, 2022). Such organisational transformations have enhanced the focus on empirically tested service quality models that can be used to measure multidimensional institutional performance (Grönroos, 1984; Shahijan, 2021).

It is empirically established that administrators should not only be responsive to the students but also infrastructurally adequate and institutionally involved to shape their perception (Clemes, Gan & Kao, 2008; Helgesen & Nasset, 2007; Wilkins & Balakrishnan, 2013). Satisfaction, loyalty, and image of the institution are highly dependent on perceived quality (Alves & Raposo, 2007, 2010; Brown & Mazarol, 2009; Tran et al., 2021). In addition, the reach of service assessment has become broader, with technological preparedness and communication effectiveness being assessed at the same time due to the digital transformation in the post-COVID-19 period (Daniel, 2020; Dwivedi et al., 2020; Aristovnik et al., 2020; Pokhrel & Chhetri, 2021). The methodological scholarship also underlines that these multidimensional perceptions should be empirically obtained in the form of rigorous exploratory measures and reliability checks instead of imposing frameworks (Fabrigar & Wegener, 2012; Costello & Osborne, 2005; Hair et al., 2019; Worthington & Whittaker, 2006). Together, these changes highlight the need to have statistically based models that have the potential to capture the ever-changing experiential richness of college service systems (Altbach, de Wit & Leask, 2021).

Literature related to service quality in the higher education setting confirms that student perceptions are multidimensional in nature and determined by academic, administrative, and experiential encounters (Harvey & Green, 1993). Initial models have managed to conceptualise service quality as a latent construct, and following empirical investigations show that institutional quality is not measurable using one-indicator measures. Nevertheless, a lot of the literature is based upon adapted commercial service models, which might not necessarily represent the situational complexity of higher education settings (Gorsuch, 1983). There is a severe gap in the empirical validation of context-specific measurement constructs (Fornell & Larcker, 1981). Although the multidimensionality of perceived service quality is recognised in many studies, even fewer have tested the latent factor structure rigorously through exploratory methods. Survey instruments are, in most instances, implemented in the absence of extensive dimensional evaluation, and this restricts interpretation and diminishes the diagnostic worth of results (Grönroos, 1990).

. This disjuncture inhibits the capacity of institutions to determine accurate quality aspects that affect the student experience (Brady & Cronin, 2001; De Wit & Altbach, 2021).

METHODOLOGY

The exploratory research design was adopted in this study in order to examine the latent dimensions behind the perceived service quality in higher education. The use of an exploratory framework was suitable as the aim was to unveil structural relationships of observed indicators instead of testing present causal models. Perceived service quality is

theorised as a latent multidimensional macro concept, which is deduced using those dimensions of service attributes that are measurable and so demand multivariate statistical tests to establish dimensional key and construct validity. Exploratory factor analysis (EFA) was used to identify coherent groups of indicators that can be used to describe the underlying service quality dimensions (Kotler & Fox, 1995). It will allow the construct structure to be empirically discovered and reduce theoretical imposition, which is also a best practice in exploratory measurement studies (Hinkin, 1998; Oliver, 1997).

The structured questionnaire, which was used to gather the data, comprised 27 Likert-type questions that were focused on obtaining the students' perceptions towards the delivery of institutional services. To scale the measurement, a five-point Likert scale was operationalised to get the perception of the respondents on the various aspects concerning service delivery in institutions of higher learning (Oliver, 1980). All the items were measured on a scale between 1 (strongly disagree) and 5 (strongly agree), and a respondent could assign the degree of his/her consensus with a particular statement. It is commonly advised to use a Likert-type scale in the research based on perceptions due to the possibility of quantifying the subjective judgments and analysing the attitude and experiences statistically. The scale items were created to respond to major dimensions of institutional service delivery, which comprised academic assistance, administrative coordination, quality of infrastructure, responsiveness and engagement, and non-academic help. An increase in the score on the scale is a stronger positive perception of the service quality, and a decrease is a relatively weaker assessment of institutional services. This operationalisation ensures comparability of responses and enables the statistical analysis of the observed indicators using multivariate methods such as exploratory factor analysis (Naidoo, 2008; Nunnally & Bernstein, 1994).

Measurement of each item was conducted using a five-point agreement scale to assess the intensity of perception and to ensure that the indicators were comparable. The questionnaire was distributed to 1523 respondents via email. A total of 629 responses were received, yielding a response rate of approximately 41%. During the initial screening, 14 responses were eliminated as unengaged. Finally, 615 valid responses were retained for the analysis. The descriptive statistics showed sufficient variability in items, with the means of about 3.97-4.12 and adequate levels of dispersion (Nguyen & LeBlanc, 2001).

RESULTS AND ANALYSIS

The demographic composition of the respondents provides significant information about the makeup of the study sample. As far as regional representation is concerned, the largest number of respondents were Punjabi (65.4%), followed by Haryana (34.6%). This indicates that the sample is more biased toward participants from Punjab, with a greater proportion of institutional and student representatives from this region in the dataset.

About gender composition, the results demonstrate that 68.8% of respondents were men and 31.2% were women. This disproportion indicates that more male students are enrolled in the hospitality education programs that are surveyed. This distribution can be an indicator of the current tendency of gender participation in the hospitality-related educational programs in the area.

The age brackets indicate that the high percentage of the respondents (75%), then 22-25 years (22.9%), and a very small percentage (2.1%) were in the 18-21 years, 22-25 years, and 26-30 years age brackets, respectively. This trend suggests that the sample is dominated by the standard undergraduate age group, implying that the research, in a sense, represents the views of higher education students at an early stage.

Regarding course enrollment, BHMCT students constitute the largest share of the sample (52.2%), followed by BSc HHA (28.5%) and DFP (12%). The other programs, like BSc Hotel management, BSc HHM, CCFP, and DBC, are comparatively smaller in proportion of the respondents. This allocation underscores the overwhelming popularity of

the BHMCT programs at the surveyed institutions and the program's focus on hospitality education.

The respondent background academic stream demonstrates that 51.2 per cent of the respondents were in the stream of humanities, 33 per cent in commerce and 15.8 percent in science. This indicates that hospitality education programs are appealing to a significant percentage of students who have humanities backgrounds, and comparatively low percentages represent students who have been enrolled in courses of commerce and science.

In addition, the geographical background of residence can be analyzed further; it was found that 54.6 percent of the respondents lived in urban regions and 45.4 percent lived in rural regions. This shows that the distribution of urban background and rural background in terms of residential is quite balanced albeit with a high representation of urban. Equally, attributes of the location of the institutes reveal that 59.7 percent of the institutions were in urban areas, whilst 40.3 percent were in rural areas, implying that the educational institutes of hospitality are concentrated in urban centres.

Generally, the demographic description of the respondents indicates that the study sample is primarily composed of young undergraduate students who are predominantly male, pursuing BHMCT courses, and are affiliated with urban-based institutions, with a considerable representation from the state of Punjab. This population structure is relevant for providing the proper contextual background for interpreting the study's subsequent empirical inferences (TABLE 1).

| Variables | Category | No. of Respondents | Percentage (%) |
|---|----------------------|---------------------------|-----------------------|
| Region | Punjab | 402 | 65.4 |
| | Haryana | 213 | 34.6 |
| Gender | Male | 423 | 68.8 |
| | Female | 192 | 31.2 |
| Age in Years | 18–21 | 461 | 75 |
| | 22–25 | 141 | 22.9 |
| | 26–30 | 13 | 2.1 |
| Course | BHMCT | 321 | 52.2 |
| | BSc Hotel Management | 12 | 2 |
| | BSc HHM | 14 | 2.3 |
| | BSc HHA | 175 | 28.5 |
| | CCFP | 7 | 1.1 |
| | DBC | 12 | 2 |
| | DFP | 74 | 12 |
| Stream | Humanities | 315 | 51.2 |
| | Commerce | 203 | 33 |
| | Science | 97 | 15.8 |
| Geographical Background of Residence | Rural | 279 | 45.4 |
| | Urban | 336 | 54.6 |
| Location of the | Rural | 248 | 40.3 |

| | | | |
|------------------|-------|------------|------------|
| Institute | Urban | 367 | 59.7 |
| Total | | 615 | 100 |

Source: Author compiled from the primary data

The exploratory factor analysis was conducted to examine the latent structure underlying students' perceptions of service quality in higher education institutions. Before factor extraction, diagnostic tests confirmed the dataset's suitability for this multivariate technique. The Kaiser–Meyer–Olkin (KMO) measure of sampling adequacy yielded a value of 0.961, indicating excellent inter-item correlations and shared variance among variables. Bartlett's Test of Sphericity was statistically significant ($p < .001$), confirming that the correlation matrix was appropriate for factor modelling. These preliminary diagnostics established a strong statistical foundation for dimensional reduction.

Using Principal Component Analysis with Varimax rotation, a five-factor solution emerged based on the eigenvalue-greater-than-one criterion. The extracted components collectively explained 81.60% of the total variance, reflecting substantial explanatory power and robust dimensional representation. The first factor alone accounted for 50.45% of the variance, suggesting the presence of a dominant general evaluative dimension within student perceptions of institutional services. The subsequent four factors contributed meaningful incremental variance (8.91%, 7.91%, 7.85%, and 6.48%, respectively), indicating that perceived service quality is structured across multiple experiential domains rather than a single undifferentiated construct. Communality estimates ranged between 0.541 and 0.876, demonstrating that a considerable proportion of variance in each observed indicator was captured by the retained factors. The majority of items exhibited factor loadings above 0.80, indicating strong representation within the factor solution. Even the lowest communality exceeded the acceptable threshold of 0.50, supporting the adequacy of item retention and confirming that the extracted dimensions effectively summarise the informational content of the dataset.

The rotated component matrix revealed a clear and interpretable structure with strong primary loadings and minimal cross-loadings, enhancing dimensional clarity and construct validity. Items associated with responsiveness and institutional engagement loaded strongly on the first factor, reflecting students' evaluation of communication effectiveness and institutional involvement. Infrastructure-related indicators clustered distinctly on the second factor, highlighting the importance of physical and resource facilities in shaping service perceptions. Academic support items formed the third dimension, indicating consistency in students' assessment of teaching and learning support mechanisms. Administrative coordination emerged as the fourth factor, capturing perceptions related to institutional processes and operational efficiency. Finally, non-academic assistance constituted the fifth dimension, reflecting student experiences with support services beyond academic delivery. The clear separation of these domains demonstrates that students differentiate among institutional service components in a structured and systematic manner.

Exploratory factor analysis followed recommended statistical procedures for scale development (Hair et al., 2019; Costello & Osborne, 2005; DeShields, Kara & Kaynak, 2005). Items with factor loadings below 0.50 or cross-loadings above 0.40 were examined; however, no item removal was required as all indicators satisfied the loading threshold and demonstrated conceptual coherence. The rotated solution revealed a clean factor structure with minimal cross-loading, indicating strong discriminant separation among constructs.

Reliability analysis further confirmed the robustness of the measurement model. Cronbach's alpha coefficients ranged from 0.938 to 0.951 across all five dimensions, substantially exceeding conventional psychometric thresholds and indicating excellent internal consistency. Strong item–total correlations and the absence of significant alpha improvement upon item deletion further validated construct cohesion and measurement

stability. These findings confirm that the grouped indicators function collectively to represent unified latent constructs with minimal measurement error. Overall, the integrated analysis provides compelling empirical evidence that perceived service quality in higher education is a multidimensional construct structured across five coherent experiential domains. The high proportion of explained variance, strong communalities, distinct factor loadings, and excellent reliability collectively establish the statistical rigor and conceptual integrity of the measurement framework. The results affirm that student evaluations of institutional services are organized across differentiated yet interrelated dimensions, providing a robust foundation for institutional assessment and future analytical modelling (TABLE 2).

| Item | Variables(Code) | Factors | | | | |
|------|---|---------|----------|---------|---------|---------|
| | | F1(REI) | F2 (PRI) | F3(ACA) | F4(ACC) | F5(NAA) |
| 1 | My institution has been awarded with international certifications. (REI03) | 0.827 | | | | |
| 2 | My institution has attractive MOUs with other academic institutions for student exchange programs. (REI04) | 0.842 | | | | |
| 3 | My institution has attractive MOUs with industry regarding internships, training, placements of the students. (REI05) | 0.839 | | | | |
| 4 | Students graduating from my institute are easily employable. (REI06) | 0.822 | | | | |
| 5 | My institute has a good reputation in the industry based on its graduates' job performance.(REI07) | 0.851 | | | | |
| 6 | The alumni of my institute are well placed in the industry. (REI08) | 0.669 | | | | |
| 7 | The academic programs run by the institution are renowned. (PRI02) | | 0.842 | | | |
| 8 | The course curriculum is specific and clear. (PRI03) | | 0.829 | | | |

| | | | | | | |
|----|--|--|-------|-------|-------|--|
| 9 | The course curriculum is interesting. (PRI04) | | 0.829 | | | |
| 10 | The programs offered by the institution have flexible course structure.(PRI5) | | 0.818 | | | |
| 11 | The course curriculum is relevant to the industry requirements.(PRI06) | | 0.829 | | | |
| 12 | There is always feedback from academic assignments. (ACA02) | | | 0.854 | | |
| 13 | Faculty members always inspire me to put my best efforts. (ACA03) | | | 0.828 | | |
| 14 | Faculty members are committed to my learning. (ACA04) | | | 0.832 | | |
| 15 | Faculty members regularly provide advice and instructions about my progress. (ACA05) | | | 0.827 | | |
| 16 | Faculty members are highly trained in their respective field, (ACA06) | | | 0.834 | | |
| 17 | The campus location is ideal. (ACC01) | | | | 0.812 | |
| 18 | There is sufficient availability of the transportation services for reaching the campus. (ACC02) | | | | 0.834 | |
| 19 | There is sufficient availability of transportation services for accessing different departments and buildings within the campus. (ACC03) | | | | 0.81 | |
| 20 | There is sufficient availability of the place for parking. (ACC04) | | | | 0.866 | |
| 21 | Accessing academic staff for the information is easy. (ACC05) | | | | 0.838 | |

| | | | | | | |
|--|---|--------|-------------------|--|-------|-------|
| 22 | The administrative staff displays a positive attitude. (NAA02) | | | | | 0.775 |
| 23 | The administrative staff shows genuine interest on problem solving. (NAA03) | | | | | 0.763 |
| 24 | The administrative staff provides individualized attention. (NAA04) | | | | | 0.787 |
| 25 | There is an atmosphere of respect and equity in the institution. (NAA05) | | | | | 0.807 |
| 26 | The administrative staff has good knowledge of the systems. (NAA07) | | | | | 0.816 |
| 27 | Students are treated equally by the staff. (NAA08) | | | | | 0.675 |
| Cronbach's Alpha | | 0.949 | 0.951 | 0.951 | 0.947 | 0.938 |
| Eigen Values | | 13.622 | 2.405 | 2.135 | 2.12 | 1.749 |
| Total Variance Explained = 81.60% | | | KMO= 0.961 | Communalities ranged b/w 0.541 to 0.876 | | |

Source: SPSS Output

DISCUSSION AND IMPLICATIONS

The given study presents solid empirical evidence for the conceptualisation of perceived service quality in higher education as an idea consisting of various experiential domains. The exploratory factor analysis showed the structure of five factors, including Reputation of the Institute(REI), Program Issues (PRI), Academic aspect(ACA), Access(ACC), and Non-Academic Aspect(NAA). The cumulative sum of these variables explained 81.60% of the total variance, which shows that the measurement framework has a high ability to explain the results and that the evaluations of institutional services in students are structured into structured dimensions and not a unitary perception.

The results are also robust because of the statistical adequacy of the factor solution. The Kaiser Meyer Olkin (KMO) of 0.961 is a good indicator of good sampling adequacy, as well as significant shared variance among the measured variables, and the test of sphericity of Bartlett was significantly high ($p < .001$) that the correlation matrix was appropriate when extracting factors. As well, the communalities were between 0.541 and 0.876 which indicated a large percentage of variance in every observed indicator was explained by the retained factors. Most of the items had factor loadings of more than 0.80 structural meaning that there was a high degree of association between the variables observed and their associated constructs which corroborate the clarity of the conceptualization of the factor structure.

Among the dimensions extracted, it turned out that responsiveness and institutional engagement turned out to be the most influential one, as they explained 50.45% of the whole variance, thus, underlining the core role of institutional communication, responsiveness, and engagement in forming the views on service quality in students. The items related to this

aspect had high loadings of 0.669 to 0.851; hence, it can be concluded that students put a lot of emphasis on prompt responses, open channels of communication and proactive involvement of the institution in responding to student issues. This is in line with previous research that shows that responsiveness and transparency of communication play a significant role in satisfying students and instilling trust in institutions in a higher education setting (Clemes, Gan & Kao, 2008; Wilkins & Balakrishnan, 2013). With the growing digitalisation of academic settings, the importance of institutional responsiveness is one of the key ways in which students assess the effectiveness of the organisation and the reliability of the services.

The second dimension, infrastructural quality, explained 8.91% of the total variance and had high values of factor loading, with a range of 0.818 to 0.842, which are very high internal coefficients of the infrastructure-related indicators. Infrastructure is made up of the physical and technological surroundings within which the educational services are provided in terms of classrooms, laboratories, libraries, the digital platform, and the facilities on the campuses. The results show that institutional competence is greatly correlated and linked to the adequacy and quality of the learning infrastructure by the students. During the time of active digital transformation that has followed the COVID-19 pandemic, infrastructural preparedness and especially digital infrastructure have turned out to be a key factor in the perceived institutional effectiveness. The institutions that have strong technological support and proper facilities will be considered to have a better chance of coming out as being able to provide quality learning experiences (MacCallum et al., 1999).

Academic support was the third dimension determined in the analysis, which described 7.91 per cent of the total variance, and the factor loadings were between 0.827 and 0.854. This dimension encompasses the ratings of the students on the faculty support, academic mentoring, and learning assistance systems offered by the institutions. Higher education institutions are knowledge-based organisations, and teaching and learning processes are very important in the operations of the institutions. The findings indicate that students evaluate institutional quality as manifested in the access to faculty advice, lack of instructional clarity, and inaccessibility of academic support. The results correspond to the current literature that claims academic engagement and faculty support play one of the key roles in positive educational experiences and student satisfaction (Alves & Raposo, 2007; Tsinidou, Gerogiannis & Fitsilis, 2010).

In this case, the fourth factor was administrative coordination that explained 7.85% of variance and had well-cohered factor loading of 0.810-0.866, which showed a unified presentation of the administrative processes within the institution. Administrative systems represent a basic point of interaction between students and institutional systems of governance, including admissions systems, examination systems, documentation services, and interdepartmental communication. Effective administrative coordination increases the transparency of the operations, as well as minimizing the complexity of the procedures among students. On the other hand, poor administrative systems can pose a certain type of barrier that will have a negative influence on the perception of students regarding the performance of the institution. This dimension can be viewed as the most significant insight in the importance of administrative efficiency in creating an overall service experience in the institutions of higher education.

The last dimension, non-academic assistance, contributed 6.48 percent of the overall variance; factor loadings were as follows: 0.675 to 0.816, which depicts the perceptions of the students regarding the support services other than academic teaching. Such services encompass career counseling, psychological services, extra-curricular activities, and welfare of the students services. Holistic student growth has been a growing interest in contemporary higher learning institutions because it has been noted that academic achievement is not the only way of defining the entire educational experience of the student. The existence of this dimension relates to an appreciation of institutional activities by the students who seek to be

supported in their personal, professional, and emotional growth fostering the relevance of holistic systems of student support.

The reliability test also verified the strength of the measurement framework. The alpha coefficients were 0.938 to 0.951 on each of the five dimensions, which is far beyond the prescribed volume of internal consistency (Hair et al., 2019; Ladhari, 2009). These values of high reliability imply that within each dimension the indicators are functioning in a cohesive manner to depict stable latent constructs with an insignificant error of measurement. This good internal consistency increases the credibility of the measurement model and its ability to be applicable in assessing service quality perceptions in the context of higher education.

Theoretically, the results support the idea that perceptions of service quality in higher education are, in fact, multidimensional; they are the product of the interplay between academic, administrative, infrastructural and support services. The fact that responsiveness and institutional engagement had been the leading predictor of the model implies that the effectiveness of the communication is the key process according to which the students process the institutional performance. This observation is in line with the service quality theory that places much emphasis on interactional experiences and relational exchanges in the development of customer ratings towards service organizations.

In managerial perspective, the findings have a number of practical implications to higher education administrators. The multidimensionality of service quality implies that strategies to be followed by institutions to improve their services should focus on several areas of services at the same time. Improving the responsiveness of communication, reinforcing digital and physical infrastructure, enhancing the support system of the faculty, simplifying administrative processes, and enhancing student support services can all lead to the perception of better institutional quality by the students. With the integrated service quality strategies employed, institutions are more likely to improve student satisfaction, build institutional reputation, and stay afloat in a higher education environment that is becoming more global

On the whole, the findings prove the systematization of perceptions of institutional service quality among students in a range of spheres of experience, not in one undifferentiated one. The large percentage of explained variance, high factor loadings, large communalities and high reliability put in a place a statistically rigid and conceptual sound model of the measurement of service quality in higher education institutions.

FUTURE RESEARCH

Future research ought to build on the findings of the current exploratory research to explore the structural implication of the perceived service quality on the key major student-focused outcomes, which are student satisfaction and behavioural intentions. Though the current paper has found the multidimensional framework of perceived service quality, it lacks a quantifiable connection between the dimensions and their subsequent institutional implications. It is such interactions that are central to the further development of the theory and practical management. On this note, the next generation of research must continue the conceptualization of the interaction of the various elements of institutional service delivery in terms of their impact on the overall educational experience of students and their judgments of institutional effectiveness. The creation of theoretically supported models that display the connection between the dimensions of service quality and the outcomes of students would add a lot to the literature on service quality in higher education.

The situation requires additional studies in order to investigate the direct and indirect effects of the identified dimensions of service quality on student satisfaction. Satisfaction may also be a mediating variable between the perceived quality of the service and behavioural intention that encompasses loyalty, positive word-of-mouth, re-enrolment

intention, alumni engagement and institutional advocacy. The proposed study of these relationships would aid in creating a greater insight of the psychological and behavioural processes by which students would translate their experience of service into long-term institutional attitudes and engagement. Future research can thus pose questions on how the perception of service quality leads to the creation of positive student-institution relationship and institutional commitment.

In addition, the moderating factors that can be explored in future research are academic discipline, level of study, type of institution and demographic traits to determine whether the strength of the relationships differs across various groups of students. Investigating such contextual differences would contribute to the creation of a more complex theoretical interpretation of the differences in perception of service quality in various learning settings and student categories. These studies would help in the formation of a more elaborate conceptual framework on the formation of service quality in various contexts of higher education.

It is also indicated that further research can assume longitudinal lenses and examine the changing nature of the service quality perceptions at various phases of the students' academic life. Longitudinal studies would enable the researchers to know how service experiences would affect the satisfaction, engagement, and institutional loyalty in the long run. This would give more theoretical understanding of the dynamic nature of the relationship between institutional services and student outcomes. Finally, increases in research, beyond dimensional identification, to explanatory and predictive models will help in enhancing the conceptual bases of service quality research in higher education as well as increase its applicability to the institutional policy and management.

CONCLUSION

The paper focused on exploring the latent construct of perceived service quality in postsecondary education and assessed the reliability of the measurement at the exploratory level of supporting the measurement structure through exploratory factor analysis. The findings offer a good empirical support that the perceptions of institutional service quality among the students are structured in more than one dimension of experience as opposed to one generalized judgment. The factor analysis showed that there were five dimensions which were identified as responsiveness and institutional engagement, infrastructural quality, academic support, administrative coordination and non-academic assistance that cumulatively accounted 81.60 percent of the overall variance. The statistical diagnostics also revealed the strength of the model considering the high Kaiser Meyer Olkin value (0.961), high Bartlett test of sphericity ($p < .001$), high factor loadings and communalities, which are between 0.541 and 0.876. These measures show the sufficient Ness of the data and confirm the integrity of the solution factor.

The credibility of the measurement model was also further reinforced by the reliability analysis. The alpha values (0.938 to 0.951) of the Cronbach are excellent internal consistency coefficients of all dimensions, and they affirm that the indicators grouped together work towards one thing, which is the representation of stable latent constructs. The high reliability coefficients indicate that the constructed measurement framework would be a reliable instrument to examine the perceptions of the students towards service quality in the institutions of higher learning.

Conceptually, the results support the view that service quality in the higher education is a result of a multifaceted interaction between the academic, administrative, infrastructural and support service experiences. Learners do not necessarily judge institutions only on the quality of the teaching or the physical infrastructure, instead, their perceptions are formed in the process of the on-going interactions with the institutional infrastructure, communication processes and support services. The fact that responsiveness and institutional engagement

become the defining factor in the present day suggests the increasing significance of communication transparency, accessibility and institutional responsiveness in modern higher education settings.

The research is also relevant as it adds to the information on the subject of measuring service quality as a multidimensional framework of measuring perceived service quality in higher education is empirically proven in the study. Although earlier studies have recognized the complexity of the service experiences in the educational context, empirical validation of context-specific measurement structure is scarce. The identified coherent latent dimensions and a high level of reliability and construct validity give the current study a solid analysis framework that can be applied in the assessment of the quality of institutions and additional empirical studies.

The practical implications of the findings pertain to the higher education administrators and policymakers with the findings offering valuable insights. The dimensionality of the perceived service quality implies that achievement of the institutional improvement strategies requires the targeting of multiple inter related areas at the same time. The investments in the communication, digital, physical infrastructure, academic support, administrative efficiency, and student welfare services will all contribute to improving the perceptions of students regarding the institutional quality. The organizations that successfully apply these aspects of services will be better placed to achieve greater levels of student satisfaction, promote institutional image, and competitive advantage in the more globalized higher education marketplace.

In general, the research illustrates that perceived service quality in a college or university is coordinated, quantifiable, and can be empirically established by using a rigorous multivariate analysis. The established measurement framework offers a solid empirical basis of the future studies in the examination of the correlations between the service quality dimensions and other vital student outcomes, including satisfaction, loyalty, engagement, and institutional trust. The study helps in both the theoretical growth of the service quality research and practical enhancement of the quality of services in higher education by enhancing the knowledge of how students assess the services of the institution.

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