

# Service Quality of Higher Education Institution in Mauritius

**Dr. Trupti Dandekar Humnekar**

Associate Professor, T. John College, Bangalore

Email-truptidandekar@gmail.com

**Abstract:** In the recent times the service sector has come up as a highly influential and dominant part of the economy and it is extremely important in present competitive scenario to provide high service quality for retaining the customer in any business. In the last 3 decades, researchers have shown a large amount of interest for research in Service quality area. As suggested by Shemwell et al, 1998 the key to achieving sustainable advantage lies in delivering high-quality service that results in satisfied customers. SERVQUAL scale has been very high in popularity however Many researchers have criticized this scale and questioned it several times based on its reliability, validity, and its incapability in measuring critical facet of service (Peiro´ et al., 2005; Price et al., 1995; Sa´nchez-Herna´ndez et al., 2009). Cronin and Taylor (1992) suggest that there is no real evidence to support the concept of the performance minus expectations gap as a basis for measuring service quality. On the basis of the literature review, it can be concluded that despite the fact that SERVQUAL scale proposed by Parasuraman et al. (1988) was dominantly used in service quality literature and many studies for service quality measurement are using the scale based on SERVQUAL, there is no generic scale for measurement of service quality. This study aims at measuring service quality of Higher Education institution in Mauritius. The purpose of the study is to check the existing scales of measurement of service quality in Higher education and developing and validating new instruments for the field of study.

## 1. INTRODUCTION:

This study is an in-depth empirical investigation that seeks to measure service quality of Higher Education Institution in Mauritius. It aims to develop a useful instrument to evaluate service quality in Higher Education. An additional purpose is to compare the service quality of Government and non-government institutions.

### 1.1 Service Concept:

The classic study of George and Barksdale (1974) identify service as an independent discipline for study. Further, Anderson, et al (1976) emphasized the importance of service quality and results in the development of service quality term. Shostack (1977) differentiated services from tangible products and explained four characteristics of services, further research of Uhl and Upah’s 1983 reestablished and confirmed work of Shostack. In 1983 Lovelock contributed with service classification. Enis & Roering (1984) rejected the distinctive identity of Service and suggested that services are the bundle of benefits which compliment tangible and intangible products. Zeithmal et al (1988) suggested a direct relationship between customer satisfaction and Service Quality. Historical development of Service can be easily understood with Table 1.

Table 1: Historical development of Service

Sr. No.	Researcher	Year of Study	Contribution
1	George and Barksdale	1974	The marketing effort s are shared by the whole organization and not the single responsibility of marketing
2	Anderson, et al	1976	Service quality for retaining customers
3	Shostack	1977	Identified four characteristics of services
4	Churchill and Suprenant	1982	Service satisfaction is similar to attitude.
5	Gronroos	1982	Emphasize the importance of process and design for service marketing
6	Lewis and Booms	1983	the comprehensive appraisal of some specific product or service
7	Uhl and Upah’s	1983	Four characteristics of services
8	Lovelock	1983	Created five four-way classification schemes that considered three service aspects.
9	Enis & Roering	1984	Suggested that “benefit of bundles” as the key strategy which can be used for tangible as well as intangible products i.e. services.

10	Zeithmal et al	1988	Introduced the interrelationships between customer service and customer satisfaction through the measurement of gaps
----	----------------	------	--

**1.2. Need and Importance of the study:**

Hunt (1991) has suggested in his research that the companies which are not offering high-quality services lose their competitive advantage. Since 1980 from the foundation of service concept there are many studies which are conducted for the measurement of service quality in various fields and contexts. However, literature in the service quality field is still having a scope in higher education institution as there are very few studies in the area of service quality measurement in higher education. This research provides nature and attributes about service quality in the higher education institution. Measurement of Service Quality is having many studies in literature and the most popular scale is always SERVQUAL scale but many researchers have criticized SERVQUAL on various grounds like factor structure, dimensionality, validity, and reliability etc. Many researchers discarded the concept of expectation minus perception theory of SERVQUAL. Though the SERVQUAL instrument is used widely in literature, the validity and reliability check is crucial for any measurement (Sekaran 2003) so it is worth to check validity and reliability of SERVQUAL before using it. This research checks the validity and reliability of SERVQUAL and present results and it also suggests the alternate scale with new attributes and items for measurement of service of Higher education Institution.

Higher Education is a service which is very unique. It has higher components which affect the overall career of customers. Higher education institution is a service which needs to be served continuously for a specific period of course. Students visit institutes almost every working day and continuous handholding from the side of institutions. According to Berndt (2009), Service quality is a fundamental aspect of service provision, and this is especially the case with the higher education institution.

Higher Education worldwide is now considered as a growing and profit making industry, Countries like Mauritius are now having their plans to develop as the education hub and getting part of the economy from higher education. Technavio's market research report estimates that higher education market worldwide will grow at 12% rate till 2020 ( Technavio 2015) As recently the demand for higher education is increasing in Africa, Mauritius is growing as the higher education hub. The Mauritius Island is continuously striving to position itself as the education hub of the region. Mauritius is now able to attract international brands in higher education with high-quality Education and also the high-quality students from around the world. To promote the country as a higher education hub is one of the most important targets of the Mauritian government. Mauritius holds the first rank in UNESCO’s list for African countries for the higher education sector.

As many international educational institutions are coming in the country, it is very important at the same time to keep track of the quality of the education and services provided by the institutions. There are few research studies in the literature which are about measuring higher education service quality but rarely any study is conducted for Mauritian colleges. That is why there is a prominent need for the study which can measure the service quality of higher education institutions in Mauritius.

**2. LITERATURE REVIEW:**

The objective of this chapter is to provide a review of the principal literature relating to this study, which is service quality measurement and higher education industry in Mauritius. This chapter will also evaluate the existing literature on the subject and will establish and identify the research gaps which will provide the framework for this Research.

The study of the literature will then focus on the importance of service quality measurement in the higher education industry. The chapter concludes by focusing on the conceptual framework of the study and identified research gap.

**Service Quality Construct:**

**Service Quality:** Literature suggests that Service quality is having the direct impact on costs (Crosby 1979), profitability (Buzzell and Gale 1987), customer satisfaction (Boulding et al 1993) and customer retention (Reichheld and Sasser 1990). Customers over the years have felt some level of comfort by an adequate amount of attention (Bexley 2005). Service quality concept is generally started with the definition of Crosby (1979) which says conformance to specifications then the Physical and Interactive quality of Lehtinen and Lehtinen (1982) and technical and functional quality of Gronroos (1983).

Berry et al 1988 suggested in his study some techniques for improving service quality which is Identifying primary quality determinant, Managing customer expectation, Managing evidence, Educating customer about the service, Developing quality culture, Automating Quality, Following up the service, Identifying primary quality determinant, Managing customer expectation, Managing evidence, Educating customer about the service, Developing quality culture, Automating Quality and Following up the service.

Service quality is defined by various authors in various ways as per their approaches toward service quality which are as below:

Zeithmal 1988 defined perceived quality as the consumers' judgment about an entity's overall excellence or superiority, so according to them, service quality can be measured by comparing expectation to perceived performance. Parsuraman et al 1988 Perceived service quality is the degree and direction of the discrepancy between consumers' perceptions and expectation against which Voss et al 2004 suggested that service quality is based on the meeting or exceeding of certain established service standards. In further research Berry, et al (1990) provided three prescriptions which can help service providers for service recovery which are Encourage customer to complain and make it easy for them to do so, take timely personal communications with customers and encourage employees to respond effectively to customers and provide the resources for doing so.

According to Berry et al (1994) organizations can improve service quality by following ten strategies which are listening, reliability, basic service, service design, recovery, surprising customers, fair play, teamwork, employee research and servant leadership. These ten factors are not mutually exclusive but provide a holistic view.

Literature suggests that service quality can be measured at two stages what is the service quality after performing service and how the service is performed during the service performance. Dimension of what the service quality delivered is mentioned in literature outcome quality (parsuraman et al 1985), technical quality (Gronroos 1983) and Physical Quality (Lehtinen and Lehtinen 1982) and how the service delivered as process quality (parsuraman et al 1985), functional quality (Gronroos 1983) and interactive quality (Lehtinen and Lehtinen 1982) Lewis and Boom (1983) defined Service Quality as "a measure of how well the service level delivered matches the customer's expectations. "Service quality has been described as a form of attitude, related but not equivalent to the satisfaction that results from the comparison of expectations with performance" (Shepherd, 1999; Cronin Jr. and Taylor, 1992; Bolton & Drew, 1991; and Parasuraman *et al.* 1988). Quality of service is said to be an impression of the customer regarding inferiority or superiority service delivered (Tsoukatos & Rand 2006, Bitner & Hubert 1994). The ultimate goal of service quality measurement is to assist managers in ensuring service quality and customer satisfaction (Webster, 1988).

Akbar & Parvez (2009) suggested that customer satisfaction is an important mediator between customers perceived service quality and Customer Loyalty. In some studies, service quality has been defined as the extent to which a service meets customers' needs or expectations (Lewis & Mitchell, 1990; Dotchin & Oakland, 1994). Zeithamal et.al. (1990) explained service quality as the consumer's overall impression of the relative inferiority or superiority of the services.

In 1993 Boulding et al proposed a dynamic model of service quality ; this model is a behavioral process model of service quality, In this model, authors suggested that customers perception on dimensions of service quality are based on prior expectation of customers about what should service encounter be like and that perception, in turn, predicts customers intended behavior. The test of this model proved that service quality perception positively affects intended behavior.

The model shows that initial expectation and actual service encounter leads to cumulative perception regarding service on various dimensions of service quality and also create an updated expectation of service quality for the future transaction. Finally, the perception of service quality leads to the overall assessment of service quality and behavioral outcomes. Relationship of Service quality and customer satisfaction is also widely discussed in the literature (Cronin and Taylor (1992), Dabholkar (1996) Gotlieb *et al.* (1994), Oliver (1993), Spreng and Mackoy (1996) and Taylor and Baker (1994)). Some of the researchers like Woodside et al. (1989) claim customer satisfaction as a predecessor to service quality (Oliver 1981) few feel the other way around is true.

### **The Service Quality Measurement:**

The service quality measurement is an issue of debate in the last three decades for researchers. Measurement of service quality is important and a difficult task for the service provider as service is different from the product because of its unique characteristics, Robinson et al. 1999 reviewed various debates on the issue and summarized it.

### **Service Quality in Higher Education:**

As suggested by Abdullah (2006) higher education is now more of the commercial industry than plain education, global development of the university, higher fee structure and competition makes higher education industry a fast-growing sector worldwide. Researchers (Ginsberg, 1991; Lawson, 1992 Bemowski, 1991) suggest that tertiary education should not only concern about what society values in education but also need to concern about an experience of students. This new approach towards education sector makes higher education institution to rethink about their management process and go beyond basic standards of education of accreditation, syllabus, and research.

It is important now to provide higher quality education based on the expectation of students and parents. These approaches required to measure service quality in the sector and improve the standards. Firdaus (2004) has proposed a new measurement tool specifically for the higher education sector which is known as HEdPERF (Higher Education PERFormance-only). Many researchers have again criticized the scale. It has been observed that in literature it has been advised to develop or modify existing scales as per the context and sector of the study.

### **Gap Identified:**

On the basis of the literature review, it can be concluded that despite the fact that SERVQUAL scale proposed by Parasuraman *et al.* (1988) was dominantly used in service quality literature and many studies for service quality measurement are using the scale based on SERVQUAL there is no generic scale for measurement of service quality. There is no universal set of dimensions and items that determine the service quality across a section of service industries in different cultures so service quality measurement must be adapted to fit the context. So there is a prominent need for the development of context-specific service quality measurement scales.

It has been suggested in the literature that it is advisable to have an industry-specific measure of service quality instead of a generic scale (Dabholkar *et al.* 1996; Ladhari 2008). A number of industry-specific research instruments have been developed in the past several years in different service settings and various countries and cultural backgrounds (Albassam & Alsawi 2010)

Ozer (1999) recommended the development of industry-specific quality measurements for a better fit to the nature of the industry. It is also clear from the extant literature that service quality of higher education in the Mauritian context is not adequately studied. Mauritius is developing as the regional hub for higher education and it is important to measure service quality provided by higher education institution in the country.

### **3. RESEARCH METHODOLOGY:**

#### **The scope of the Study:**

The scope of this study is limited from two perspectives: Service under the study and geographical coverage. The Service for the study was higher education institution specifically management studies and does not include other courses like medical, pharmacy or anything other than Management course and the geographical coverage was restricted to Mauritius. The reason for choosing Mauritius is it is a country which is developing like a regional higher educational hub and attracting students from around the world.

#### **Type of Research:**

This research study gathers data for the purpose of measuring service quality for passenger higher education institution in Mauritius and then organizes, tabulates, depicts and describes the service quality for higher education institutions. So this research is the Descriptive type of Research. Descriptive Research involves gathering data that describe events and then organizes, tabulates, depicts and describes the data collection (Glass and Hopkins, 1984).

#### **Research Objectives:**

RO1: The primary objective of this research will be to determine the nature and attributes of service quality in Higher Education institution in Mauritius.

RO2: To test consistency, reliability, and validity of SERVQUAL scale for Higher Education institution in Mauritius.

RO3: To develop and validate a new instrument for measuring service quality of in Higher Education institution in Mauritius

RO4: To measure service quality of in Higher Education institution using a new instrument in Mauritius.

#### **Sampling Design:**

This study conducted into two-phase first phase is conducted to check the applicability of SERVPERF in present form in the higher education sector in Mauritius for this phase sample of 110 respondents are chosen from 4 management institution in Mauritius. The second phase of the study is developing the new instrument and measuring service quality with the new instrument for this phase sample of 373 respondents is selected from 8 management institution in Mauritius. The universe for this study is consisting of all students of management courses in Mauritius.

#### **Sampling Frame:**

The Sampling frame comprises of all the elements of a population with proper identification that is available for selection at any stage of sampling (Chawla & Sondhi 2011) Sampling Frame for the study was not prepared because it was very difficult to get data all management institutes about their students.

#### **Sampling Technique:**

The sampling technique used for study is multi-stage sampling. In the first stage of sampling, management institutes are sampled from which data was collected. For the purpose of sampling, management institutes cluster sampling was used. A sample of 8 service stations is chosen with the help of Map of Mauritius from various areas of Country so that the whole country can be covered with them.

In the second stage of sampling of respondents from each institute is done for which systematic sampling method is used. In the second stage, on the day of the survey, every 5th students of the institute are selected for filling the questionnaire.

**Sampling Unit:**

The unit for analysis was individual students, one who is enrolled for management course in Mauritius.

**Sample Size:**

Data for the study was collected from 373 respondents' by systematic sampling technique, as per the recommendation of (Tinsly and Tinsly, 1987 and Phadtare, 2008) the ratio of respondents to a number of items should be in the range of 5-10. According to this guideline sample size of more than 250 and up to 500 is good enough for study. (Comrey, 1973) suggested that the sample size of 300 is good and 500 is very good, so 373 can be considered as the right sample size.

**Formulation of Instrument for Data Collection:**

The development of the survey instrument was based upon a pool of items (De Vellies, 2003) which is developed with the help of thorough literature review, expert opinion interview with directors of management institutions and focus group interview with students of educational institutions. 45 items instrument is developed and a pilot study is conducted. New Questionnaire is tested with the response from 72 respondents of 6 management institutes in Mauritius. The 45 items and their sources are given in table 2.

Table 2: Pool of Items used for Development of Instrument

Sr. No.	Item	Source
1	Students are nicely introduced and oriented in the institute.	Expert Opinion Interview/Literature Review
2	It is easy to get an admission inquiry in the institute	Literature review
3	Education institute offers flexibility in the timing of classes for the convenience of students	Focus group interview
4	Education institute is clean and hygienic.	Focus Group Interview
5	Education institute provide online session and distance learning facility	Focus group interview
6	Location of the institute is convenient for me	Focus Group Interview
7	The institute is easily reachable by public transport	Focus group interview
8	Working hours of institute match my requirement	Focus group interview
9	Students can reach out to faculty for clarification of doubt as per their convenient time	Focus Group Interview
10	Education Institute provides a transport service for students.	Expert Opinion Interview
11	Faculties for all the subjects are available with the institute	Focus Group Interview
12	Faculties of the institute are highly educated and knowledgeable in their subject.	Literature Review
13	Degree from the institute is recognized and accepted in other parts of the world	Focus Group Interview
14	Add on professional certification is also available at the institute.	Expert opinion Interview/Focus Group Interview
15	Institute is having well-equipped classrooms	Expert Opinion Interview/Literature Review
16	Institute is having a well-equipped Library	Literature Review
17	Institute is having well equipped Computer Lab	Literature Review
18	Classes are conducted as per the schedule of the classes shared in the course plan	Literature Review
19	Education institutes have all the data and records of the students studying in the institute	Focus Group Interview
20	Education institute is having set of visiting faculties for industry exposure to students	Expert Opinion Interview

21	Students concerns are heard and actions are taken on it with a defined process	Expert Opinion Interview
22	Extra classes are arranged for students based on their weak areas	Focus Group Interview
23	The fees charged by the Institute for the course is right as per industry norms.	Focus Group Interview
24	Parents are provided with updates on students progress periodically	Focus Group Interview
25	Education Institute provides expert counseling for their students to choose their specialization in course	Focus Group Interview
26	Education Institute provides career counseling for their students to choose a job and career after finishing the course	Literature Review/ Focus Group Interview
27	Placement assistance for every student is provided by the Institute	Focus Group Interview
28	I trust my institute fully and I know that it is helping me to build my career	Focus Group Interview
29	All admin department employees are helping in nature.	Literature Review/ Expert Opinion Interview
30	Faculties of my institute are spending enough time with students for mentoring them on the right path.	Focus Group Interview
31	Students are informed before admission about placement scenario of the institute and what they can expect for them after the completion of course	Literature Review
32	All faculties know their students by name	Focus Group Interview/Expert Opinion Interview
33	Mentoring is done for students as and when needed.	Focus Group Interview
34	The institute is having a nice cafeteria for snacks and lunch	Expert Opinion/ Literature Review
35	Institute provides well-equipped hostel facilities for students.	Literature Review
36	The queries of students are solved promptly	Focus Group Interview
37	Counseling of students is done after every internal assessment	Focus Group Interview
38	Industrial visit is planned for students for practical exposure	Focus Group Interview
39	Extracurricular activities are organized by students for improving their management skills	Expert Opinion Interview/ Focus Group Interview
40	Faculties use an innovative method of teaching and learning like case studies, on field project etc	Focus Group Interview
41	Studying in this institute will help me to get a better career	Literature Review
42	Presentation and seminars are organized for students to improve their skills	Focus Group Interview
43	Assignments are given to students which can enhance their understanding of the topic	Literature Review
44	Exams are conducted fairly	Focus Group Interview
45	Infrastructure facilities at the institute are good	Focus group interview

Data collected from 72 respondents are analyzed through a reliability test, KMO test, and exploratory factor analysis. After factor analysis and discussion with experts, 10 items are eliminated and Final questionnaire is consisting of 35 items and 7 factors.

**Data Collection:**

Final data collection is done with the new instrument; data collection is done with systematic sampling technique, 8 management institutes in Mauritius are selected so that complete country can be covered without any influence from a specific area. Out of 8 management institutes, 2 are from the University of Mauritius and 6 are private. Data is collected from 373 respondents, as mentioned above management institutes are approached and every 5th student coming out of the institute after taking classes is selected for data collection. Data collection is done for the duration of 8 weeks by spending 2 to 3 days at each institute.

**Hypothesis:**

**Hypothesis 1:**

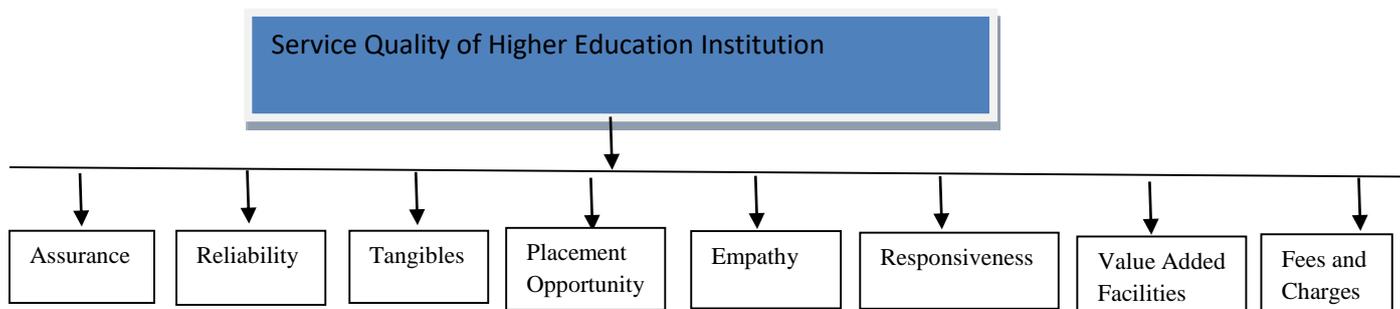
H0: SERVPERF scale is not applicable in present form for measuring service quality of Higher Education Institutes in Mauritius

H1: SERVPERF scale is applicable in present form for measuring service quality of Higher Education Institutes in Mauritius

**Hypothesis 2:**

The Hypothesized scale consists of factors such as Assurance, Reliability, Tangibles, Empathy, Responsiveness, Value Added Facilities, and Fees & Charges. Together these would have Thirty-five attributes or variables. The hypothesized scale is shown in chart 1.

Chart 1: Hypothesized Scale



**Hypothesis 3:**

H0: Higher Education institutions in Mauritius are not providing high service quality.

H1: Higher Education institutions in Mauritius are providing high service quality.

**Statistical Tools:**

The study used Simple average Method, Cronbach alpha measure, KMO Test, exploratory factor analysis, confirmatory factor analysis for purpose of analysis of data. Reliability test and exploratory factor analysis are conducted with the help of IBM SPSS 16.00 version and Confirmatory factor analysis is conducted with IBM AMOS 6.0.

**4. DATA ANALYSIS & FINDINGS:**

Data Analysis and finding chapter is an outline of a complete analysis of the data collected during the period of the research study. This analysis is done with the aim of checking the hypothesis and finding the results of the study.

**SERVPERF Check:**

SERVPERF scale is tested with the response from 110 respondents of 4 management institutes in Mauritius. The results do indicate that there is no reliability problem in using the instrument to measure service quality as Cronbach alpha value is 0.875 (Nunnally 1970) and KMO test for sample adequacy provide the value of .829 so sample as adequate but the 22 items do not match the five-factor structure of SERVPERF. Also, the factors do not load according to the factor structure and factor analysis is showing 6-factor structures for data. So SERVPERF cannot be used for this study in present form. The results are shown in a rotated component matrix in table 3.

Table 3: Rotated Component Matrix for SERVPERF.

	Component					
	1	2	3	4	5	6
Q.1				.574	.406	

Q.2						.711
Q.3		.444			.524	.404
Q.4						.463
Q.5						.617
Q.6	.578					
Q.7	.654					
Q.8	.421			.630		
Q.9				.643		
Q.10			.809			
Q.11			.806			
Q.12					.710	
Q.13					.785	
Q.14					.419	
Q.15				.542		
Q.16		.753				
Q.17		.747				
Q.18	.534					
Q.19	.636					
Q.20	.690					
Q.21		.436		.428		
Q.22		.515	.420			

**Formation of New Instrument:**

Triangulation method is used for developing a new instrument, 45 items are identified for new instrument development with the help of Literature Review, Focus Group Interview of students and Expert Opinion Interview of Directors of management Institutions.

**Pilot Study:**

New 45 item Questionnaire is tested with the response from 72 respondents of 6 management institutes in Mauritius. After the result of this study and opinion of experts, 10 items are dropped from the first 45 item questionnaire and final data is collected with 35 item questionnaire which was showing 7-factor structures.

**Data Analysis:**

The hypothesized scale had 8 factors and forty-five attributes. However, the instrument that has emerged from the analyses of primary data consists of only seven factors with thirty-five attributes converging under them. The factors ‘Assurance’ and ‘Reliability’ are clubbed together, this may be because the service beneficiaries may feel that reliability and assurance go hand in hand.

**Reliability Test:**

The most popular method of checking reliability of measuring scale is Cronbach Alpha (Cronbach 1951), Reliability Test for new instrument is conducted by checking Cronbach Alpha value and the result shows that the Cronbach alpha value is 0.819 which is more than 0.69 (Nunnally 1970), The new instrument is reliable for measuring service quality of higher education institution in Mauritius.

**Sample Adequacy Test and Suitability for Factor Analysis:**

To check the adequacy of the selected sample and as a prerequisite for factor analysis KMO and Bartlett Test for sample adequacy is conducted and the result is as given in table 4. As the value of Kaiser-Meyer-Olkin Measure of Sampling Adequacy is more than 0.5. The sample is considered adequate.

Table 4: KMO & Bartlett’s Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.648
Bartlett's Test of Approx. Chi-Square	21311.94
Sphericity	4
df	1225
Sig.	.000

**Exploratory Factor Analysis:**

At first instance exploratory factor analysis gives 9 factors in the scale but then on checking the suitability it came out that few factors are having only 1 or zero items, hence such factors cannot be included in the scale so gradually the same instrument reached to 7 factors only.

Exploratory Factor Analysis is conducted on collected data from 373 respondents. SPSS 16.00 version is used for conducting Exploratory Factor Analysis; Total 7 factors are showing more than 70 % of total variance, results of exploratory factor analysis shows that all 7 factors can be retained. The results are shown in table 5.

7 factors which identified are Assurance & Reliability, Value Added Facilities', Empathy, Tangibles, Placements, Responsiveness, and Fees & Charges. Below table shows the results of Exploratory Factor Analysis

Table 5: Exploratory Factor Analysis of Service Quality of Higher Education Institutes in Mauritius

	Factor Loading	Percent Variance Explained	Cronbach's Alpha
Factor 1: ASSURANCE AND RELIABILITY		17.520	0.889
1. V9	0.513		
2. V16	0.496		
3. V19	0.741		
4. V20	0.724		
5. V21	0.783		
6. V22	0.804		
7. V23	0.619		
8. V24	0.872		
Factor 2: Tangibles		15.482	0.913
9. V25	0.604		
10. V27	0.691		
11. V29	0.737		
12. V30	0.768		
13. V31	0.682		
14. V32	0.321		
15. V33	0.636		
Factor 3: Placement Opportunity		13.623	0.908
16. V1	0.739		
17. V2	0.732		
18. V3	0.839		
19. V4	0.836		
20. V5	0.774		
Factor 4: Empathy		10.603	0.821
21. V6	0.671		
22. V7	0.798		
23. V8	0.754		
24. V11	0.472		
25. V26	0.596		
Factor 5: Responsiveness		6.696	0.826
26. V28	0.761		
27. V34	0.752		
28. V35	0.775		
29. V14	0.643		
Factor 6: Value Added Facilities		4.925	0.758
30. V15	0.741		
31. V17	0.661		

32. V18	0.616		
33. V10	0.465		
Factor 7: Fees and Charges		4.554	0.692
34. V12	0.593		
35. V13	0.624		

Results of Exploratory Factor analysis suggested 7 factors with total more than 70 % of variance where all the factors individually are having more than 0.7 Cronbach alpha values except factor 7. Though Cronbach alpha value for factor 7 is .692, this factors is retained, however, it would be advisable to investigate this factor further. This investigation was not included in the current study. Few items like V8, V10, V11, and V32 are having less than 0.5 loading but as the overall factor is showing acceptable reliability the items are retained in the instrument.

**Confirmatory Factor Analysis:**

Confirmatory Factor Analysis is conducted to validate the 7 factors identified through exploratory factor Analysis and check model fit with its indices. Confirmatory Factor Analysis is conducted on IBM AMOS 6.0 version to confirm the 7-factor model; the model is well executed and model fit results confirm the model. The details are given in table 6:

Table 6: Confirmatory Factor Analysis of Service Quality of Higher Education Institutes in Mauritius

	Standardized Factor Loading	Error Variance	Composite Reliability >0.7	Square Root of AVE >0.5
Factor 1: ASSURANCE AND RELIABILITY			0.881	0.698
1. V9	0.446	1.465		
2. V16	0.609	0.299		
3. V19	0.746	0.278		
4. V20	0.711	0.390		
5. V21	0.778	0.377		
6. V22	0.811	0.243		
7. V23	0.719	0.320		
8. V24	0.764	0.378		
Factor 2: Tangibles			0.862	0.733
9. V25	0.526	0.981		
10. V27	0.667	0.486		
11. V29	0.788	0.410		
12. V30	0.836	0.339		
13. V31	0.785	0.598		
14. V32	0.372	7.094		
15. V33	0.720	0.630		
Factor 3: Placement Opportunity			0.917	0.733
16. V1	0.758	0.426		
17. V2	0.628	0.602		
18. V3	0.793	0.330		
19. V4	0.826	0.257		
20. V5	0.802	0.359		
Factor 4: Empathy			0.745	0.711
21. V6	0.685	0.636		
22. V7	0.819	0.314		
23. V8	0.718	0.474		
24. V11	0.501	0.437		
25. V26	0.608	0.773		

Factor 5: Responsiveness			0.828	0.726
26. V28	0.562	1.240		
27. V34	0.920	0.252		
28. V35	0.764	0.463		
29. V14	0.950	0.120		
Factor 6: Value Added Facilities			0.750	0.730
30. V15	0.815	0.354		
31. V17	0.497	0.531		
32. V18	0.545	0.636		
33. V10	0.355	1.040		
Factor 7: Fees and Charges			0.721	0.747
34. V12	0.785	0.272		
35. V13	0.925	0.113		

Convergent validity was assessed by composite reliability, average variance extracted (AVE) and Construct Reliability. If Average Variance Extracted is more than 0.5, Cronbach alpha is more than 0.7 and component reliability is more than 0.6 convergent validity tests are cleared. Above table shows that Average variance extracted for all factors exceeded 0.5 and composite reliability for all factors exceeded 0.7, so convergent validity is established so the new instrument is validated.

**Model Fit:**

The new instrument is tested with AMOS 6.0 software and fitness is tested through the chi-square test. Model is considered fit if the chi-square/df value is less than 5 result of the model fit is as shown in table 7.

Table 7: CMIN  
CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	177	4704.504	1148	.000	4.198
Saturated model	1325	.000	0		

As CMIN/DF value is less than 5 the model is acceptable.

**Overall Measurement of Service Quality:**

Service quality is measured with the help of simple average method and factor wise result is shown in table 8.

Table 8: Factor wise SERVICE Quality of higher education institutes in Mauritius

Factor	Score
Assurance & Reliability	3.902
Tangibles	4.408
Placement Opportunity	4.06
Empathy	3.896
Responsiveness	3.577
Value Added Facilities	3.9
Fees and Charges	4.925

The table shows that for all factors score of service quality is more than 3.5 out of 7 so we can conclude that service quality of higher education institutes in Mauritius is satisfactory.

**5. Conclusions:**

The suitability of SERVPERF scale for measuring service quality of higher education institutes in Mauritius has checked in the study and the scale came reliable but the factor structure does not match and so these scales cannot be used as it is, for the purpose of the study.

This study developed and validated a 7-factor scale including 35 items for measuring service quality of higher education institutes in Mauritius. The 7 factors in the scale are Assurance and Reliability, Tangibles, Placement Opportunities, Empathy, Responsiveness, Value Added Facilities, Fees, and Charges.

The new model clubs 'Assurance' and 'Reliability' – two different factors of the SERVPERF model into one factor this may be because the practice of assurance may result in Reliability. Responsiveness, Tangibles, and empathy of the SERVPERF model are retained in the present model. Three new factors namely Value Added Facility, Placement Opportunities and Fees and Charges have been identified.

## 6. Limitations and Direction for Future Research:

In spite of an in-depth empirical investigation, that seeks to establish a method to predict service quality, this study has its limitation. First, the study is restricted to a specific geographic area i.e. Mauritius. Thus it needs to be seen if the service quality instrument can be generalized to the whole higher education sector.

This study has treated Management Institutes. In future studies other higher education sectors like medical, law etc. can be checked by researchers. One factor, Fees and Charges of the instrument have two attributes only. This may pose a problem in the validation of the instrument and may call for a more detailed investigation.

## 7. Contribution to Knowledge & Practice:

This study provides a new instrument for measuring service quality of passenger of higher education institutes in Mauritius. This new instrument is Performance only measure based on SERVPERF developed specially for higher education institutes in Mauritius. The new instrument is a seven-factor model consisting of 35 items. The seven factors are named Assurance and Reliability, Tangibles, Placement Opportunities, Empathy, Responsiveness, Value Added Facilities, Fees, and Charges.

It is expected that all Higher education institutes can use this scale to measure and compare their service quality. The instrument also provides the exact areas in which quality of service requires improvement. Thus it would be beneficial for institutes to improve in service in specific areas. Students will also benefit by way of better service. Researchers would also find a foundation in this research and enrich this area by their contributions. Thus this study would benefit Education institutes, students and research fraternity.

## REFERENCES:

1. Anderson, Eugene. W., E. P. Cox, and D. G. Fulcher. (1976), "Bank Selection Decisions and Market Segmentation," *Journal of Marketing*, Vol. 40, pp. 40-45.
2. Cronin J.J. and Taylor S.A. (1992), "Measuring Service Quality: A Reexamination And Extension". *Journal of Marketing*, Vol. 56, pp. 55 – 68
3. George, William R., and Hiram C. Barksdale. (1974), "Marketing Activities in the Service Industries," *Journal of Marketing*, pp. 65-70.
4. Parasuraman A., Zeithaml V.A., and Berry L.L. (1985), "A Conceptual Model of Service Quality and Its Implications For Future Research" *Journal of Marketing*, Vol. 49, pp. 41 – 50.
5. Parasuraman A., Berry L.L. and Zeithaml V.A., (1991), "Refinement and Reassessment of The SERVQUAL Scale". *Journal of Retailing*, Vol. 67, No.4, pp. 420 – 450.
6. Parasuraman A., Zeithaml V.A., and Berry L.L., (1988), "SERVQUAL: A Multiple-Item Scale For Measuring Consumer Perceptions of Service Quality" *Journal of Retailing*, Vol. 64, No. 1, pp. 12 – 40.
7. Parasuraman A., Zeithaml V.A., and Berry L.L., (1994a), "Reassessment of Expectations as A Comparison Standard in Measuring Service Quality: Implications For Future Research" *Journal of Marketing*, Vol. 58, pp. 111 – 124.
8. Parasuraman A., Zeithaml V.A., and Berry L.L. (1994b), "Alternative Scales for Measuring Service Quality: A Comparative Assessment Based on Psychometric and Diagnostic Criteria" *Journal of Retailing*, Vol. 70, No. 3, pp. 201 – 230.
9. Parasuraman, A., Zeithaml, V. A. & Malhotra, A. (2005). "E-S-QUAL: A Multiple-Item Scale For Assessing Electronic Service Quality". *Journal of Service Research*, Vol. 7, No. 3, pp. 213-233.
10. Sanchez-Hernandez R.M., Marti'nez-Tur V., Peiro J.M. and Ramosa J.(2009), "Testing A Hierarchical and Integrated Model of Quality in The Service Sector: Functional, Relational, And Tangible Dimensions" *Total Quality Management*, Vol. 20, No. 11, pp. 1173–1188.
11. Shostack, G. Lynn. (1977), "Breaking Free from Product Marketing," *Journal of Marketing*, Vol. 41, pp.73-80.
12. Ahmed et al. (2009), "Determinants of The Satisfaction And Repurchase Intentions of Users Of Short Messenger Services (SMAS): A Study In The Telecom Sector Of Pakistan" *International Journal of Management*, Vol. 28, No. 3, pp 763-772.
13. Anderson, Eugene. W., E. P. Cox, and D. G. Fulcher. (1976), "Bank Selection Decisions and Market Segmentation," *Journal of Marketing*, Vol. 40, pp. 40-45.

14. Berndt A. (2009), "Investigating Service Quality Dimensions in South African Motor Vehicle Servicing" *African Journal of Marketing Management*, Vol. 1 No. 1, pp. 001-009.
15. Bozorgi. (2007), "Measuring Service Quality of Airline using SERVQUAL Model" Master Thesis, Lulea University of Technology.
16. Churchill, Gilbert A. and Carol Suprenant. (1982), "An Investigation Into the Determinants of Customer Satisfaction," *Journal of Marketing Research*, Vol. 14, pp. 491-504.
17. Crosby, P. B. (1979), "Quality is Free: The Art of Making Quality Certain". New York: American Library.
18. Davis D. and Jeff A. (1989), "Toward The Development of Recipient Based Measures of Service Quality In Business Education," *Developments In Marketing Science*, Vol. 12 Eds. Jon M. Hawes and John Thanopoulos, Orlando, FL: Academy of Marketing Science, pp. 266-270.
19. Enis, Ben M., and Kenneth J. Roering. (1984), "Services Marketing: Different Products, Similar Strategy," *Marketing of Services*, James H. Donnelly and William R. George, eds., Chicago: American Marketing Association, pp. 1-9.
20. George, William R., and Hiram C. Barksdale. (1974), "Marketing Activities in the Service Industries," *Journal of Marketing*, pp. 65-70.
21. Gronroos, Christian. (1982a), "A Service-Oriented Approach to Marketing of Services," *European Journal of Marketing*, Vol. 12, pp. 589-601.
22. Gronroos, Christian. (1982b), "An Applied Service Marketing Theory," *European Journal of Marketing*, Vol. 16, pp. 30-41.
23. Grönroos C. (2001), "The perceived service quality concept – a mistake?" *Managing Service Quality*, Vol. 11 No. 3, pp 150 – 152.
24. Hunt, S, D, (1991), *Modern marketing theory*. Cincinnati: South-Western Publishing
25. Juran, J M. (1988), *Juran on Planning for Quality*. New York: The Free Press.
26. Ladhari R. (2009), "A review of twenty years of SERVQUAL research" *International Journal of Quality and Service Sciences*, Vol. 1, No. 2, pp. 172-198.
27. Lewis, Robert C., and Bernard H. Booms. (1983), "The Marketing Aspects of Service Quality," *Emerging Perspectives on Service Marketing*, L. Berry, L. Shostack, and G. Upah, eds. Chicago, IL: American Marketing Association.
28. Kotler, P (2003). *Marketing Management*, New Delhi: Prentice Hall of India.
29. Lehtinen and Lehtinen. (1991), "Two Approaches to Service Quality Dimensions" *Service Industries Journal*, Vol. 11., No. 3., pp. 287-303.
30. Lovelock, Christopher H. (1983), "Classifying Services to Gain Strategic Marketing Insights," *Journal of Marketing*, Vol. 47, pp. 9-20.
31. Sekaran, U. (2003), "Research Methods for Business: A Skill-Building Approach." Fourth edition. New Jersey: John Wiley & Sons.
32. Shinde G. & Dubey M. (2011), "Automobile Industry and Performance of Key Players" *Asian Journal of Technology & Management Research*, Vol. 1, No. 2, pp. 55-68.
33. Shostack, G. Lynn. (1977), "Breaking Free from Product Marketing," *Journal of Marketing*, Vol. 41, pp.73-80.
34. Uhl, Kenneth P. and Gregory D. Upah (1983), "The Marketing of Services: Why and How It Is Different?" *Research in Marketing*, Vol. 6, pp. 231-257.
35. Zeithaml, Valerie A., Leonard L. Berry, and A. Parasuraman. (1988), "Communication and Control Processes in the Delivery of Service Quality," *Journal of Marketing*, Vol.52, pp. 35-48.
36. Babakus, E. & Boller, G.W. (1992), "An Empirical Assessment of the SERVQUAL Scale", *Journal of Business Research*, Vol. 24, pp. 253- 274.
37. Bryman A. and Bell E. (2003). *Business Research Methods* (1<sup>st</sup> Edition), Saurabh Printers Pvt Limited, Noida.
38. Chawla D. and Sondhi N. (2011). *Research Methodology-Concept & Cases* Vikas Publishing House Pvt. Limited.
39. Chumpitaz, R. and Swaen, V. (2002): "Service Quality and Brand Loyalty Relationships: Investigating the Mediating Effect of Customer Satisfaction". 31st European Marketing Academy Conference, Braga (Portugal)
40. Comrey A.L. (1973). *A First Course in Factor Analysis*, Academic Press New York.
41. De Vallies R.F.(2003). *Scale Development -Theory and Application*, Thousand Oaks, Sage Publication (2<sup>nd</sup> Edition).
42. Glass, G.V., and Hopkins, K.D.(1984). *Statistical Methods in Education and Psychology*, Englewood Cliffs, Prentice-Hall (2<sup>nd</sup> Edition).
43. Phadtare M. T. (2008). "Study of Consumer Preferences: A Case Study of Motorized Two Wheelers", *Udyog Pragati -The journal for Practicing Managers*, Vol. 32, No. 3, pp. 1-11.
44. Tinsly, H.E. and Tinsly D.J. (1987). "Uses of Factor Analysis in Counseling Physiology Research", *Journal of Counseling Physiology*. Vol. 34, pp. 414-424.