

A Hierarchical Model for Assessing Service Quality in Higher Education Institutions: HEdSQUAL

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ABSTRACT

Assessing the quality of service in the context of the ever-changing higher education environment is crucial for influencing the overall educational experience. The present work examines some changing perceptions, among students, regarding educational methods, and proposes what it could be a "hierarchical model" for assessing the quality of services offered by educational facilities. The model was developed by using a three phased method and was subjected to reliability and validity testing on 450 students in the model testing stage using stratified random sampling. The model was validated using PLS-SEM, which meet the reliability, validity and overall integrity of the model. The findings suggest that the instrument contained 25 items, and six variables (teaching technique, professional development program, pedagogy, academic amenities, academic responsiveness, and support services) formed a strong framework of evaluation of the quality of the offered services in the HEIs. The research enriches the existing literature by offering a proven, context-relevant model, along with actionable insights for policymakers and institutional leaders aiming to assess, oversee, and improve quality standards in higher education.

Keywords: *HEdSQUAL, model development, service quality, higher education*

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1. INTRODUCTION

The pursuit for continuous improvement in service quality has emerged as a crucial necessity for HEIs (Teeroovengadam et al., 2016). As institutions vie for students thru diverse strategies involving academic programs, amenities, financial benefits, and the whole student experience, the higher education environment has become increasingly dynamic and competitive (Nara, 2015; Hemsley-Brown et al., 2010; Weerasinghe et al., 2018). Higher education institutions are increasingly adopting a "students as customers" approach in their educational service transformation, which improves student learning quality, promotes educational internationalisation, expands quality standards, leads to a proliferation of private institutions, and coincides with a reduction in state funding for public institutions. In these fluctuating conditions, students are regarded as clients who have the option to select from several educational establishments (Guilbault, 2018). This choice is shaped by individual inclinations, educational goals, and the estimated value of the learning experience (Del Río-Rama et al., 2021). The educational sphere has been significantly

influenced by the intertwined effects of globalisation and the digital revolution, necessitating the emergence of new and diverse fields of study (Mallika Appuhamilage and Torii, 2019). These dynamic revolutions have heightened rivalry among institutions for students, resources (both financial and human), and reputation (Stukalina, 2012), hence recognising quality as a strategic asset in higher education (Munshi, 2019).

In such an environment, acknowledging students as essential stakeholders (Stukalina, 2012) and emphasising the development of robust interactions with them has become crucial and necessary for the future prosperity of higher education institutions (Del Río-Rama et al., 2021). Regular assessment of service quality is essential to the strategic governance of universities and has emerged as a significant criterion for student selection (Abdullah, 2006). It cultivates an ethos of ongoing enhancement, boosts stakeholder contentment, and guarantees that institutions have undergone a pedagogical transformation in recent years to address the evolving demands of higher education, prompting them to emphasise student-focused

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services (Paudel, 2021). In a rigorous educational framework (Singhal, 2017), the market-oriented strategy within higher education seeks to consistently meet student needs and enhance institutional success by providing superior education. This includes proficient instruction, stringent educational criteria, and a nurturing educational atmosphere (Al-Marroof et al., 2022).

Measuring the quality of services in higher education remains a significant challenge in developing a good model. There has been widespread — and comprehensive — discussion about the nature of service quality in the literature, and there is no single accepted framework of dimensions of service quality. (Onditi and Wechuli, 2017). The "SERVQUAL" that was developed by Parasuraman, Zeithaml, and Berry (1985) is one instrument that has been used in a myriad of research projects to assess the effectiveness of service quality in higher education. This paradigm focused mainly on functional items and omitted technical details or standards in the higher education (HE) sector with precision. On the other hand, alternative studies used a more holistic approach to identify the attributes and aspects of service quality viewed from the students' perspective (LeBlanc and Nguyen, 1999; Abdullah, 2006; Verma and Prasad, 2017; Latif et al., 2019). There is some merit in arguing that there are several comprehensive approaches that have attempted to evaluate the quality of education provided in post-secondary institutions. This research is intended to fill the gap by developing and testing a "hierarchical and comprehensive framework" that covers all key parts of educational service quality identified by students. This study aims to construct, improve and validate the service excellence framework model in HEIs.

This chapter is organized as follows. The next section explores the published literature on the perception of the quality of Higher Education service provision and the assessment of Higher Education service quality. This is followed by a theoretical explanation and justification to the proposed service quality model. The next section discusses the method for developing and validating the model. The chapter ends with the model's results, implications for higher education and limitations of the study.

2. THEORETICAL BACKGROUND

Perceived quality of HE services

Higher education is often regarded as a "pure service", and the nature of this service involves a substantial amount of "interpersonal contact" (Angell et al., 2008). Higher education (HE) has undergone significant transformations in response to dynamic regional, national, and global developments over the past decades (Ahmad, 2015). Teaching, learning, and student life all contribute to students' academic performance, implying a holistic perspective on academic quality, considering extending to the entire educational experience of students to attain their goals using attainable learning options (Bryant and Bradley, 1990). The desire for individual educational

experiences implies a holistic approach to education (Abbas, 2020). The significance of personalised educational experiences suggests that learners are pursuing institutions that acknowledge and accommodate their own requirements, learning preferences, and ambitions (Dlačić et al., 2014). It is further stipulated that HEIs must prioritize fulfilling rising student expectations and improving educational service quality (Borishade et al., 2021). Students' requirements are becoming more demanding over time. To meet these changing expectations, institutions must actively engage in continuous assessment of student perceptions to find areas for development and adaptation (Asim and Kumar, 2018).

One of the most dynamic and agile sectors (Rozak et al., 2022) in higher education has been greatly impacted by the quick evolution of technology. Implementation of digital tools, online platforms and innovative pedagogy has brought changes in the provision and availability of education (A. Gupta, 2021). Education accountability is becoming prominent and so quality measurement in higher education is getting more crucial (Senthilkumar and Arulraj, 2011). Higher education institutions have been undergoing change in their curriculum owing to the evolving job landscape; where workshops, seminars and field visits were introduced to equip students with adequate skills for the evolving job market (Latif et al., 2019). The pedagogical methods have been moved away from teacher-centred to student/ Experience based learning (Singhal, 2017). In consequence, active learning, project-based learning type of work, and interactive learning with group work are being focused (S Srinivasaragavan, 2021). Modern day students have very specific expectations of what their learning should be like. Experiential learning is highlighted, along with support services that are personalised and are preparing students to deal with real-world challenges (Guilbault, 2018). Higher education institutions make an effort to foster a culture that values students as active participants and contributors to learning process. This change improves student satisfaction, retention, and academic and career success and, therefore, the overall quality of the educational experience (Vaghela and Venkatraman, 2017).

Measurement of HE services quality

The literature demonstrates that excellence in higher education is not a singular concept, but rather a collection of qualities. (Iacovidou et al., 2009) Evaluating a service cannot be done from the "provider's viewpoint"; the most dependable approach to ascertain the value of the services rendered is by examining the "service recipient. Numerous tools have been utilised to assess service quality, as indicated by existing studies. SERVQUAL (Parasuraman et al., 1985) has been the predominant instrument for evaluating service quality in higher education institutions. Nonetheless, it might not be the most suitable instrument since "education is a unique service" characterised by traits that differentiate it from other services. (Abdullah, 2006). Nonetheless, various research tailored to service quality parameters indicates a recognition of the diversity

and distinctiveness inherent in higher education environments. Various organisations may possess unique traits, priorities, and obstacles, requiring a tailored methodology for assessing service quality (Grönroos, 1984; Hill, 1995; Owlia and Aspinwall, 1996; LeBlanc and Nguyen, 1999; Brady and Cronin, 2001; Lagrosen et al., 2004; Nkiruka, 2015; P. Gupta and Kaushik, 2017; Barua and Uddin, 2021), although evaluating service quality remains a multifaceted challenge. Each of these investigations was meticulously examined to establish the conceptual framework that the research suggested. A crucial factor to contemplate is that the majority of models emphasise exclusively on "functional quality" while neglecting "technical quality" concerns (Kang, 2006). The evaluation of service quality hinges on the premise that consumers assess service quality at many perceptual levels (Dabholkar et al., 1996; Dagger et al., 2007; Teeroovengadum et al., 2016).

3. Research Methodology

3.1 Research Objectives

- 1 "To develop, refine, and validate a comprehensive model for assessing service quality in higher education institutions".

3.2 Population, Sample Size, and Sampling Techniques

The study's population comprises the total count of students enrolled (both undergraduate and postgraduate) in Uttarakhand, India, for the academic year 2020-21. As per Social, Economic Statistics India (<https://www.indiastat.com/data/education>), 2a total of 252,325 students was registered in the academic year 2020-21. The Rao soft sample size calculator suggested a sample of 384 students for a specified population at a 95 percent confidence level; however, to enhance the generalizability of the study's findings, a self-administered questionnaire was distributed to 600 students by stratified random sampling.

3.3 Research instruments

A scientific and systematic approach to model development guides this study (Churchill, 1979). To ensure rigour and sanctity, the current study employs a methodical, systematic approach to develop a measurement of Higher Education (HE) service quality from the perspective of students. The steps are categorised into the following phases:

Phase 1: Generation, selection, and purification of items -

- a) Items generation and selection with the help of "literature and focus group discussion"
- b) Classification of items into dimensions
- c) Validation from experts
- d) Pilot testing
- e) Model refinement and purification

Phase 2: Collection of Data and Factor Analysis-

- a) Collection of data on the proposed statements for assessing service quality

- b) An EFA was performed to determine the factor structure of the instrument.

Phase 3: Assess the "validity and reliability of the model"-

- a) The internal consistency of the service quality determinants was determined using the reliability assessment.
- b) Convergent and discriminant validity are used to establish construct validity

Items generation and selection

Acknowledging the domain HEIs' Service Quality, the next step consists of generating a pool of sample items for each identified dimension. For a comprehensive and insightful approach to developing a measurement instrument, the present study primarily utilizes existing literature analysis and focus group discussions for item generation. Moreover, students are the principal beneficiaries of educational services and possess firsthand knowledge with the offerings of higher education institutions. Consequently, they are fundamental in the process of discovering key dimensions influencing the quality of services as perceived by students.

The focus group discussion aims to illustrate how students characterize aspects of "HE services quality" based on their perceptions. The secondary objective is to reveal indicators of service quality in higher education that have not been previously recorded in academic literature. The results from the focus group discussions can act as a significant asset for comprehending and improving service quality in higher education, closely reflecting the viewpoints and experiences of the participating students. The cohort of students for the focus group was chosen through a multi-tiered approach, initially classified by the type of institution (government, private, and deemed), subsequently segmented by field of study (commerce and management, arts and science, and engineering), and further differentiated according to academic standing (undergraduate and postgraduate). A separate focus group discussion using purposive sampling with 10 members in each group respectively was conducted by clearly outlining the objectives of the research and the purpose of the discussion. Additionally, separate guidelines for students of diverse groups and a notes-based approach were used during the discussion to capture key insights. After the "focus group" deliberations, the notes were examined to find the common elements that emerged from each discussion, and those elements were then classified under single dimensions. Initially, 45 things were recognised from the comprehensive literature review and evenly categorised into 8 dimensions.

Model refinements and purification

Furthermore, expert opinion was taken to fine and tune the items for measuring the model. The specialists in service quality, faculty from diverse departments, and coordinators

of NAAC and IQAC, each with over fifteen years of expertise, have been requested to provide feedback on the measurement model. Based on expert advice, refinements were made to the “nomenclature of a few dimensions” and the elimination of 10 overlapping items to maintain the core of the framework intact and avoid redundancy. Based on the expert's feedback, certain items were refined or eliminated from the initial pool of items. As a result, the proposed original model consists of 6 dimensions and 35 items. Further, a bilingual questionnaire was proposed for a pilot study and data collection. The survey instrument was divided into two sections. Part A focuses on gathering information about respondents' demographic and academic backgrounds, while Part B involves assessing respondents' opinions on six dimensions of Higher Education (HE) service quality using a Likert scale on a “seven-point Likert scale” (1 representing ‘Strongly Disagree’ to 7 representing ‘Strongly Agree’).

A pilot study is a valuable step in refining and validating a survey instrument before its full deployment (oddi, 1986). The “pilot study” included a total of 100 undergraduate and graduate students randomly selected from the various formats of higher education institutions, namely government/aided, private/self-financed, and deemed institutions, to obtain an accurate portrayal of various formats of higher education institutions. Subsequently, the survey was submitted to four academicians,

administrators, and an English expert for assessment. The expert provided feedback on the errors and omissions and any “perceived ambiguities” related to the questionnaire. As a result, the draft questionnaire was modified appropriately. At the end of this stage, 45 statements were finally reduced to 35 statements in the questionnaire after elimination and merging, divided into six dimensions.

4. ANALYSIS AND RESULTS

“Exploratory factor analysis”

The study of the data was conducted using EFA with SPSS Version 26. The EFA procedure was applied to delineate the parameters of the HEI service quality instrument. Factor analysis starts with ascertaining if the data from this study is appropriate for such analysis. In this regard, “KMO and Bartlett's Tests” have been applied. The “Kaiser Meyer Olkin (KMO)” determines if the sample is appropriate for factor analysis (Pallant, 2020). A KMO figure above 0.7 is viewed as acceptable, and the KMO evaluation generated an index of 0.945, reflecting appropriate sampling (consult Table 2). Secondly, Bartlett's test of Sphericity is utilised to evaluate whether correlations exist among the variables; a significant finding ($\text{sig} < 0.05$) suggests that to conduct a valid EFA, each variable must be related to the others. This investigation demonstrates that “Bartlett's test is significant ($p=.000$),” thus confirming the appropriateness of factor analysis.

Table 1: “KMO and Bartlett's Test”

“Kaiser-Meyer-Olkin Measure of Sampling Adequacy”		.945
“Bartlett's Test of Sphericity”	“Approx. Chi-Square”	7031.769
	“Df”	378
	Sig.	.000

In the present study, factor analysis is conducted employing principal component analysis and varimax rotation. The eigenvalue criterion is employed to ascertain the quantity of factors, retaining solely those with an eigenvalue of one or greater. After revealing the factor structure and assigning variables to factors based on their loadings, the factor loading minimum is set at 0.50 (leeche, Barrett, & Morgan, 2005).

The variable's communalities symbolise the proportion of variance in a “variable explained” by the identified factors. The results show that all communalities were greater than 0.50, except for five items that were less than 0.50 and were excluded from further research. The factors explained 64.822% of the variation in the data.

Next, we calculated the rotational matrix of factor loadings, which included the correlation between each variable and each factor. Subsequent examination was conducted utilising the factor loadings from the EFA to evaluate the dimensions of service quality in education and eliminate the underperforming items. The items are categorised into six groups according to the highest loading for each item, while those that did not load significantly on the factors or exhibited poor performance

are excluded from the initial variable set. The factor analysis is subsequently conducted again using the amended variable set. This entails re-executing the analysis to assess how the residual items correlate with the factors. The factor analysis indicated that the KMO value was 0.942. The findings of Bartlett's sphericity test were significant. The communalities were uniformly 0.50. The findings indicated a six-factor model, accounting for 66.979% of the variance. Table III encapsulates the EFA findings by factor designation, statement, loading, percentage of variance, and eigenvalue. Every element within the scale is uniformly assessed for internal consistency. A Cronbach's alpha over 0.70 is typically regarded as satisfactory (Hair *et al.*, 2006).

The factors determined through the factor analysis are described as follows:

Factor 1: Teaching Methodology (TM)- Teaching methodology measures the strategies, techniques, and approaches that educators use to facilitate learning. It directly influences the overall learning experience of students.

Factor 2: Professional development program (PDP)- This aspect represents a forward-thinking methodology and includes elements that create a solid theoretical basis, provide education through modern courses pertinent to prevailing trends, and stimulate an interactive learning environment.

Factor 3: “Academic amenities (AA)”- This factor includes facilities, resources, and services that contribute to the overall learning experience and academic success of students.

Factor 4: Pedagogy (PG)- This factor incorporates active learning by including the use of innovative and engaging teaching methods to enhance the learning experience.

Factor 5: Support facilities (SF)- This factor is pertinent to measuring items that are creating a conducive and supportive environment for students.

Factor 6: Academic responsiveness (AR)- This characteristic demonstrates the institution's capacity to respond timely and effectively to students' academic demands, concerns, and inquiries.

The dimensions developed for the HEIs' service quality instrument were supported by “literature and focus group discussions”. Table 3 reveals the support for the constructs in the “literature and focus group discussions”.

Table 2: Dimensions, sub-items, factor loadings, and reliability analysis

Dimensions	Items	Factor loadings	% of Variance; eigenvalue
Teaching methodology	Faculties is well prepared to impart quality education	0.786	42.050%; 10.512
	faculties make use of teaching aids and case base studies	0.700	
	The Institute syllabus is relevant to the program and future needs	0.679	
	The institute has specialized and qualified faculty for different courses	0.672	
	Encourage student participation via group activities, hands-on exercises, etc	0.643	
Professional development program	The organization conducts a vocational training initiative.	0.810	7.928%; 1.982
	The institution offers guest presentations by industry specialists.	0.797	
	The organization arranges a commercial excursion.	0.744	
	The institute engages/motivates students to participate in different activities	0.560	
Academic amenities	The institution has a sufficient laboratory, seminar hall, and auditorium	0.785	5.108%; 1.277
	The institution offers flexible learning options such as online modules, easy access to course material, etc	0.744	
	Institution's physical facilities like computer labs, wi-fi, printers, etc, are readily available	0.702	
	The institution has a rich library with a wide range of books, journals, and research papers	0.618	
Pedagogy	The institute provides remedial classes	0.797	4.245%; 1.061
	Institutes use “multimedia in teaching,” e.g., the use of a PowerPoint presentation, projector, etc	0.761	
	The institution arranges conferences and training sessions.	0.535	
	“The institute has well-designed examinations and continuous assignments to promote enhancements of knowledge skills”	0.528	

Support facilities	The institute provides campus canteen facilities at a reasonable price	0.711	3.855%; 0.964
	The institute encourages extracurricular activities like the student union, Red Ribbon, NCC, NSS, etc.	0.702	
	The institute provides recreational activities (yoga, sports, cultural activities, etc).	0.560	
	The institute provides healthcare facilities	0.526	
Academic responsiveness	The institute shows positive behavior of staff to impart confidence in students	0.724	3.793%; 0.948
	Institute academic staff deals in a caring and courteous manner	0.571	
	The institute shows the willingness of academic staff to help students	0.513	
	The institute has easy administrative processes like registration, examination processes, user-friendly websites, etc.	0.505	

Table 3: Service Quality Dimension Support

Dimensions	Source of reference from literature	No. of items	Focus group support
Teaching methodology	Chou, (2004); Sahney et al., (2004); Jain et al., (2013); Senthilkumar & Arulraj, (2011); Brooks, (2015); Latif et al., (2019) ;Abbas, (2020)	5	Yes
Professional program development	Bhattacharyya et al., (2002);Jain et al., (2013) ; Teeroovengadum et al., (2016)	4	Yes
Pedagogy	Teeroovengadum et al., (2016);Verma & Prasad, (2017)	4	Yes
Academic amenities	Owlia & Aspinwall, (1996); Lagrosen et al., (2004); Athiyaman, (2006)	4	Yes
Academic responsiveness	Joseph et al., (2005); Abdullah, (2006); Douglas et al., (2008); Nkiruka, (2015)	4	Yes
Support services	Hill, (1995); LeBlanc & Nguyen, (1999); Bhattacharyya et al., (2002) ; Abdullah, (2006); Verma & Prasad, (2017)	4	Yes

Confirmatory Factor Analysis

After conducting EFA, “Confirmatory Factor Analysis (CFA)” was used “to ensure the reliability and validity” of the construct/factors used in the model.

“Reliability and Validity”

The “reliability analysis” was performed to verify the internal consistency of many indicators for each Factor.

The reliability of each construct was evaluated by Cronbach's alpha (α) and composite reliability (CR). As per the standard established by (Hair et al., 2019), the α and CR values for each construct must surpass 0.70. Table 5 indicates that all α and CR values surpass the established threshold. Consequently, every construct utilised in this research is dependable.

Table 4- “Reliability and Validity”

Factors	“Cronbach Alpha (α)”	“Composite Reliability (CR)”	“Average Variance Extracted (AVE)”
Teaching methodology	0.846	0.891	0.620
Professional development program	0.859	0.905	0.704
Academic amenities	0.857	0.903	0.701
Pedagogy	0.831	0.888	0.595
Support facilities	0.772	0.854	0.595
Academic responsiveness	0.704	0.818	0.537
Service quality	0.923	0.915	0.751

“Convergent Validity”

Convergent validity evaluates the extent to which a construct effectively measures the intended idea. According to the standards set by (Hair et al., 2019), the composite reliability (CR) must exceed 0.70, and the average variance extracted (AVE) for each construct should be greater than 0.50. Furthermore, the Composite Reliability (CR) of each construct must exceed the Average Variance Extracted (AVE) for each construct (CR > AVE). Table 5 indicates that every build possesses a Composite Reliability (CR) exceeding 0.70 and an average value beyond 0.50. This indicates that all constructs have strong convergent validity.

“Discriminant Validity”

This pertains to the extent to which a construct's measurements differ from those of other constructs within the model. This study uses the “Fornell-Larker Criterion and Heterotrait-Monotrait Ratio (HTMT)” to assess the construct's discriminant validity.

“Fornell and Larcker (1981) assert that the square root of the average variance extracted (AVE)” must exceed the squared correlations with other latent variables in the model. The AVE value for every notion surpasses the intercorrelations found in the correlation matrix, demonstrating strong discriminant validity. Table 6 indicates that the emphasised values in the matrix fulfils “the Fornell and Larcker (1981) criterion.

Table 5: “Fornell Larker Criterion (1981)”

	AA	AR	PG	PDP	SQ	SF	TM
AA	0.837						
AR	0.556	0.733					
PG	0.557	0.651	0.815				
PDP	0.557	0.573	0.694	0.839			
SQ	0.544	0.515	0.677	0.726	0.811		
SF	0.563	0.530	0.627	0.684	0.717	0.771	
TM	0.663	0.700	0.562	0.514	0.648	0.488	0.787

Note: “AA: academic amenities; AR: academic responsiveness; PG: pedagogy; PDP: professional development program; SQ: service quality; SF: support services; TM: teaching methodology”.

According to this criterion, each value in the matrix should be less than 0.85 (Henseler et al., 2015). Table 7 demonstrates that every value in the matrix is less than 0.85. Every construct has considerable discriminant validity.

“Heterotrait–Monotrait Ratio (HTMT) Criterion”

The standard for assessing “discriminant validity was presented by Henseler, Ringle, and Sarstedt (2015)”.

Table 6: HTMT Criterion

	AA	AR	PG	PDP	SQ	SF	TM
AA							
AR	0.703						
PG	0.656	0.803					
PDP	0.647	0.697	0.814				
SQ	0.805	0.676	0.737	0.809			
SF	0.685	0.693	0.773	0.831	0.823		
TM	0.761	0.814	0.669	0.603	0.715	0.605	

Note: “AA: academic amenities; AR: academic responsiveness; PG: pedagogy; PDP: professional development program; SQ: service quality; SF: support services; TM: teaching methodology”.

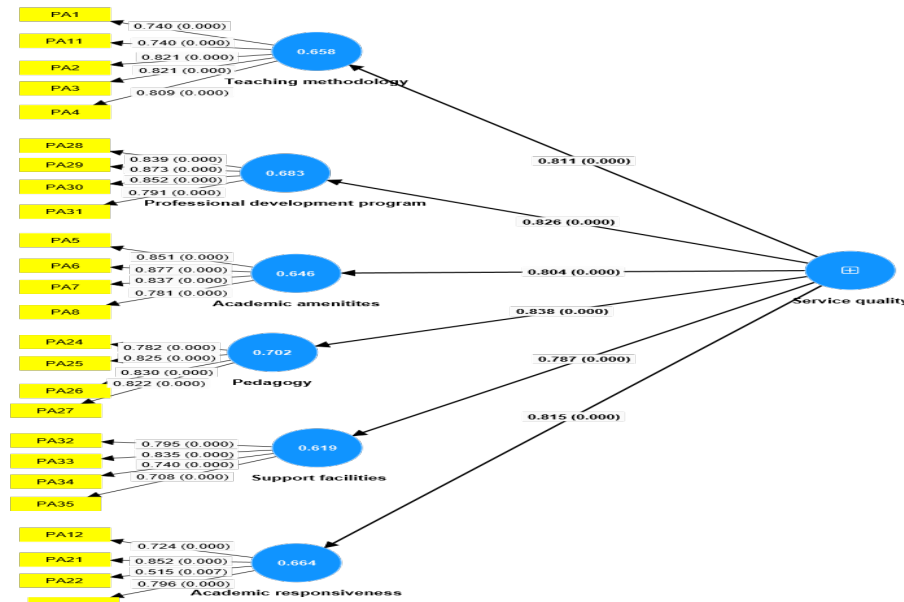


Figure 1: HEdSQUAL Model

5. FINDINGS AND CONCLUSION

The present research uses hierarchical model development techniques for developing a "valid and reliable measuring instrument" to assess the service quality perceived by HEI users. It is an approach that takes a whole-school view with pupil voice into account. The process of developing the comprehensive instrument of quality assessment in HEIs was a thorough one and went through a process of systematic development at each stage of its building. The new model extends prior models in terms of quality factors, such as the generic ones or limited to one institutional aspect (Teeroovengadum et al., 2019; Latif et al., 2019; Abbas, 2020). The process was structured as a review of literature, generation of items, panel validation, empirical validation for theoretical soundness and contextual relevance. Motivated by this objective, the empirical analysis showed that service quality in HEIs is a multidimensional construct, having unique properties but interrelated at the same time. All the dimensions measured had high factor loadings, high internal reliability and had high validity, which testifies to the robustness of the resulting model.

The final model for the second group was hierarchical and consisted of 25 items which referred to teaching methodology, professional development program, academic amenities, pedagogy, support facilities, and academic responsiveness. Moreover, this study adopted an extensive service quality measurement perspective which includes functional and technical dimensions. Finally, the study's findings offer a theoretical basis and empirical appraisal of a measuring tool for service quality in higher education which is to be added to the study field of service quality in higher education. The model is a very useful tool for institutional self-assessment, benchmarking and ongoing institutional quality improvement.

6. IMPLICATIONS

The investigation offers a model for measuring the standard of higher education services. The discoveries hold substantial ramifications. This trustworthy and legitimate framework can function as a "diagnostic apparatus" in several businesses to detect service delivery problems. The proposed instrument is a significant tool for HEIs seeking overall academic excellence as well as continual service quality improvement. Furthermore, this "student perceived framework" addresses students' needs and tactics for surviving in today's competitive world. This inclusive approach ensures that the assessment considers the different perspectives of students within HEIs. Practitioners can focus on specific HEIs' service quality determinants by using distinct sub-dimensions of service quality for their purposes. Department heads may rely exclusively on the teaching approach component to judge the quality of instruction in their department. The methodology will allow higher education institutions' senior management to assess the quality of their services. In addition, top management should devise strategies to improve service quality and effectiveness in a highly competitive higher education business. Furthermore, repeating and evaluating this model in multiple HEIs in diverse circumstances can provide a comprehensive understanding of quality.

7. LIMITATIONS OF AND FUTURE SCOPE OF STUDY

Like previous studies, the study encompasses specific constraints that may be rectified in further studies. Firstly, this study's scope is confined to enrolled students of HEIs in Uttarakhand, India. To generalize the results, the model should be evaluated across several HEIs of diverse contexts. Secondly, the current study focuses on enrolled students, expanding the scope to include other stakeholders such as faculty, administrators, and alumni could offer a more holistic perspective on service quality. Furthermore, future studies may collect data from

doctoral-level students and diploma-integrated courses in HEIs and could attempt to conduct a comparative analysis between different institutional formats. Additionally, the study relied on data gathered at a single point in time. Students' perspectives about their institutions may shift as they move through their courses. Future research should therefore use longitudinal data to capture students' shifting perceptions.

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