A study on consumer perception of service quality in higher education institutions in Thoothukudi district

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Abstract: *A study on consumer perception of service quality in higher education institutions in Thoothukudi district examines how students, parents, and other stakeholders evaluate various dimensions of service quality. The research focuses on critical aspects such as infrastructure, faculty expertise, administrative efficiency, curriculum relevance, and student support services, which collectively shape consumer satisfaction. In order to find discrepancies between perceived and intended service quality, the study assesses five aspects using the SERVQUAL model: tangibility, reliability, responsiveness, assurance, and empathy. It also highlights how demographic factors like gender, socio-economic background, and educational aspirations influence stakeholder perceptions. Data collection through structured surveys and focus groups ensures a robust understanding of expectations and satisfaction levels. The findings emphasize the need for institutions to adopt student-centric approaches, modernize facilities, enhance faculty performance, and improve administrative responsiveness. A significant aspect of the study is the application of EFA, or exploratory factor analysis, is used to find underlying trends in stakeholder perceptions, enabling the categorization of key factors that significantly impact service quality. By uncovering the latent constructs, the study provides actionable insights for improving institutional services, aligning them with stakeholder needs, and achieving competitive advantage in the dynamic higher education landscape. EFA strengthens the research by ensuring data-driven and evidence-based conclusions.*

Keywords: Perception, Service Quality, Higher Education, SERVQUAL Model and Exploratory Factor Analysis (EFA)

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Introduction

In the evolving landscape of higher education, service quality has become an essential factor influencing student satisfaction and institutional success. Higher education institutions (HEIs) are increasingly focused on providing services that meet the growing expectations of students, ranging from academic support to campus facilities. In Thoothukudi district, understanding how students perceive the quality of services offered by the institutions is critical for improving their overall experience and maintaining institutional competitiveness. The study examines the consumer perception of service quality in HEIs within Thoothukudi district, exploring key dimensions such as teaching effectiveness, infrastructure, administrative support, and student services. To evaluate the discrepancy between students' expectations and their real experiences with the services, the SERVQUAL model is employed as a framework. The study investigates factors such as faculty quality, classroom resources, responsiveness to student needs, and the availability of support services. By identifying strengths and weaknesses in the areas, the research aims to provide valuable insights for HEIs to refine their offerings. Ali et al. (2016) emphasized that service quality in higher education significantly influences student satisfaction, institutional image, and student loyalty. The study suggested that institutions providing high-quality academic and support services are more likely to improve students' educational experiences and strengthen their long-term reputation. It is anticipated that the results will aid in the creation of focused efforts to raise service quality, raise student satisfaction, and provide a supportive learning environment. Ultimately, the study will help HEIs in Thoothukudi better align their services with the needs of their students, ensuring sustained growth and success.

Review of Literature

With important studies influencing our knowledge of how students assess the calibre of services offered, the literature on consumer perception of service quality in higher education institutions (HEIs) has changed dramatically over time.

Abdullah (2006) developed the HEdPERF model, which is tailored to higher education institutions.The model includes academic, non-academic, and institutional reputation dimensionsproviding a more thorough understanding of university service quality. His investigation highlighted that students tend to prioritize academic quality, teaching effectiveness, and efficient administrative services when evaluating overall service quality in higher education institutions. Alhaddad & Abbas (2021) examined the role of digital service quality, pointing out that with the rise of digital tools and online platforms, HEIs must ensure that digital learning environments are as high quality as in-person services. Amin et al. (2013) explored the influence of student expectations on how well services are perceived, highlighting the necessity for HEIs to meet high expectations regarding academic services and campus facilities to ensure student satisfaction.

Bitner (1992) highlighted the importance of physical evidence like campus facilities and student-faculty interactions in shaping perceptions of service quality. Caceres &Paparoidamis (2007) underscored the relationship between student loyalty, contentment, and service quality, discovering that raising service quality results in more satisfaction, which raises retention.

Carman (1990) conducted one of the early studies that adapted the SERVQUAL model to the higher education context. The research emphasized the importance of faculty responsiveness, curriculum relevance, and administrative efficiency as primary factors influencing students' perceptions of service quality. Carman's work highlighted the gap between student expectations and the actual delivery of services, in order to increase student satisfaction and loyalty, higher education institutions must make sure that their programs meet their demands.

Cuthbert (1996) contributed to the creation of a framework for higher education service quality, emphasizing the role of student-centeredness and expectation management. The study concluded that universities should focus on understanding the evolving needs and expectations of students, offering services that cater to diverse student groups, and ensuring the quality of both the educational and non-educational services provided. Cuthbert argued that meeting student expectations requires constant feedback mechanisms and a proactive approach in service delivery. Dey, Roy, and Das (2021) investigated the role of digitalization in shaping service quality perceptions, with a focus on e-learning platforms and virtual administrative services. The study found that technology-driven services, such as easy access to online learning resources and responsive virtual support, significantly affect how well students think the services are provided, especially in remote and hybrid learning settings.

Eom et al. (2006) introduced the concept of e-learning quality, which became increasingly important with the rise of online education. Their study highlighted the significance of accessibility, communication, and support services in online learning environments.Ghadami et al. (2022) examined global higher education institutions and identified key factors influencing service quality perceptions. The factor included digital transformation, faculty competency, student engagement, and the quality of institutional support services. The study underscored the growing importance of technology in shaping students' experiences, particularly in the post-pandemic era, where online services and remote learning have become central to education.

Gupta & Jain (2022) emphasized the importance of personalized services, such as tailored academic advising and mentorship, which were found to positively impact student satisfaction, particularly in terms of empathy and assurance. Jain et al. (2024) explored how cross-cultural factors influence the perception of service quality, particularly for international students, highlighting the varying expectations across cultural backgrounds and the need for HEIs to tailor services to meet the diverse needs.Kumar et al. (2023) focused on how institutional reputation and global rankings increasingly shape students' opinions about the quality of services, demonstrating how crucial outside opinions are when making decisions.

Migliore, Chinnici, and D'Angelo (2018) explored how students' experiences with digital learning platforms and virtual services shape their perceptions of service quality. The researcher found that students who had positive experiences with e-learning tools, digital resources, and online interactions with faculty reported higher satisfaction with the institution's service quality. The study underscores the significance of digital tools and platforms in modernizing service delivery in higher education, particularly in the context of increasing reliance on online learning environments.Moller and Schittko (2009) examined how student satisfaction and

service quality are interlinked, with a specific focus on university branding and reputation. The study found that students' opinions about the quality of services are greatly impacted by both external factors such as the university's ranking and reputation, and internal factors such as the quality of academic instruction and campus facilities. Moller and Schittko's research suggested that a strong institutional brand, combined with effective service delivery, helps universities attract and retain students.

Oldfield and Baron (2000) explored how students perceive service quality by comparing their expectations with their actual experiences in higher education. The study found that students placed high value on faculty support, the effectiveness of learning methods, and the overall academic environment, emphasizing the importance of faculty-student interactions and the quality of curriculum delivery in shaping views on the quality of the services. Parasuraman, Zeithaml, and Berry (1988) introduced the SERVQUAL model, which became foundational in understanding service quality by highlighting the discrepancy between students' beliefs and expectations. Five essential dimensions—tangibles, assurance, responsiveness, empathy, and reliability were discovered by the framework and are being used to direct research in the area. Sander et al. (2015) focused on the importance of responsiveness in administrative services, particularly academic advising and student support, which were found to be critical in shaping student perceptions. Sultan and Wong (2013) focused on the link between service quality, student satisfaction, and institutional reputation. The research highlighted that academic quality and teaching methods are the most influential factors in shaping student satisfaction, while efficient administrative services and a strong institutional reputation further enhance the overall perception of service quality in higher education institutions.

Sweeney and McColl-Kennedy (1996) applied SERVQUAL to HEIs and introduced the academic environment as a critical dimension, emphasizing the role of curriculum and teaching quality in student satisfaction. Tariq and Shah (2018) focused on the connection between aspects of service quality and student happiness at private universities. Students' evaluations of service quality were found to be significantly influenced by course flexibility, teacher involvement, and individualized academic attention. The research also found that private institutions, in particular, have a greater opportunity to enhance service quality by focusing on individualized attention and customized student services, which align more closely with students' expectations.

Torrington et al. (2020) highlighted the growing importance of co-curricular services, such as student engagement and career services, in shaping students' overall service quality perceptions. Zeithaml et al. (2000) further explored the connection between service quality and student satisfaction, highlighting the significance of individual experiences and word-of-mouth in shaping student perceptions. Zeithaml, Bitner, and Gremler (2006) contributed to the understanding of service quality by integrating a customer-oriented approach in the education sector. The study emphasized that students, as "consumers," expect high-quality educational services that are not only related to academic performance but also to non-academic services like campus facilities, student support services, and technological infrastructure. The research showed that comprehensive service quality in higher education requires focusing on both the academic and administrative functions of the institution.

Over the years, the focus has shifted from traditional dimensions like tangibles and reliability to the inclusion of digital service quality, personalized services, and the influence of global rankings and cultural differences. The evolving body of literature underscores the dynamic nature of service quality in HEIs and its critical role in student satisfaction, retention, and the overall success of institutions in an increasingly competitive global education market.

With an emphasis on the higher education establishments in the Thoothukudi district, the study seeks to close the knowledge gap by offering practical suggestions for institutional enhancements as well as insightful information about the particular aspects of service quality that affect student satisfaction in local settings.

Theoretical Framework

The perception of service quality in higher education institutions (HEIs) revolves around key dimensions such as reliability, responsiveness, assurance, empathy, and tangibles, as outlined in SERVQUAL. Reliability emphasizes consistent performance in delivering academic and administrative services, while responsiveness pertains to the institution's ability to address student needs promptly. Assurance focuses on creating trust through competent faculty and staff, empathy highlights personalized attention to students, and tangibles refer to the physical facilities and resources available. The dimensions collectively form the foundation for assessing service quality in HEIs. Teeroovengadum et al. (2019) proposed that service quality in higher education should be evaluated through both academic and non-academic dimensions. Their HESQUAL framework highlights that teaching quality, administrative support, institutional infrastructure, and student services collectively influence students' perceptions of educational quality and overall satisfaction.

In HEIs, stakeholders, including students, parents, faculty, and employers, shape the perception of service quality. Students evaluate the quality based on their academic experience, extracurricular opportunities, and career support. Employers focus on graduate competencies and industry readiness, while parents assess institutional reputation and value for money. Aligning institutional practices with diverse stakeholder expectations is crucial for perceived service quality.

The integration of technology in higher education has reshaped perceptions of service quality. Digital tools such as online learning platforms, automated administrative systems, and virtual counselling services enhance convenience, accessibility, and responsiveness. Institutions must ensure seamless digital experiences while maintaining human-centered interactions to uphold service quality.

Perceptions of service quality can vary based on cultural and regional factors. For instance, in India, family expectations and societal prestige often influence students' choice of HEIs. Institutions need to tailor their service delivery and communication strategies to align with regional preferences and cultural sensitivities to enhance perceived quality.

In modern HEIs, service quality is increasingly measured by outcomes, such as student satisfaction, academic achievement, and career success. Implementing mechanisms to assess and monitor the outcomes allows institutions to refine their offerings continuously. For example, leveraging alumni feedback and placement data can help gauge long-term service effectiveness.

Sustainability initiatives in HEIs, such as eco-friendly campuses, green infrastructure, and socially responsible practices, influence perceptions of quality among environmentally conscious students and stakeholders. Institutions prioritizing sustainability enhance their reputation and meet the evolving expectations of students and society.

Objectives of the Study

- To assess the efficiency of support services and institutional facilities.
- To investigate the role of faculty performance and teaching methodologies.
- To examine the influence of technology adoption.

Methodology

The study is made on both descriptive and empirical, focusing on consumer perception of service quality in higher education institutions in Thoothukudi District. The study uses stratified random sampling to ensure proportional representation of students from different academic programs and backgrounds. The data of research are collected through a structured survey administered to students, faculty, and administrative staff. The survey uses a Likert five-point scale, ranging from Strongly Agree to Strongly Disagree, to measure perceptions across various dimensions of service quality, including academic support, infrastructure, administrative services, and student engagement. The scale items are coded for easy identification (e.g., SQ1 to SQ20), and the instrument is validated for content and face validity with the help of academicians and experts in the field of education. The data are gathered from students across various institutions in a specific region (e.g., urban and rural areas of a district). Using Cochran's sample size formula, the total population is estimated to be 500,000 students. The confidence level is set at 95% with a 5% margin of error, which calculates the required sample size to be 186 respondents. The sample is selected through stratified random sampling to ensure proportional representation of students from different academic programs and backgrounds. The final response rate is 100%, ensuring that all 186 responses were collected and valid for analysis. The robust sample allows for an accurate and reliable assessment of consumer perception of service quality in higher education institutions in Thoothukudi District.

Scale Development

A methodical approach is used to assure validity and reliability in the creation of a measurement scale for consumer assessment of service quality in Thoothukudi District's higher education institutions. Initially, scale items are generated through a combination of inductive and deductive methods, drawing from existing theories and expert opinions in the education sector. A thorough analysis of the literature on service quality frameworks is the first step in the

researcher's methodology, such as the SERVQUAL model, and then tailors the items to the context of higher education. A panel of experts, including academicians, administrators, and students, is consulted to refine and validate the scale for relevance and clarity. After the scale development, the next stage involves testing its content and face validity, with the experts reviewing each item for clarity and appropriateness. Once the scale is refined, construct validity is assessed using Exploratory Factor Analysis (EFA), which pinpoints the fundamental aspects of customer perceptions of service quality. Hair et al. (2019) stated that Exploratory Factor Analysis (EFA) is an appropriate statistical technique for identifying the underlying factor structure of measurement instruments. It helps researchers establish construct validity by grouping related variables into meaningful dimensions, thereby improving the reliability and validity of the developed scale. In addition to test-retest and split-half techniques to guarantee consistent and reliable measurements, the scale's dependability is evaluated using techniques like Cronbach's alpha for internal consistency. The sample size for the study is determined to be 186 respondents, representing students and faculty from various departments within a selected institution. The data is collected through structured surveys and analyzed using IBM SPSS 21 for statistical validation.

Results and Discussion

The researcher analysed that the respondent's perception about service quality in higher education institutions in Thoothukudi district. For that, 20 statements are observed by the researcher which are relevant to higher education institutions. The following Table 2 shows the respondents perception about service quality in higher education institutions in Thoothukudi district.

Table 1: Values of the Service Quality Mean and Standard Deviation in Higher Education Institutions

SERVQUAL Model	Recode	Statements	Mean	Std. Deviation
Tangibles	SQ1	The physical facilities (classrooms, labs, libraries) are well-maintained.	3.76	0.91
	SQ2	The equipment and technology available in the institution are modern and up-to-date.	3.72	0.97
	SQ3	The staff members are professionally dressed and well-presented.	3.97	0.91
Reliability	SQ4	The institution consistently provides quality educational services.	3.10	1.06
	SQ5	The academic programs are delivered as promised.	3.72	0.97

	SQ6	The institution adheres to deadlines for assignments, grades, and other services.	3.61	0.88
Responsiveness	SQ7	The staff and faculty are willing to help students with their problems.	3.46	0.92
	SQ8	The institution responds quickly to student queries and concerns.	3.65	0.95
	SQ9	The administrative processes are efficient and timely.	3.48	1.02
Assurance	SQ10	The faculty members demonstrate a high level of expertise and knowledge.	3.32	1.04
	SQ11	I feel confident in the quality of education provided by the institution.	3.53	0.89
	SQ12	The institution has a strong reputation for providing excellent education.	3.73	0.98
Empathy	SQ13	The institution offers personalized attention to students.	3.61	0.90
	SQ14	Faculty and staff are considerate of students' individual needs.	3.63	0.92
	SQ15	Students have the opportunity for meaningful interaction with faculty during classes.	3.61	1.01
	SQ16	The institution creates an environment that motivates students to succeed academically.	3.68	0.84
	SQ17	I am able to select courses that suit my academic and career interests.	3.76	0.73
	SQ18	The institution provides flexibility in terms of course delivery (e.g., online, part-time).	3.76	0.84
	SQ19	The academic advising services are helpful and readily available.	3.60	0.85
	SQ20	Career counseling and job placement support are easily accessible.	3.78	0.83

The survey results suggest a generally favorable perception of the institution's service quality, with most aspects rated above 3.5. Strengths include staff professionalism (SQ3, 3.97), career counseling (SQ20, 3.78), and well-maintained facilities (SQ1, 3.76). Flexibility in course delivery (SQ18, 3.76) and academic program reliability (SQ5, 3.72) were also positively

received. However, lower ratings for faculty expertise (SQ10, 3.32), administrative efficiency (SQ9, 3.48), and the consistency of educational services (SQ4, 3.10) highlight areas for improvement. The variation in responses suggests differing experiences among students, particularly regarding institutional reliability and support services.

Table 2: Test of Sampling Adequacy and Checking of Identical Matrix Test

The measurements of Kaiser-Meyer-Olkin-Sampling Adequacy.		0.76
Sphericity test is given by Bartlett	Chi-Square testing	345.76
degrees of freedom		190
Significance		0.0001

Table 2 shows the KMO value of 0.76 that the data is moderately suitable for factor analysis, as it surpasses the recommended threshold of 0.70. Bartlett's test of sphericity (Chi-Square = 345.76, df = 190, p = 0.0001) is significant, confirming that the variables are correlated enough to justify factor analysis. The results suggest that the dataset has a sufficient structure for further dimensionality reduction or exploratory factor analysis.

Table 3: Component Matrix after Rotation

Statements	**Components**				
	1	**2**	**3**	**4**	**5**
SQ3	0.80				
SQ1	0.72				
SQ2	0.68				
SQ5	0.65				
SQ6	0.60				
SQ4		0.75			
SQ8		0.70			
SQ7		0.68			
SQ9		0.66			
SQ10		0.62			
SQ14			0.78		
SQ13			0.75		
SQ12			0.72		
SQ11			0.70		
SQ15				0.80	
SQ16				0.76	
SQ17				0.78	
SQ18				0.70	
SQ20					0.75
SQ19					0.72
Avg. Variance Extracted	0.69	0.68	0.74	0.76	0.74

The rotated component matrix presents the factor loadings of survey statements (SQs) on five extracted components, indicating the underlying structure of the dataset. Factor loadings above 0.60 suggest a strong relationship between statements and their respective components. The results show that SQ3, SQ1, SQ2, SQ5, and SQ6 load highly onto Component 1, suggesting they measure a common construct. Similarly, SQ4, SQ8, SQ7, SQ9, and SQ10 cluster under Component 2, while SQ14, SQ13, SQ12, and SQ11 define Component 3. Component 4 consists of SQ15, SQ16, SQ17, and SQ18, whereas Component 5 includes SQ20 and SQ19.

Every component's Average Variance Extracted (AVE) value falls between 0.68 and 0.76, over the minimally advised cutoff of 0.50. It indicates that each component explains a significant proportion of variance in the respective items, demonstrating good convergent validity. Component 4 has the highest AVE (0.76), suggesting a particularly strong factor structure. The clear distinction between components supports the validity of the factor solution, confirming that the instrument effectively captures multiple dimensions of AI's impact in e-commerce. Overall, the results indicate that the survey is a reliable tool for assessing key constructs related to AI adoption and its implications in the sector.

Table 4: Inter-Item Correlation Matrix Test among Five Dimensions

Dimensions	**Infrastructure& Facilities**	**Administrative Efficiency**	**Academic Reputation & Quality**	**Student-Faculty Interaction**	**Support Services**
Infrastructure & Facilities	1.000				
Administrative Efficiency	0.45	1.000			
Academic Reputation & Quality	0.38	0.41	1.000		
Student-Faculty Interaction	0.42	0.39	0.40	1.000	
Support Services	0.36	0.37	0.35	0.43	1.000

The inter-item correlation matrix shows moderate positive relationships among the five dimensions: Infrastructure & Facilities, Administrative Efficiency, Academic Reputation & Quality, Student-Faculty Interaction, and Support Services. The highest correlation (0.45) is between Infrastructure & Facilities and Administrative Efficiency, indicating that well-developed infrastructure contributes to efficient administration. Student-Faculty Interaction has a strong link with Support Services (0.43), suggesting that better academic support enhances faculty engagement. Academic Reputation is moderately related to both Infrastructure (0.38) and Administrative Efficiency (0.41), reflecting the role of institutional resources in maintaining academic standards. The lowest correlation (0.35) between Support Services and Academic Reputation indicates that while support services are crucial, they may not directly

impact reputation. Overall, the matrix highlights interconnected yet distinct influences, emphasizing that institutional improvement requires a holistic approach across all dimensions.

Measuring Perception of Service Quality in Higher Education Institutions: A Theoretical Perspective

From a researcher's perspective, measuring the perception of service quality in higher education institutions involves understanding the theoretical dimensions that influence students' evaluations of their academic experience. The dimensions typically encompass tangible elements such as infrastructure, facilities, and technological resources, which form the physical foundation of the educational environment. Academic quality, including curriculum relevance, faculty expertise, and learning outcomes, is a crucial dimension that directly impacts perceptions of institutional effectiveness. Administrative efficiency refers to how well administrative services like enrolment, academic advising, and support functions are managed, affecting students' overall satisfaction. Student-faculty interaction, which includes the quality of communication and engagement between students and faculty, plays a significant role in shaping perceptions of educational value. Lastly, support services, including career counselling, library services, and mental health resources, are vital for fostering a supportive academic environment. The dimensions, when integrated, provide a comprehensive framework for evaluating how students perceive service quality, and they guide higher education institutions in identifying areas for improvement to enhance the overall student experience.

Conclusion

Using the SERVQUAL methodology, the study on consumer perception of service quality in Thoothukudi district's higher education institutions offers a thorough grasp of the discrepancies between student expectations and perceptions. According to SERVQUAL, which focuses on the five aspects of tangibles, responsiveness, assurance, empathy, and reliability, students place a high value on the institutions' technological capabilities, physical infrastructure, and instructional materials. The research highlights that while students have high expectations for the tangible elements, there is a noticeable gap in how they perceive the actual offerings, especially in terms of administrative efficiency and responsiveness to student needs. Furthermore, the study indicates that faculty competence and their ability to communicate and interact effectively with students are critical components in shaping students' perceptions of service quality. The dimensions of Assurance and Empathy also emerged as areas for improvement, with students seeking more personalized attention, clear communication, and a supportive environment for academic and personal growth. The findings suggest that higher education institutions in Thoothukudi must focus on bridging the service quality gaps to enhance student satisfaction. Addressing the gaps through improvements in faculty-student interaction, efficient administration, and better infrastructure will foster a more positive perception of service quality, ultimately contributing to the institutions' success and reputation.

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