

SERVICE QUALITY SCALE DEVELOPMENT FOR HIGHER EDUCATION INSTITUTIONS: THE ASIAN CONTEXT

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ABSTRACT

Education has become a source of global economy. Globalization, competition, advanced technology and pressure from stakeholders have made the higher education as one of the most important subjects of twenty-first century. Higher Education Institutions (HEIs) are striving hard to implement different quality improvement initiatives including service quality to uplift their teaching and research standards. Service quality deals with the measurement of customer expectations and has qualities of intangibility, heterogeneity and inseparability. Indeed, several generic scales are available in the literature to measure service quality in any service sector. However, it is argued that due to its unique nature customized scale should be developed to measure service quality in higher education. Therefore, the purpose of this study is to develop a scale for the measurement of service quality in HEIs. The data was collected from over 600 students of a large university of Pakistan. Structural Equation Modeling (SEM) was used to analyze the data. The findings of this study support the argument that customized scales should be developed for the specific sectors like higher education for the measurement of service quality. Generally accepted five dimensions of service quality like reliability, responsiveness, tangibility, assurance and empathy are retained in the current scale. The practitioner could effectively use the scale developed in this study.

Keywords: *Services quality, Performance measures, Higher educational institutions, Quality management, Quality education, Pakistan*

1) INTRODUCTION

The role of service quality in higher education institutions (HEI) has received increasing attention during the last two decades (Brochado, 2009). While there is consensus on the importance of service quality issues in HEIs, the identification and implementation of the right measurement instrument is a challenge that practitioners who aim to gain a better

understanding of the quality issues of students' experiences face. In fact, the use of the most appropriate measurement tool would help managers to assess service quality provided by their institutions, thus having the ability to use the results to better design service delivery (Brochado, 2009).

The conceptualization and measurement of service quality within the higher education sector is studied in many countries (Wright & O'Neill, 2002; Firdaus, 2005; Oldfield and Baron, 2000; Cuthbert, 1996). Given that there is no clear answer as to a scale that is more appropriate to higher education institutes and the contexts of higher education vary, it is imperative to embark on a study to understand if the service quality measures availed indeed suit the need and address the constantly demanding change of 21-century learners. A scale that incorporates various service quality dimensions for different educational context is needed. Further, the demand of government and other funding organizations to continuously monitor HEIs for achieving global excellence in education and research also asserts the need for assessing the service quality (Yousapronpaiboon, 2014).

This study is an attempt to assess the service quality dimensions in higher education context particularly in Asian context and to propose a framework that suits the Asian contexts.

2) LITERATURE REVIEW

2.1) Background of service quality

Service quality is a distinct concept which gives the measure that how well the service level delivered by the organization meet the expectations of its customers (Lewis and Booms, 1983). Later it was defined by Gronroos (1984) in two facets that include functional quality and technical quality. Functional quality (behavior, attitude, appearance, etc.) is subjective in nature and focuses on "how" services are provided to customers and technical quality (technical abilities and technical solutions of employees, etc.) being objective in nature that describes "what" we are providing to customers to build corporate image. Parasuraman et al. (1985) proposed service quality as the difference between expectations and perception of the customers. So service quality deals with the measurement of customer expectations and has qualities of intangibility, heterogeneity and inseparability. Harvey and Knight (1996) suggested that quality in higher

education reflects exceptional, consistency, fitness for purpose, and value for money. However, to improve service quality it is important to be measured firstly.

2.2) Service Quality Measures

In terms of measurement methodologies, a review of the literature provides plenty of service quality evaluation scales (Firdaus, 2005). It reveals that the most popular scales used to measure service quality are SERVQUAL (Parasuraman et al., 1988) and service performance SERVPERF (Cronin and Taylor, 1992). Notably, the SERVQUAL and SERVPERF instruments proposed have attracted the greatest attention (Firdaus, 2005).

Parasuraman et al., (1985), developed a model of service quality after carrying out a study on four service settings: retail banking, credit card services, repair and maintenance of electrical appliances, and long-distance telephone services. SERVQUAL has its theoretical foundations in the gaps model and defines service quality in terms of the difference between customer expectations and performance perceptions (Brochado, 2009). The difference between expected and perceived services is defined as a gap (Shekarchizadeh et al. 2011). The SERVQUAL scale conceptualizes service quality as containing five dimensions measured through the 22 items under five headings, namely tangibles, reliability, responsiveness, assurance and empathy (Brochado, 2009). These constructs are equally applicable in the context of HEIs.

According to Brochado (2009) SERVPERF is a variant of the SERVQUAL scale, being based on the perception component. The unresolved issues of expectations as a determinant of perceived service quality have resulted in these two conflicting measurement paradigms: the disconfirmation paradigm (SERVQUAL) which compares the perceptions of the service received with expectations, and the perception paradigm (SERVPERF) which maintains only the perceptions of service quality. The main difference between these scales lies in the formulation adopted for their calculation, and more concretely, the utilization of expectations and the type of expectations that should be used (Firdaus, 2005). According to Parasuraman et al. (1991) service quality disconfirmation paradigm can be measured using service quality score. The scores were calculated on the

service provider level and the equal-weighted level by means of the quality scores (Baker et al., 2008).

The formula used to calculate service quality gap score was; Service Quality score = Perception score - Expectation score ($SQ = P - E$). In this formula expectations present customer's belief in the future performance of the product or service, customers' desires and wants while perceptions present the past experience they had about the service being provided. Responses are collected against two statements, one of them measure customer expectations and the second measure perception of the actual service delivered to customer. The difference in each statement depicts service quality gap in each dimension or item. This gap can be positive or negative proposing that either customer expectations have been met or not (Parasuraman et al. 1988).

2.3) Use of Service Quality Measures in Higher Education

Parasuraman et al. (1988) noted that SERVQUAL model had been designed to be applicable across a broad spectrum of services, so the format could be adapted to fit any specific need. There are ample of evidences for using SERVQUAL in higher education context, although SERVPERF paradigm is less popular than the SERVQUAL (Brachado, 2009). The recent research applying the SERVQUAL studied service quality in universities of South Africa revealed service quality gaps in expectations (tangibles, reliability and assurance dimensions) and perceptions (assurance) of students (Green, 2014) Similarly, Yousapronpaiboon (2014) adopted SERVQUAL and identified gap between perceptions and expectations of undergraduate students in private universities of Thailand and found lower perceptions than expectations scores suggesting more need for lot of service improvement efforts. Koni et al. (2012) also used SERVQUAL and identified that the "service quality" in Palestinian universities is slightly unsatisfactory to the students. On the other hand, Nadiri et al. (2009) used SERVPERF scale and found that this instrument provides a diagnostic capability to measure service quality in higher education using student's perspective.

In recent years, there have been more models used to measure the quality in higher education. Many studies have provided different models. For example, Owlia and Aspinwall (1996) suggested a model with six dimensions for measuring service quality. These dimensions include

tangibility, competence, attitude, content, delivery and reliability. Similarly, Zineldin (2007) proposed a framework consisting of five dimensions which include quality of the object, quality of the process, quality of interaction and communication, quality of infrastructure and quality of the atmosphere. Similar models were developed by Cardona and Bravo (2012), Oliveira and Ferreira (2009), Brown and Mazzarol (2009), Yeo (2009), Lee and Tai (2008) and Jurkowitsch, Vignaliy Kaufmann (2006). However, these models do not cover all the components of service quality as being included in the well accepted SERVQUAL instrument developed by Parasuraman et al. (1988) to measure service quality in the service sector.

A comparison of these models is as shown in the Table 1 below as discussed above.

Table 1: Higher Education Models

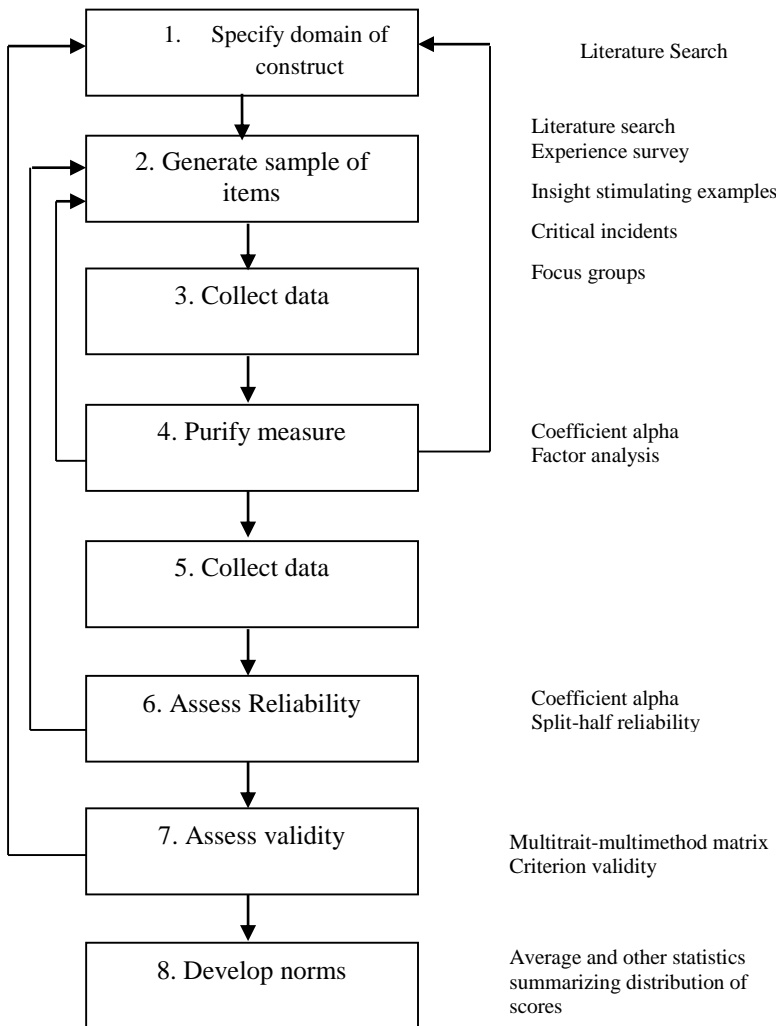
Annamdevula and Bellamkonda, (2012)	HiEdQUAL	The model possesses 27 items and 5 dimensions (Teaching and course content, Administrative services, Academic facilities, campus infrastructure and support services).
Firdous A (2006)	HEdPERF	The model has five dimensions developed based on 21 items Non-academic aspects. Items that are essential to enable students to fulfil their study obligations, and relate to duties carried out by non-academic staff. (2) Academic aspects. Responsibilities of academics. (3) Reputation. Importance of higher learning institutions in projecting a professional image. (4) Access. Includes issues as approachability, ease of contact, availability and convenience. (5) Programme issues. Importance of offering wide ranging and reputable academic programmes/specializations with flexible structures and health services
Parasuraman et al., (1988)	SERVQUAL	Tangibles reliability, responsiveness, assurance, empathy

Despite its criticisms, of not possessing sector specific dimensions (Aagja and Garg, 2010) and construct validity (Shemwell and Yavas, 1999), it is so far considered as a valid, reliable and off-the-shelf tool for measuring service quality (Zafiroopoulos and Vrana, 2008). So, SERVQUAL remains a useful instrument for service-quality research (Riadh Ladhari, 2009). Thus, literature evidences SERVQUAL is widely used to measure service quality in higher education sector although some criticism does exist on SERVQUAL. There is a need continue the research in line of developing a measure to suit the higher education contexts of different countries but SERVQUAL due to its merit for wider acceptance provides a base for this study.

3) METHODOLOGY

The SERVQUAL scale is used as a foundation in this study that comprises five dimensions. For the development of this study, Churchill (1979) methodology was adopted. The sequence of activities in Churchill (1979) methodology is depicted in Fig.1. Keeping in view of this methodology, focus group discussion was used to adapt and refine the Parasuraman et al. (1988) service quality measuring scale in the specific context of education. In this focus group discussion, five professors and five PhD students participated. Each of the Parasuraman et al. (1988) service quality measuring scale's construct was discussed in detail and its meaning are interpreted in the context of higher educational settings. As a result of focus group discussion, 38 items emerged in comparison to the 22 items in Parasuraman et al. (1988) original scale. Majority of items were modified and further 18 new items were added. The five point Likert scale was used in the refined questionnaire where 5 was used for strongly agree and 1 for strongly disagree.

Figure 1: Suggested Procedure for Developing Better Measures



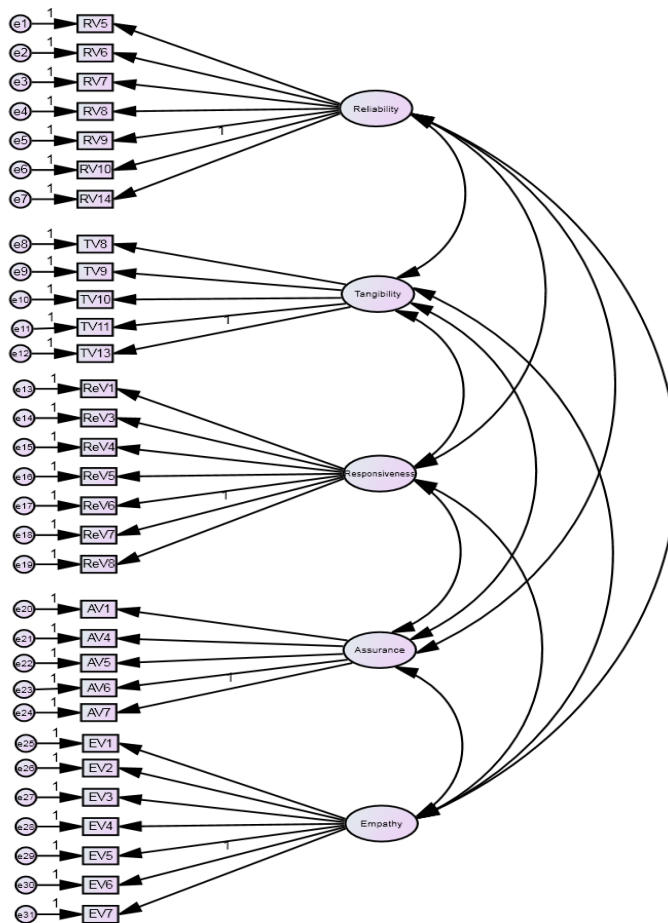
Source: Churchill (1979)

The data was collected from the constituted colleges, institutes, departments and centers of Punjab University, Lahore, Pakistan. This is among the largest and oldest university in the South Asia. This university consists of 78 colleges, institutes, departments and centers where more than forty thousand students are studying. Non-probability sampling was used for this study. The respondents of this study were the students of final semesters in their relevant degree programs. The questionnaires were distributed to 1150 students. Among these questionnaires 605 were

returned back. Four of them were incomplete thus not included in the further analysis. The response rate was 52.6%, which is acceptable for such type of the studies.

In this study, students were asked to reflect their perception about the different dimensions of service quality of their respective institute, college, department and center. Cardona and Bravo (2012) and Zineldin (2007) stated that the measurement of the students' perception reflects the overall satisfaction of students with the institute. Harvey (2001) also supported that the students' feedback about the quality of their educational processes as one of the important method to know their satisfaction.

Figure 2: Theoretical Framework for Development of Service Quality Scale



3.1) Data analysis and discussion

According to Anderson and Gerbing (1982) as cited by Ahmad et al. (2009), when the survey development is driven by theoretical foundation, the primary approach to scale purification is to rely upon Confirmatory Factor Analysis (CFA). This will help in ensuring the unidimensionality, reliability and construct validity of the instrument. The Structural Equation Modeling (SEM) Program AMOS 19 was used to conduct the CFA. By using this software, covariance matrix was developed which is depicted in Fig 2. Three runs of CFA were conducted to achieve the satisfactory goodness of fit statistics. In these three runs nine items were deleted leaving behind 29 items in the final scale. Thus, 23.7% items were deleted from the total items being proposed by the focus group. The final items of the scale are given in Table 3. Thus, the final scale contains 29 items with five dimensions.

Table 2: Reliability of the Constructs

Item	Item ID	Factor Loading	Mean	Standard Deviation	Cronbach's Alpha
Reliability	RV5	0.746	3.747	.977	0.914
Reliability	RV6	0.785			
Reliability	RV7	0.849			
Reliability	RV8	0.816			
Reliability	RV9	0.814			
Reliability	RV10	0.797			
Reliability	RV14	0.782			
Tangibility	TV8	0.810	3.772	1.0097	0.886
Tangibility	TV9	0.857			
Tangibility	TV10	0.807			
Tangibility	TV11	0.793			
Tangibility	TV13	0.738			
Responsiveness	ReV3	0.772	3.464	1.128	0.90
Responsiveness	ReV4	0.836			
Responsiveness	ReV5	0.844			
Responsiveness	ReV6	0.842			
Responsiveness	ReV7	0.793			
Responsiveness	ReV8	0.715			

Item	Item ID	Factor Loading	Mean	Standard Deviation	Cronbach's Alpha
Assurance	AV4	0.802	3.726	1.0146	0.882
Assurance	AV5	0.87			
Assurance	AV6	0.82			
Assurance	AV7	0.81			
Empathy	EV1	0.74	3.7	.992	0.909
Empathy	EV2	0.791			
Empathy	EV3	0.82			
Empathy	EV4	0.82			
Empathy	EV5	0.81			
Empathy	EV6	0.82			
Empathy	EV7	0.74			

The goodness of fit statistics used to evaluate the measurement scale. Comparative Fit Index (CFI), Root Mean Square Error of Approximation (RMSEA), amount of squared multiple correlations and significance of parameter estimates are the major goodness of fit statistics, which could be used in CFA (Sila, 2005). Bentler and Bonnet (1980) suggested a cut-off value of CFI as 0.90. However, Hu and Bentler (1999) argued that this value should be close to 0.95 for a better fit. For this CFA model, the values of CFI and RMSEA are 0.93 and 0.6 respectively. Similarly, all the factor loadings on the relevant constructs are statistically significant at $P < 0.000$. Furthermore, the squared multiple correlations for all dimensions in the developed model varies from 0.715 to 0.87. All of these statistics indicate that the CFA model has the best fit. These values also indicate that constructs are unidimensional.

The reliability of the constructs is widely evaluated by using the value of Cronbach's Alpha. The Cronbach's Alpha value more than 0.70 indicates the better reliability of the construct (Cronbach, 1951; Nunnally, 1978). From Table 1, the alpha value for five service quality constructs ranges from 0.881 - 0.914. These values indicate that all constructs are highly reliable.

Content or face validity indicates that how much relevant literature and domain knowledge was used in the development of the measurement items of the respective constructs (Bryman, 2008; Nunnally, 1978). As

mentioned previously, in the development of items and constructs of this measurement scale Parasuraman et al. (1988) service quality measuring scale was used as the base scale. Parasuraman et al. (1988) is a widely used measurement scale in the literature for the development of measurement scales for various areas and measuring of face or content validity is a judgmental process (Ahmad et al. 2009). Thus, the refinement of base scale was done in the focused group discussion, which was comprising of quality professionals, university professors and PhD students. The above mentioned steps indicate that the instrument has the strong content or face validity.

According to Bagozzi et al. (1991), CFA could be used to evaluate the convergent validity. The values of factor loading could be used to establish the convergent validity. The convergent validity could be established if all the factor loadings have the significant values on their respective constructs. All the factors loadings in this model which range from 0.715 to 0.87 are significant at $P < 0.000$ on their respective constructs. This indicates that the scale has the strong convergent validity.

Figure 3: CFA Model Developed using AMOS 19.

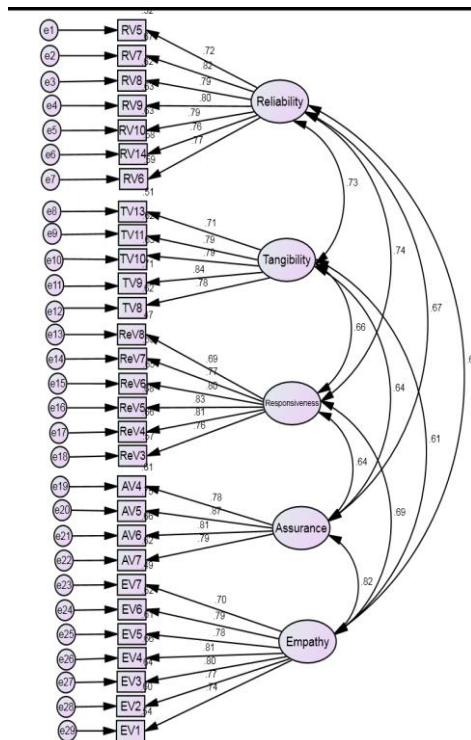


Table 3: Correlations among the Service Quality Constructs

		Service Quality Constructs	Estimate
Reliability	<-->	Tangibility	.745
Responsiveness	<-->	Tangibility	.702
Responsiveness	<-->	Assurance	.664
Empathy	<-->	Assurance	.828
Reliability	<-->	Responsiveness	.759
Responsiveness	<-->	Empathy	.697
Reliability	<-->	Assurance	.692
Reliability	<-->	Empathy	.674
Tangibility	<-->	Assurance	.672
Empathy	<-->	Tangibility	.632

According to Bagozzi et al. (1991) discriminant validity measures the degree to which a construct and its indicators are different from other constructs including their indicators. Ghiselli et al. (1981) argued that discriminant validity could be measured by comparing the value of Cronbach's Alpha (CA) of a construct with the average value of its correlation with other constructs. The significant difference indicates the discriminant validity. From Table 1 and 2, it is evident that there is a significant difference between the value of CA and average correlation of that construct with other constructs in a scale.

The above presented evidences about the unidimensionality, reliability and construct validity of the scale indicate that CFA model presented in Fig. 3 is a very good model. It is therefore concluded that the scale presented in this model for the measurement of service quality in higher education is sufficiently reliable and valid.

Table 4: Dimensions and Items Constituting the Model Developed

Sr. No.	Item	Dimensions along with abbreviation used in analysis
1.	During the teaching process students should be involved	Reliability (RV5)
2.	Relevant case studies should be discussed	Reliability (RV6)
3.	Learning level should be determined in advance	Reliability (RV7)
4.	Students should learn what they hoped to learn	Reliability (RV8)
5.	Students communication skills should be developed	Reliability (RV9)
6.	Course contents should be up to date with national and international standards	Reliability (RV10)
7.	Students should be given guideline about the selection of courses	Reliability (RV14)
8.	The laboratories should have latest equipment and facilities	Tangibility (TV8)
9.	Relevant to subject, lab facility should be provided to the students	Tangibility (TV9)
10.	Computer lab facility should be provided to the students	Tangibility (TV10)
11.	Up to date computers should be in computer lab	Tangibility (TV11)
12.	Comfortable furniture should be there in the class rooms	Tangibility (TV13)
13.	Class notes and reading material should be available online	Responsiveness (ReV3)
14.	Class announcement should be done through email etc	Responsiveness (ReV4)
15.	The proper channel should be established to receive feedback from students about teachers and other facilities	Responsiveness (ReV5)
16.	Students queries should be responded quickly	Responsiveness (ReV6)
17.	Results should be readily available on the web	Responsiveness (ReV7)
18.	Results should be declared within the stipulated time	Responsiveness (ReV8)
19.	Knowledge should be up to date	Assurance (AV4)
20.	Proper SOP's are followed for teaching, examination and admission	Assurance (AV5)
21.	All administrative matters should be followed according to the university regulations	Assurance (AV6)
22.	Quality of teaching should be evaluated fairly	Assurance (AV7)

Sr. No.	Item	Dimensions along with abbreviation used in analysis
23.	The faculty attitude should be comparative and supportive	Empathy (EV1)
24.	Academic culture should be promoted	Empathy (EV2)
25.	Alumni follow up services should be provided	Empathy (EV3)
26.	There should be a liaison between students and university authorities	Empathy (EV4)
27.	The university management should be willing to listen the opinion of students	Empathy (EV5)
28.	The proper channel should be established to receive feedback from students about teachers and other facilities	Empathy (EV6)
29.	Celebrations of different events should be conducted	Empathy (EV7)

CONCLUSION

The findings of this research resulted in the development of a scale for measuring service quality in the context of higher educational institutions of Pakistan. This study confirms the five constructs of service quality which include reliability, responsiveness, assurance, empathy and tangibility as mentioned by Parasuraman et al. (1988). However, this study supported the contingency theory that the scale should be developed keeping in view the specific contextual settings including the nature of business. Indeed, the scale presented in Parasuraman et al. (1988) is generic in nature however, it must be adapted keeping in view of the nature of activities for which it is going to be implemented. The scale developed in this study could be effectively used for both practitioners and policy makers for measuring service quality in the context of higher education, especially in the context of Pakistan. As the scale has retained all the five constructs as in the original study of Parasuraman et al. (1988) thus it could be useful to make a comparison with other studies being conducted around the globe.

The higher education institutions are facing intense competition. The universities and colleges are striving hard to achieve their customer satisfaction. Thus, the measuring service quality is imperative in these days. However, in the context of higher education it is very difficult to define the customers. The students, employers, society and parents could be the potential customers of the higher educational institutions. However, the scale developed in this study is only based upon the perceptions of the

students studying in the constituted colleges, institutes, department and centers of a largest university of Pakistan. Thus, in the future studies such scales could be validated based upon the perceptions of faculty members and employers as well as students. This will enhance the applicability of the measurement scale in the larger context. Furthermore, the students should be included from both public and private higher educational institutions.

This study has contributed significantly in the service quality literature which focuses in the development of measurement scale especially in the context of higher education. This study provided the empirical evidence that all the five dimensions of service quality are valid and applicable in the context of higher education.

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