

SERVICE QUALITY IN HIGHER EDUCATION: AN ANTECEDENT TO SATISFACTION AND BEHAVIORAL INTENTIONS

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Abstract— The purpose of the current study is to empirically examine the critical service quality dimensions that contributes to student satisfaction in higher education and to analyze whether satisfaction with service delivery leads to behavioral intentions for recommendation.

The study, descriptive and diagnostic in nature was conducted on postgraduates graduate management students from two leading universities in South India. 216 students participated in the survey. Self-administered questionnaire was adopted to capture the perceptions of students on service quality, satisfaction and behavioral intentions. For this purpose a twenty seven items scale for service quality by Jain et al., (2012), six item scale for satisfaction and a three items scale for behavioral intentions by Atheeyaman, A. (1997) was administered. CFA was performed to assess the model fit and multi variate analysis and SEM were utilized to ascertain the relationship between the variables.

Service quality was found to be a significant predictor of students' satisfaction which in turn was found to be a significant predictor of the behavioral intentions to recommend the institute to other prospective students. The regression analysis reveals that among the eight dimensions identified, the dimension of 'interaction quality' had the strongest impact on student satisfaction.

The study was confined to the postgraduate students in management from South India. The study holds implications for the institutions that aims to remain competitive in the landscape of education sector in India. This current study is one among the very few studies in India that empirically validates the idiosyncratic relationship between service quality, satisfaction and behavioral intentions within the educational domain specifically for Higher education.

Keywords— Service quality, Higher education, Satisfaction, Behavioral intentions, Structural Equations Modelling, India.

I. INTRODUCTION

Over the last two decades, India has witnessed remarkable transformation in the higher education landscape. With over half a billion people in India under the age of 25 years, the system is under tremendous pressure to expand (British council, 2014). This is further accentuated by the average Indian youngsters' growing aspirations and intensifying appetite for education evident in the HE enrollment rate (E&Y, 2014). As the middle class size escalates, millions are increasing able to pay for it. To meet the exponentially growing demand, Indian higher education system has been expanding at a neck break pace adding 20,000 colleges and more than 40 million students in the past decade (E&Y, 2014). Despite the substantial addition in capacity, the system is beset by issues of quality in many of its institutions a chronic shortage of faculty, poor quality teaching, outdated and rigid curricula and pedagogy, lack of accountability and quality assurance and separation of research and teaching (British council, 2014). The nation seems to be facing some serious hurdles as very few Indian institutions finds their place in the global ranking (QS ranking, 2016) The most alarming indicator of this situation is however the employability of the graduates. A recent research study points to the fact that a vast majority of our graduates approximately 75% or more are found to be unemployable (E&Y, 2014).

Further, to add to the tussle, the increasing proliferation of private players has given rise to cut

throat competition in the industry. Quality has naturally taken a backseat in the rat race for numbers.

On the other side, rapid growth of the educational institutions gives the students wide options to choose from, and when there is choice, the quality of service experience becomes a significant factor in the buyer decision making (Bateson, 1995). Student experience also finds its place in the NAAC and NBA framework for assessing the quality of Higher education institutions in India. The educational institutions are hence forced to look beyond the outcomes i.e. the employability of its graduates, to the perceived quality experienced by the students (Bemowski, 1991; Woodall et al., 2014).

Over the years studies have reported the idiosyncratic relationship between service quality, satisfaction and recommendation within the educational domain (Ledden, L. et al., 2011). Adding further to this, Word-of-mouth recommendations from current students and alumni were found to be important source of influence when prospective students are selecting an institute (Rowley, J., 2003; Bruce G., 2008; Pampaloni, A. M., 2010; Johnston, T. C., 2010; Arya, D. P., 2010; Moogan, Y. J., 2011) In India the stalling employability rate of graduates is putting the emphasis back on accountability and driving the need for quality measurement in higher education sector. The recently launched National Institutional Ranking Framework (NIRF), aimed at ranking higher educational institutions in the Country based on objective, verifiable criteria by the Ministry of the

Human Resource Department, Government of India is a notable initiative in this direction (NIRF, 2016).

II. OBJECTIVES OF THE STUDY

- To identify the critical service quality dimensions that contributes to student satisfaction.
- To examine if satisfaction with service delivery in higher education leads to behavioral intentions for recommendation.

III. REVIEW OF LITERATURE

3.1. Service quality measurements in Higher education.

Judging from the amount of work done, this area has received considerable amount of attention from the researchers in the past. However lack of consistency in the earlier methods and the variables used for measuring quality in higher education domain is evident (Leonard et al., 2003). Several researchers in the past have used adapted versions of SERVQUAL to measure quality in Higher Education (Rigotti & Pitt, 1992; McElwee & Redman, 1993; Hill, 1995; Cuthbert, 1996; Ho & Wearn, 1996; Oldfield & Baron, 2000). Nevertheless researchers have reported the poor performance of generic instruments tested in higher education settings (Dotchin & Oakland, 1994 a, b, c) despite the degree of success in other wide ranging service industries. The general view appears to be that, generic measures of service quality may not be adequate to assess the perceived service quality in higher education domain (Firdaus, 2006). Thereby suggesting that industry specific scales might be a more viable research strategy (Zeithaml et al., 1985; Finn & Lamb, 1991; Cronin & Taylor, 1992; Brown & Koenig, 1993). These arguments has received considerable traction in the past two decade and researchers have responded by developing industry specific scales (Firdaus, 2005; Mahapatra & Khan, 2007; Senthilkumar & Arulraj, 2011; Jain et al., 2013).

Among the very few scales developed in the Indian context, the one developed by Jain et al., (2013) stands out with respect to the methodology and psychometric properties. The author has empirically observed that service quality in higher education comprises of eight dimensions viz, Non-Academic Process, Interaction Quality, Academic Facilities, Curriculum, Campus, Industry Interaction, Support Facilities, Input Quality. However it is also observed that Jain et al., (2013) dropped one construct campus on psychometric grounds. Nevertheless the current study assumes that service quality has eight dimensions initially proposed by Jain et al., (2013).

3.2. Service quality and Student satisfaction

Student is considered to be the prime stake holder and key customer in higher education. Crawford (1991)

was the first one to introduce the concept of the student as customers. Student satisfaction is considered to be an increasingly important indicator of the quality of teaching and is also found to be an outcome measure of education process (Ramsden, 1991). But measuring student satisfaction is not considered to be an easy task. Researchers differ in their use of indicators to measure Student satisfaction (Browne et al., 1998; Borden, 1995; Elliott & Shin, 2002; Athiyaman, 1997; Wiers-Jenssen et al., 2002; Aldridge & Rowley, 1998). Researchers like Parasuraman et al., (1988); Bitner (1990); Bolton and Drew (1991) have argued that customer satisfaction is an antecedent of service quality, while some others like Hoisington and Naumann (2003); Spreng and MacKoy (1996); Woodside et al., (1989) was of the view that it is service quality that leads to customer satisfaction. The current research however likes to take the latter view i.e.; service quality is a precursor to satisfaction which is supported by empirical evidence (Cronin & Taylor, 1992; Dion et al., 1998 and Lee et al., 2000).

Thus the following hypothesis is proposed:

Research hypothesis 1: Service quality dimensions will exhibit significantly positive influence on student satisfaction.

H1a: Non-Academic Process will exhibit significantly positive relationship with overall service quality.

H1b: Interaction Quality will exhibit significantly positive relationship with overall service quality

H1c: Academic Facilities will exhibit significantly positive relationship with overall service quality

H1d: Curriculum will exhibit significantly positive relationship with overall service quality

H1e: Campus will exhibit significantly positive relationship with overall service quality

H1f: Industry Interaction will exhibit significantly positive relationship with overall service quality

H1g: Support Facilities will exhibit significantly positive relationship with overall service quality

H1h: Input Quality will exhibit significantly positive relationship with overall service quality

3.3. Satisfaction and behavioral intentions to recommend

Keeping customer satisfied is key to customer loyalty. Customer loyalty is evident through many forms of customer behavior. According to Jones and Sasser (1995) loyalty can be measured in three ways. Intention to re-purchase, or through primary behavior such as actual customer re-purchasing behavior; frequency, amount, recency, retention, and longevity; and through secondary behavior – such as customer referrals, endorsements and spreading the word. When taken in university or higher education context this will manifest as intention to study higher level within the same institute or frequency and recency of a student using ancillary services such as library, catering or information technology services, student

retention and student satisfaction with the service delivery and finally willingness to recommend the institution to friends, neighbor and employees (Blackmore et al., 2006). However Blackmore et al., (2006) has reported that even while satisfaction ratings were at an acceptable level, a significant number of students stated that they would not recommend their institute to others. Further, experts who have investigated on the decision-making behavior of potential higher education students have indicated that word of mouth recommendations from the current student or alumni is the most significant factor behind students' decision to choose an institute or university (Karen A. B & Wallingford, H P. 1997; Yvonne, J. M., et al., 1999; Arya, D P., 2010). The current study focuses on studying the influence of customer satisfaction on the behavioral intentions to recommend the institute to other prospective students. Thus the following hypothesis is proposed:

Research hypothesis 2: Satisfaction has positive influence on Behavioral intentions to recommend.

IV. METHODOLOGY

The study was conducted on postgraduates graduate management students from two leading universities in South India. For the pilot study, 102 postgraduate management students were conveniently chosen. Questionnaires were administered personally to the Students. They were given two days' time to submit the filled questionnaire. Any doubts the respondents had with regard to the questions were clarified on the spot. Among the 102 questionnaires administered, 42 of them were returned in duly filled format. Based on the pilot study the reliability and construct validity of the scale were examined. The reduced scale was again administered to 427 students enrolled for post graduate management programs in two leading universities in South India in hard copy and via google forms. Out of 427 forms administered, only 223 were returned. Among those, only 216 was found to be complete and valid for analysis. More than half of the respondents were male (56.2%) and the mean age was found to be 26.68 years.

The initial questionnaire consisted of 38 items measuring eight dimensions of service quality taken from the scale developed by (Jain et al., 2013), The six items measuring satisfaction are from Athiyaman, A. (1997), Three items of behavioral intentions are adapted version of 'behavioral intentions battery' (Zeithaml, V. A., et al., 1996) by Athiyaman, A. (1997) and a single item measure of overall service quality was also included from Jain et al., (2013) . The psychometric properties of the scales used for the current study was previously reported by the authors. The responses were recorded using a 5 point Likert scale (strongly agree to strongly disagree) for the entire study. Data entry, processing and analysis were undertaken in SPSS 20 platform. The reliability and construct validity of the scale was examined from the pilot study and from the final data. Path analysis was

performed using structural equations modelling tool AMOS 18.0.

V. RESULTS AND DISCUSSION

5.1 Pilot Study

The sample comprising of 42 respondents were used to test the reliability and construct validity of the scale. Churchill (1979) has suggested that the purification of a scale begins with the computation of item to total correlation and Cronbach's coefficient. Item to total correlation and Cronbach's alpha was calculated for each dimensions of service quality. The value of Cronbach's alpha ranged from 0.691 to 0.862. All the item to total correlation was found to be above 0.45, but however certain items namely CPI1, NAP1, NAP6, and IP3 were removed as it was found to increase the Cronbach's alpha value.

The scale was further subjected to exploratory factor analysis, using principal component analysis and varimax rotation, Kaiser normalization method without specifying the number of factors to be extracted. The Kaiser-Meyer-Olkin Measure of Sampling Adequacy was 0.818. Data sets with MSA values above 0.80 are considered to be appropriate for factor analysis (Hair et al., 1998). The results depicted the existence of eight factor structures as originally reported by the authors of this scale.

The factor loadings obtained from the EFA were further considered to test the dimensions and to eliminate items which showed poor performance. The items loading less than 0.5 on any factor was eliminated namely IQ4, II4, II5, II6, AF1, AF6, C5. Factor analysis was carried out once again after removing the items. The result of the second round of factor analysis are shown in the table 1. The Kaiser-Meyer-Olkin Measure of Sampling Adequacy was found to be 0.818.

5.2 Final Study

The final scale with 27 items for service quality and 6 item for satisfaction and 3 items for behavioral intentions and single item for overall service quality was filled by 216 students. EFA analysis supported the eight factor structure with KMO value 0.878. The solution explained 72.628 of the variance among the items supported the eight factor structure. CFA was performed to assess the model fitness, Path analysis was used to ascertain the relationship between the variables.

Table 1: KMO and Bartlett's Test Pilot study

KMO and Bartlett's Test- Pilot Study-Sample Size n = 42		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.818
Bartlett's Test of Sphericity	Approx. Chi-Square	999.617
	df	276
	Sig.	.000

Table 2: Rotated component matrix final study

	Component							
	1	2	3	4	5	6	7	8
NAP3	.870							
NAP4	.814							
NAP2	.758							
NAP5	.743							
IQ2		.824						
IQ1		.780						
IQ3		.731						
IQ5		.664						
CP3			.784					
CP2			.714					
CP4			.676					
II2				.823				
II1				.764				
II3				.691				
AF4					.733			
AF3					.664			
AF5					.660			
AF2					.590			
C3						.787		
C2						.713		
C1						.564		
C4						.554		
SF2							.786	
SF3							.738	
SF1							.689	
IP1								.328
IP2								.781

Extraction Method: Principal Component Analysis.
 Rotation Method: Varimax with Kaiser Normalization.

Table 3: KMO and Bartlett's Test Final study

KMO and Bartlett's Test- sample size n=216		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.878	
Bartlett's Test of Sphericity	Approx. Chi-Square	3218.208
	df	351
	Sig.	.000

5.2.1 Multivariate analysis

Regression was used to test the research hypothesis. Eight independent factors of service quality was regressed against the dependent variable overall service quality. The path weights of the factors Interaction quality, Curriculum, Campus and Industry interaction were found to be significant at $p < 0.01$. Also the path weights of all the other factors were found to be significant at $p < 0.05$ (refer Table 4). Impact of all the eight factors on service quality was found to be positively significant. However, interestingly, the strength and magnitude of influence of Interaction quality ($\beta=.469$, $t =7.828$, $p = 0.000$), and Curriculum ($\beta= .278$, $t =7.828$ $p = 0.008$) was found much higher than the other factors indicating the perceived importance of those factors on service quality in higher education. Further the impact of overall service quality on satisfaction and the impact of satisfaction on Behavioral intentions was found to be positively significant at $p < 0.01$. Thus the Research hypothesis 1 (overall service quality has positive influence on satisfaction) and Research hypothesis 2 (Satisfaction has positive influence on Behavioral intentions to recommend) were supported.

Table 4: Standardized Regression Weights

Path	Standardized Coefficients Beta	t	Sig.	Supported or not
OSQ → Satisfaction	0.634	11.988	0.000**	supported
Non-Academic Process → OSQ	0.117	1.854	0.015*	supported
Interaction Quality → OSQ	0.469	7.828	0.000**	supported
Academic Facilities → OSQ	0.151	1.765	0.045*	supported
Curriculum → OSQ	0.278	2.687	0.008**	supported
Campus → OSQ	0.195	1.413	0.009**	supported
Industry Interaction → OSQ	0.219	1.332	0.005**	supported
Support Facilities → OSQ	0.114	1.885	0.011*	supported
Input Quality → OSQ	0.104	-1.018	0.021*	supported
Satisfaction → Behavioral intentions	0.788	18.752	0.000**	supported

In the table 5, the Adjusted R² value for the path Service quality dimensions -> OSQ was found to be 0.510 indicating that the eight factors could explain the 51% of total variance in the dependent variable Service quality. Table 5 shows that the model is found to be significant, ($F=28.936$, $p = 0.000$), indicating that there is strong evidence to reject the default null hypothesis of multiple regression model (model does not have any predictive power). Thus the regression model is found to have a strong and significant predictive power.

In the model summary output i.e. table 5, the Adjusted R² value for the path OSQ --> satisfaction was found to be 0.399 indicating that the construct service quality could explain the 39.9% of total variance in the dependent variable Satisfaction. Table 5 also shows that the model is found to be significant, ($F=143.723$, $p =0.000$), indicating that there is strong evidence to reject the default null hypothesis of multiple regression model (model does not have any predictive power). Thus the regression model is found to have a strong and significant predictive power.

Table 5: Multivariate analysis table

Path	R	R square	Adjusted R square	F	Sig
Service quality dimensions-> OSQ	.727 ^a	0.528	0.51	28.936	.000 ^a
OSQ --> satisfaction	.634 ^b	0.402	0.399	143.723	.000 ^b
Satisfaction -> Behavioral intentions	.788 ^c	0.622	0.62	351.639	.000 ^c
a. Dependent variable: overall service quality; Predictors: (constant), non-academic process, interaction quality, academic facilities, curriculum, campus, industry interaction, support facilities, input quality					
b. Dependent variable: Satisfaction; Predictors: (constant), overall service quality					
c. Dependent variable: Behavioral intentions; Predictors: (constant), satisfaction					

In the table 5, the Adjusted R² value for the path Satisfaction --> Behavioral intentions was found to be 0.620 indicating that the construct service quality could explain the 62.0% of total variance in the dependent variable Behavioral intentions. Table 5 shows that the model is found to be significant, (F=351.639, p =0.000), indicating that there is strong evidence to reject the default null hypothesis of multiple regression model (i.e. model does not have any predictive power). Thus the regression model is found to have a strong and significant predictive power.

5.2.2 Confirmatory Factor Analysis and Path Analysis

Path analysis was used to analyze the causal relationship between the variables. The indices namely model chi-square (Bollen, 1989), Root Mean Square error of approximation (Steiger & Lind, 1980), Comparative fit index (Bentler, 1990), Goodness of fit (Steiger & Lind, 1980), were used to judge the model fit.

Twenty seven independent variables obtained from the pilot study were subjected to SEM using AMOS 17.0 package to assess whether the measurement variables reflects the latent factor structure hypothesized earlier (Non-Academic Process, Interaction Quality, Academic Facilities, Curriculum, Campus, Industry Interaction, Support Facilities, Input Quality).

Figure 3 represents the visual depiction of the factor structure obtained through AMOS version 17.0. The initial model gave the following fit indices

CMIN	Df	CMIN/df	GFI	TLI	NFI	CFI	RMSEA
822	370	2.22	0.894	0.901	0.895	.914	0.075

Further based on the following output opportunities were sought to improve the model fit by co varying the error variances among the common factors. This was particularly carried out as GFI (0.894), TLI (0.901), NFI (0.895), RMSEA (0.075) are unacceptable and showing relatively poor fit. In this regard, e7 and e8 under the common factor interaction quality, e12 and e13, under the common factor academic facilities, e16 and e17, under the common factor Curriculum, were co-varied (refer to figure 1 path analysis model).

Post these actions, path analytic structure showed improved fit indices.

CMIN	Df	CMIN/df	GFI	TLI	NFI	CFI	RMSEA
734.1	367	2.00	0.918	0.944	0.929	0.954	0.051

The measurement model obtained through Confirmatory Factor Analysis indicated a good fit to the data. Any value of the chi-square/degree of freedom ranging from one to three is considered to be acceptable (Carmines & McIver, 1981). The RMSEA

value obtained was found to be 0.051 which is < 0.08 which indicates close approximation fit. Values between 0.08 and 0.10 would suggest reasonable error of approximation and values greater than 0.10 would suggest poor fit (Browne & Cudeck, 1992). The CFI value was found to be 0.954, CFI values > 0.90 is accepted to be reasonably good fit (Hu & Bentler, 1995).

5.3 Discussion

It is evident that service quality plays a key role in predicting student satisfaction & subsequently shaping their behavioral intentions. Of the eight identified dimensions service quality dimensions three were found to be most significant and influential that being Interaction quality, Curriculum and Industry interaction. It is worthwhile to note that irrespective of the other dimensions being on offer, students still feel that quality of teaching and the interaction at classroom quality of the content on which the course is designed and the opportunities to actively interact with industry and experts from the industry through guest lectures, internship, on the job training, workshops plays a key role in student satisfaction.

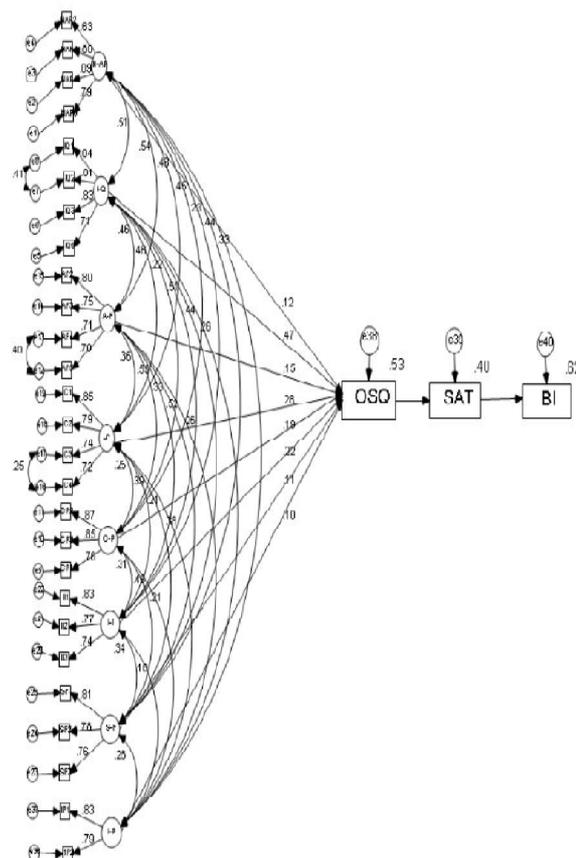


Fig.1. Path Analytic Model

In this regard, it is advisable for educators to critically examine how best the students learn and inculcate such information into service delivery to improve the overall quality of the learning process. Postgraduate

students in management expect curriculum to be relevant and updated with the industry needs. Academic Institutions should establish partnerships with industries to promote frequent interactions and immersion programs in the form of live projects, training, workshops to bridge the gap between theoretical knowledge and applied practice. It has been observed that one of the main drawback of higher education system in India is its' failure to inculcate job related skill sets among the graduates (Upadhy, C., 2007; Arunachalam, P., 2010; Shinde, V. V., & Inamdar, S. S., 2013; *Aspiring Minds*, 2014) Such industrial interactions will enhance the chances of employability of graduates. If universities take into consideration these specific expectations of students and devise the curriculum and courses in such a way that it caters to industry requirement then the possibility of students being industry ready by the time of their course completion and thereby reducing the chances of unemployability. Thus the higher education institution should become more student oriented and employer relevant to tackle the problems of unemployability.

CONCLUSIONS

The purpose of this study was to empirically establish and validate the relationship between service quality, student satisfaction and behavioral intentions to recommend the institute to others. All the hypothesis were empirically supported. The study also brings out interesting deductions about the relative importance of different dimensions of service quality in higher education. Study holds implication for practitioners who can frame their management strategies and tactics to redesign the various aspects of service delivery, thereby ensuring that institutions would stay competitive in the current saturated market environment.

LIMITATIONS AND FUTURE RESEARCH

The study was confined to the postgraduate students in management stream from South India hence findings may not be generalizable. Future studies can focus on replicating the identified model across different streams of higher education to ascertain the validity. It may also be worthwhile to bring in the perceptions of other stake holders like administrators, educators and parents in the future studies. Finally, in future researchers could initiate comparative studies between public and private sector educational institutions' to gain further insights into service quality dimensions and its impact on student satisfaction and other allied outcomes.

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