

# A B-SCHOOLS SERVICE QUALITY MEASURE: SCALE DEVELOPMENT AND VALIDATION

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## ABSTRACT

**Purpose:** The main objective of this study is to develop an empirically validated scale so that it is easier to measure the perception of students in respect of quality of services they are getting in B-Schools. **Design/methodology/approach:** A 27 item questionnaire on service quality in B-school was developed and tested for reliability and validity using both exploratory and confirmatory factor analyses. SPSS 19 and AMOS 20 were used for exploratory and confirmatory factor analysis. The data was collected from MBA and BBA students of different B-schools in Delhi NCR. **Findings:** The study identified six factors namely Reliability, Physical evidence, Development, Competence, Responsiveness and Delivery as the key dimensions of service quality for B-School. **Originality/value:** This scale can be a great help for the industry to set up new benchmarks in the course development, academic industry interface, effective training and above all placements. Since different dimensions have been found in this research each dimension can be taken as yardstick for the overall enhancement in the quality of a B-School.

**Keywords:** Service quality, B-School, Scale Development, Education, BSCQUAL.

## INTRODUCTION

Education is a significant institution given the shift to a knowledge economy. Scholars Malarvizhi; et al (2014) studies about service sector and also states that the fastest growing sector in today's era is the service sector and there is a shift for the countries from producing to services. They stated that rendering pure services are done by educational institutes by delivering a platform for higher education which involves various features of a service. Gruber et al. (2010) study various features that higher education has in respect to delivering their services that is heterogeneous, intangible and perishable. In today's world the standardization for higher education becomes very difficult as experience in service sector differs from one situation to other situation and thus results in making services difficult to standardize. Therefore; the perishability criterion is satisfied because it is difficult to store higher education. But now because of digitalization this is also not difficult and the situation can be overcome, for instance, the emergence of and video conferencing technologies and internet based learning (Cuthbert, 1996a). With advancement in technology and because of various innovations the perishable feature can be overcome. The fastest growing industry these days is higher education which results in placing greater emphasis in meeting all the needs and various expectations of their customers and here the customers are the students. The literature and various studies reveal that in education sector the service quality is considerably found still undeveloped. Therefore, many efforts have been made on commercial services (Sultan & Wong, 2010). Oldfield & Baron, 2000 states earlier all institutions that provides higher education in education sector are not considered as "profit-

making organizations,” but now the scenario is changed that irrespective of providing educational services all the institutions are making efforts so that they can gain competitive advantage. Thus attempts are made to make universities understand that they should not forget their respective roles that is delivering quality services rather than making money and focusing on making profits in this aggressive marketplace (Oldfield & Baron, 2000).

Nadiri et al. (2009) states institutions should focus on the students in terms of their understanding, their expectations and student’s perception so that they can fulfill students needs in best possible manner. De Shields et al. (2005) focused on different strategies that every higher education institution should focus on, strategies such as market-orientated strategies and adhere to all the principles so that they are able to retain themselves in such competitive world. Also many Institutions are realizing this fact that service quality is really very important in higher education and for which institutions are putting a lot of emphasis on meeting the different needs and expectations of all students (De Shields et al., 2005). The Education sector in India is in need to elevate the level of quality of services they are providing. Thus, keeping in mind all the perspectives the attempts are made to meet the end goal so that they can achieve as well as accomplish their objectives. Because of which need arose here to develop a model for B-school service quality which was then applied and tested on various B-schools as well as for this a scale was developed which empowered researchers so that they can measure the quality of services rendered in the B-schools which aims in to look in the areas delivering quality services short-falls for improvements in short and long-term strategies. At present, the knowledge part is lacking for B-schools institutions and for that service quality model is developed that takes into consideration the entire scope of all the constructs and sub-constructs which helps consumers in evaluating the quality of services in B-schools that is different from those which are used for other different industries and also for other countries. It was also found from the reviews and literature that a lot of pressure is there from key participants such as parents, stakeholders, employers and students which helps in closing the gap between their institutional quality and their expectations. Due to the competition in the educational sector, there is a pressure on institution to improve their quality and increases the measuring value of quality of services at B-schools (Gbadamosi et al., 2008). Studies stated that the primary target audience is students for B-school so the utmost importance is focused on knowing as well as understanding the requirements of the students which can only be fulfilled by providing the students quality based services in their requirements. This will result in helping and achieving B-schools in gaining competitive advantage, mainly in terms of communication between current, potential and future students and generating positive word-of-mouth (Alves & Raposo, 2009).

## **LITERATURE REVIEW AND EXISTING SCALES FOR RENDERING QUALITY OF SERVICES**

From the literature review it has been revealed that the most popular scales used to measure service quality in higher education and other service sectors are SERVQUAL, SERVPREF and HEDPREF. The SERVQUAL scale contains 22 items, which are used to identify the expectation of the client. The SERVQUAL authors identified 5 factors of SQ:

- Reliability
- Assurance
- Tangibles.
- Empathy
- Responsiveness

Cronin & Taylor (1992) criticize the validity and reliability of the SERVQUAL model and designed the SERVPERF scale to meet the limitations of SERVQUAL model. The authors trust that SQ of any organization is based on perceptions of customers. In SERVPERF approach the client was asked to rate the performance of service provider in a specific service encounters. It was found that SERVPERF is more reliable than SERVQUAL, as expectations of the client are not regarded for assessment in SERVPERF (Cronin and Taylor, 1992). In response to this, SERVPERF model is more utilized in the higher education than SERVQUAL model. Most of the researchers have used an adapted performance version of SERVQUAL to evaluate students course experience and measure the perceptions of SQ (Abdullah, 2006a; Hill, 1995; McElwee & Redman, 1993; Oldfield and Baron, 2000; Rigotti & Pitt, 1992).

A recent study by Brochado (2009) compares the performance of alternative measures of service quality in the higher education sector and concludes that SERVPERF and HEDPERF presented the best measurement capability but presented inconclusive results with respect to reliability and consistency. Awan (2010) has measured HEDPERF and SERVPERF combined in his study in which he aimed to find out the determinants of service quality. He measured the service quality in three dimensions as 'academic service quality, managerial service quality and general service quality'. Abdullah's study is important in that; it focuses on the education sector as opposed to other scales which measure service quality. However, HEDPERF is designed to capture the determinants of service quality in the higher education sector at a macro level. HEDPERF includes statements that are designed to measure services quality at a university level but it is not specific enough to capture MBA and BBA programs' characteristics. Therefore, it does not differentiate between different types of higher education programs that are in existence today.

HEDPERF developed by Abdullah (2006a) is quite general though it aims to determine service quality for educational purposes. In order to measure MBA level quality considering current student expectations and to test critical factors and/or determinants of the service quality through MBA students' viewpoints, HEDQUAL, a new service quality measurement, is developed and used in this study.

Icli & Anil (2014) developed and validated HEDQUAL, a new measurement scale of service quality specifically designed for MBA programs in higher education. Using a 36 item survey, the authors engaged 317 MBA students and identified five factors as key dimensions of service quality in a Turkish MBA program: academic quality, administrative service quality, library services quality, quality of providing career opportunities, and support services quality. The focus of HEDQUAL is only on MBA students at a university level. They have not considered BBA students and the private B-Schools. Different from the previous studies and the HEDQUAL scale, newly developed BSCQUAL scale includes Reliability, Physical evidence, Development, Competence, Responsiveness and Delivery dimensions in order to evaluate the dimensions of the service quality at B-School to effectively plan their service process to measure service quality. The scale developed – BSCQUAL- is important as its target is both BBA and MBA students in different b-schools.

Icli & Anil (2014). The HEDQUAL scale: A new measurement scale of service quality for MBA programs in higher education. S. African. *Journal of Business Management*, 45(3).

## Variables

- Physical evidence is the space by which you are surrounded when you consume the service. It demonstrates the quality of service that the provider provides and wants to convey to its consumers. Physical evidence includes representation or image that customer will use to evaluate the quality (Zeithmal and Bitner, 1996). Based on physical

evidence, the customer forms an impression of the service quality of the firm. Physical evidence has, therefore, a strong influence on the perceived quality of the educational service encounter.

- Reliability is "ability to perform the promised service dependably and accurately". The study shows that the second important factor that influences the overall service quality as perceived by customers is 'Reliability'. This finding is consistent with the conclusion of Morales & Calderon (2010), who also found that reliability is an important dimension in the perception of business schools.
- Development is "the ways that a student grows, progresses, or increases their developmental capabilities as a result of enrollment in an institution of higher education". From the expert opinion, it was found that in today's world of competition, student development is an essential dimension of service quality of B-School. B-School needs to take care of the overall development of student so that he can meet the challenges of a competitive world.
- Responsiveness is "willingness to help customers and provide prompt service. It is the ability to update, adjust or customize the contents and delivery within a particular Peter" (1988) explained that customer accords higher priority to the care and responsiveness of the organization.
- Competence is "connected the knowledge and skills of contact personnel, operational support personnel" (and also research capability) that are needed for delivering the service. It assures whether the staff of the service provider have the knowledge and skills required for adequately providing the service. This finding is consistent with the outcome of Sangeeta et al. (2004) who also found that Competence important dimension of service quality of business schools.
- Delivery is the act or manner of delivering something. It is a set of principles, standards, policies and constraints to be used to guide the designs, development, deployment, operation and retirement of services delivered by a service provider to offer a consistent service experience to a specific user community within a particular business context. This finding is consistent with the result of Owlia and Aspinwall (1996), who also found that Delivery as a vital dimension of service quality of business schools.

## RESEARCH METHODOLOGY

The aim of this is to designing as well as developing a scale to measure quality of services provided in B-schools. The process of scale development begins with the creation of items to assess a construct. This is an inductive process where items are generated first and then it follows deductive approach from which scales are then derived. 63 items were found through reviewing literature and in-depth interviews of students and experts. For pilot testing the draft questionnaire was filled by 300 students where they were told to give their views on any omissions or any errors detected and perceived ambiguities related to drafting of questionnaire. Only minor changes were made from the feedback received, few items which were not in the questionnaire have been added from the feedback. After the pilot study the items were reduced from 62 to 28. Further the revised questionnaire was sent to three experts (a researcher, an academician and also to a practitioner) to get a valid feedback for a full-scale survey. The expert found that the questionnaire is appropriate to measure quality of services in different B-school institutions. The scale development procedures employed followed the procedures provided by PZB augmented by Cronin and Taylor, 1992 and utilized by many researchers. The data was collected from B-School's students who were doing MBA with the help of a well-designed Questionnaire. 300 to 400 respondents sample from b-school. NCR was divided into zones and the data was collected twice from B-schools. Once for the exploratory factor analysis and next time for the confirmatory factor analysis.

Quota sampling is used for this research. The population was divided into the four zones in NCR. The method of sampling is convenient sampling method where sample is drawn by selecting population units on the basis of convenience. For the study, primary data was collected through Questionnaire. Convenience sampling is used, as it is appropriate for exploratory studies. For the second data collection all the MBA students were considered. Around 300-400 students were collected from NCR using quota sampling technique by dividing them in the four zones in NCR and in every zones non-random of Judgemental sampling is used. The sample for this is obtained by convenience sampling method that is by selecting population units by convenience means. Multivariate analysis and parametric tests are utilized for examination and the information gathered was tested with help of the SPSS software. As per the central tendency tools it is said that the value of N that is if N is more than 200 then the data can be assumed that it is normally distributed (N=300). Hence, the analysis technique which is used for analyzing the data is multivariate analysis. To purify the measure Exploratory Factor Analysis (EFA) is used and after that confirmatory factor analysis was applied (CFA) and after looking the validated new assessment instruments (DeVellis, 2003; Worthington & Whittaker, 2006). Face validity, content validity, and construct validity (convergent and discriminant validity) were conducted and the main purpose of this is validation of six service quality construct. Then finally, the scale was proposed that is a valid and fit BSCQUAL scale.

## **DATA ANALYSIS AND RESULTS**

### **Sampling Technique**

The data was collected from B-School's students who were doing BBA and MBA with the help of a well-designed Questionnaire. 400 respondents sample from b-school. NCR was divided into zones and the data was collected twice from B-schools. Once for the exploratory factor analysis and next time for the confirmatory factor analysis. Quota sampling is used for this research. The population was divided into the four zones in NCR. The method of sampling is convenient sampling method where sample is drawn by selecting population units on the basis of convenience. For the the study, primary data was collected through Questionnaire. Convenience sampling is used, as it is appropriate for exploratory studies. For the second data collection all the MBA students were considered. Around 400 students were collected from NCR using quota sampling technique by dividing them in the four zones in NCR and in every zone non-random of Judgemental sampling is used. The sample for this is obtained by convenience sampling method that is by selecting population units by convenience means.

### **Statistical Technique**

To purify the measure Exploratory Factor Analysis (EFA) is used and after that confirmatory factor analysis was applied (CFA) and after looking the validated new assessment instruments (DeVellis, 2003; Worthington & Whittaker, 2006). Face validity, content validity, and construct validity (convergent and discriminant validity) were conducted and the main purpose of this is validation of six service quality construct. Then finally, the scale was proposed that is a valid and fit BSCQUAL scale.

### **Exploratory Factor Analysis**

To find out the dimensions of the BSCQUAL scale to EFA was used to ensure that all items only loaded onto their respective dimensions. We applied an eigenvalue of 1 as the cut-

off value for extraction. The Eigen values for six factors were 13.810, 12.510, 11.662, 10.873, 9.590 and 9.310 respectively. The index for present solution accounts for 67.755% of the total variations for compensatory consumption. As 28 factors has been reduced to six factors it can be said that it is quiet good extraction while 32.25% information content has been lost for factors for measuring service quality in B-Schools.

**Table 1**  
**TOTAL VARIANCE EXPLAINED**

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	11.021	39.36	39.36	11.021	39.36	39.36	3.867	13.81	13.81
2	2.62	9.359	48.719	2.62	9.359	48.719	3.503	12.51	26.32
3	1.754	6.265	54.984	1.754	6.265	54.984	3.265	11.662	37.981
4	1.377	4.917	59.9	1.377	4.917	59.9	3.044	10.873	48.855
5	1.177	4.205	64.106	1.177	4.205	64.106	2.685	9.59	58.445
6	1.022	3.649	67.755	1.022	3.649	67.755	2.607	9.31	67.755

## Reliability

Dependability alludes to the "exactness of estimation scores, or how precisely such scores will be imitated with rehashed estimation" (Dillon, Madden, & Firtle, 1994). The unwavering quality of the develop things was assessed utilizing Cronbach's coefficient alpha. Cronbach's coefficient alpha of the considerable number of builds is extended from .80 which is over the cut-off worth .70 (Nunnally, 1978). As all the qualities is over .70, it very well may be said that all the elements are reliable. The generally speaking unwavering quality of the estimation model was likewise settled by accomplishing a Cronbach Alpha measurement of 0.95.

**Table 2**  
**RELIABILITY AND VALIDITY ESTIMATES OF MEASUREMENTS**

Construct	Cronbach's Alpha	AVE	MSV	ASV
PHYSICAL EVIDENCE	0.879	0.749	0.63	0.296
RELIABILITY	0.846	0.618	0.251	0.18
DEVELOPMENT	0.857	0.596	0.252	0.204
RESPONSIVENESS	0.853	0.626	0.318	0.265
COMPETENCE	0.809	0.8	0.63	0.344
DELIEVERY	0.801	0.772	0.348	0.22
<b>Cronbach's Alpha</b>		<b>N of Item</b>		
0.943		28		

## Validity Analysis

There are three main types of Validity measures, namely Content Validity and Construct Validity consisting of Discriminant Validity and Convergent Validity. Confirmatory Factor Analysis (CFA) was used to determine the validity of all independent measurement models and constructs.

## Content Validity

The most important research methodology is the content validity approach which states that how well the behavior is measured for which it is intended. For this study content validity of the instrument was established through reviewing literature and in-depth interviews of students and experts.

### **Construct Validity**

Construct validity says whether the scale tests what it is supposed to be measuring. It includes validity which is discriminating, convergent and nomological (Malhotra, 2010). Discriminant validity and convergent validity are determined for the current research.

### **Convergent Validity**

In first phase for the verification that all the proposed measurement are part of construct itself that is why convergent validity is applicable. The degree to which there is a positive relation between the measures of a construct is shown by "Convergent validity" (Malhotra, 2010). It is formulated by "comparing Cronbach alpha of the construct with Average Variance Explained (AVE) by the measures" (Hair et.al, 2010). The AVE is square of average of the factor loadings. The Convergent validity is achieved if:

1. Average Variance Explained < Cronbach Alpha co-efficient
2. The value of Cronbach Alpha co-efficient is greater than 0.7
3. The value of Average Variance Explained > 0.5.

The above data shows the validity and reliability of all the dimensions. As the value of Cronbach alpha is above .07 that means all dimensions have good reliability and internal consistency. AVE is also above 0.4 which is threshold value. Therefore, convergent validity norms are met by the six constructs.

### **Discriminant Validity**

There is "Discriminate validity" in the extent to which the construction differs. It is based on evaluation by comparing the paired constructs 'square correlation (R<sup>2</sup>) with each construct's AVEs (Fornell & Larcker, 1981).  $MSV < AVE$  and  $ASV < AVE$  are criteria for ensuring discriminant validity (Hair et al., 2010). As the MSE is below AVE and ASV is below AVE it shows that the constructs differ from each other. Convergent validity and discriminant validity was checked and found appropriate. One statement has been dropped as there was a cross loading problem with the statement due to which there was a problem is discriminate validity. The reliability test was also done on individual factor and it was found that all the factors are reliable. Therefore, it is proved that BSCQUAL model developed in this study valid and reliable instrument to measure quality of services in B-school.

### **Confirmatory Factor Analysis**

The primary point of this examination was to plan a scale to gauge administration quality in B-Schools of Delhi/NCR. After the EFA the subsequent stage is to break down the information through CFA After EFA dependability test was led to satisfy the goal and afterward the zero-request CFA was led utilizing AMOS 20 followed by first request CFA and afterward legitimacy test was led utilizing AMOS 20. The corroborative factor systematic model was evaluated by means of the Maximum Likelihood technique is Consistent with the basic condition demonstrating writing (Chen, 2008; Fan & Sivo, 2005) a scope of files were

utilized to assess model fit. The estimation model showed extensively palatable degrees of fit over all examples (Browne, 1993; Hu & Bentler, 1999). We utilized a few lists to assess the decency of-fit of a build: 1) the estimation of the  $\chi^2/df < 5.0$  (Wheaton et al. 1977); 2) the similar fit record (CFI), and the non-normed-fit list (NNFI), which ought to be  $>0.90$  (Medsker, Williams and Holahan 1994); and 3) the root mean square blunder of estimation (RMSEA) worth ought to be  $<0.08$  (Browne & Cudeck 1992). As all estimation of the files was over the cut-off level, which demonstrates that the model is solid match in Indian setting?

**Table 3**  
**BSCQUAL MODELFIT INDICES FOR INDIVIDUAL CONSTRUCTS**

Indices	Recommended Value	Physical evidence	Reliability	Development	Responsiveness	Competence	Delivery
The Normed Fit Index (NFI)	It should be more than .90 (Byrne, 1994)	0.983	0.977	0.966	0.997	1	0.984
The Tucker-Lewis Index (TLI)	It should be nearer to 1	0.983	0.938	0.938	1.002	1.011	0.962
Incremental fit index, IFI	It should be equal to or greater than .90	0.989	0.979	0.969	1.001	1.04	0.987
The Comparative Fit Index	It should be more than .93 (Byrne, 1994)	0.989	0.979	0.969	1	1	0.987
The Goodness of Fit Index	It should be more than .90 (Byrne, 1994)	0.959	0.968	0.928	0.997	1	0.986
RSMEA	It should be less than .08 (good models $< .08$ )	0.08	0.17	0.18	0.01	0.02	0.104
RMR	The smaller the RMR the better, with RMR = 0 indicating a perfect fit	0.05	0.038	0.054	0.015	0.001	0.032

### Higher Order Factor

The overall model fit chi-square value is 919.719 with 309 degrees of freedom with a probability value of less than .000. The 309 "degrees of freedom represents the over-identification level of the model".

**Table 10**  
**SUMMARY TABLE-CFA**

Fit Statistic	Final CFA Model	Desired Value
CMIN/DF	2.976	Acceptable values are in the 3/1 or 2/1 range.
The Normed Fit Index (NFI)	0.883	It should be more than .90 (Byrne, 1994)
The Tucker-Lewis Index (TLI)	0.908	The value should be close to 1
Incremental fit index, IFI	0.919	The value should be greater than or equal to .90
The Comparative Fit Index	0.919	It should be more than .93 (Byrne, 1994)



The Goodness of Fit Index	0.822	It should be more than .90 (Byrne, 1994)
RSMEA	0.08	It should be less than .08 (good models < .08)
RMR	0.148	The smaller the RMR the better, with RMR = 0 indicating a perfect fit.

It shows the model fit indices of all the constructs namely Physical evidence, Reliability, Development, Responsiveness, Competence and Delivery. All value of indices found to be above the threshold, which implies that model is good fit in Indian Context. The CMIN/DF value is in the acceptable range. The value of IFI, TLI, CFI is also above the cut-off level, the value of GFI and NFI value also very near to the cut-off value, RMSEA and RMR value is also good.

## CONCLUSION

For customer satisfaction the quality of services plays an important role and hence the institutions and universities should majorly focus on quality of services and also should be rather obliged to perceptions of consumers on quality of services. This they can do by prioritizing their activities. Therefore, it was found that good service quality always impacts positively on satisfaction level of customers because the future depends upon its students for any country. Education youth plays an important role in building name and fame of a country and this youth that is students are the country's real treasure. So it's very important that they get a quality education for that there should be good quality education institute in the country. Almost every service sector has its own scale to measure their service quality but after extensive research but I could not find any scale that can measure service quality specifically for B-school. The main objective of this study was to design, develop and validate the scale for measuring quality of service on different aspects for B-School. This is an exploratory study, and based on the accessible literature, and consultation with pioneer educators, students and researchers in this field. Various test has been conducted to examine the appropriateness of BSCQUAL for B-School such as reliability and validity test. BSCQUAL contains 27 items and six factor structures (Physical evidence, Reliability, Development, Responsiveness, Competence and Delivery as the key dimensions of service quality). From all the tests it appears that BSCQUAL is an appropriate instrument to measure service quality in B-schools. BSCQUAL, is specifically designed for the B-School, contributes significantly to the practitioners and literature.

## Managerial Implications

The results found from the current research has various practical implications for not only B-School of Delhi NCR but the entire India B-Schools. The current educational market is experiencing rapid expansion in the midst of a push for 'market' education; the continuous focus on quality of service is therefore paramount. Management is responsible for managing overall service quality of any organization. They are responsible for taking decision on the available resource that where they should be utilized. By knowing the student's perception, the management can spend the resource properly and can achieve service excellence. This scale will help the existing B-Schools to uphold their quality in any of the dimensions found so that they can easily compete with the other B-Schools. Since different dimensions have been found in this research each dimension can be taken as yardstick for the overall enhancement in the quality of a B-School.

## Scope for Further Research

This study was confined to only Delhi NCR region and only few schools were taken for this study. Further research can be done in other parts of India or by taking a large number of B-Schools are for measuring service quality. If the research is done on Pan India, then the results could vary from current study. As this study focus on only student's perception as they are found to be the primary stakeholder of B-school and rest of the stakeholders of B-school are not included (e.g. administrative staff and academic staff). Further research can be done to identify the service quality perception of other stakeholders (e.g. administrative staff and academic staff). As perception changes with the time, when the study will be repeated there may be changes in the dimensions of service quality so there is a need to repeat the research at least a year later from the current research. The Finding of the future study then can be compared with the present study and the difference between the student perceptions can be found out.

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