

## REVISITING STUDENT SATISFACTION THROUGH SERVQUAL: PRIVATE TERTIARY EDUCATION PERSPECTIVE

Dr. Abu Rashed Osman<sup>1</sup>, Dr. James Bakul Sarkar<sup>1</sup>, and Engr. Md. Shafiul Islam<sup>2</sup>

<sup>1</sup>School of Business & Economics, United International University, Dhaka Bangladesh

<sup>2</sup>Deputy General Manager (Factory In-Charge) Transworld Bicycle Co. Ltd. Gazipur, Dhaka, Bangladesh

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**ABSTRACT:** *The objective of the study is to explore the relationship between the SERVQUAL dimensions of service quality and student satisfaction. Factor analysis, multiple regression, t-test, and ANOVA were employed to analyze data. A sample size of 119 was gathered from four private universities in Dhaka and respondents were students. Finally, 117 were found suitable for analysis. The study reveals that responsiveness, assurance, empathy, and student quality have significant influence on student satisfaction. Among these, assurance illustrated the strongest influence on student satisfaction followed by empathy and student quality. These findings can be valuable inputs for academic leaders to enhance student satisfaction. In this endeavor, student quality is being incorporated as an additional dimension of SERVQUAL. This realistic contribution may modify academic leaders to think in a progressive way in assessing student satisfaction in future. Finally, the study discloses that overall service quality has a positive significant influence on student satisfaction.*

**KEYWORDS:** Service Quality, Student Satisfaction, Higher Education, Student Quality.

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### INTRODUCTION

In the 1990s the government realized the need for setting up private universities as it was clear that the public universities in Bangladesh would not be able to meet the increasing demand for higher education. According to the Private University Act-1992, so far 82 universities are providing higher education and most of them are located in Dhaka city (UGC: 2015). Only five to ten private universities are performing better out of 82 private universities and competing with leading public universities (Haque, 2014).

Private universities are growing fast. However, majority of the university are not maintaining quality education due to the non-compliance with the legal requirements, absence of admission test and examination policies, non-transparent financial management, lack of adequate number of full time faculty, lack of proper infrastructure, insufficient laboratory and library facilities, absence of co-curricular and extra-curricular activities and a commercial bias in decision making. The growth of the private universities must be regulated both in terms of their quantity and quality (Monem & Baniamin, 2010). In this study, focus is given on student satisfaction through the service quality dimensions and its measurement to find out the demerits of higher education to ensure quality education in Bangladesh private university perspective.

Today's students are quality sensitive and student perception of quality is an important factor towards any program of higher education. Therefore, to determine which dimensions of service quality are dominating student satisfaction in private university context of Bangladesh. Student (customer) satisfaction is the leading concern for determining the quality that is actually

delivered to students through educational services (Vavra, 1997). In recent times, student satisfaction has gained much attention and has become one of the foremost goals of all higher educational institutions (Temizer & Turkyilmaz, 2012). Student satisfaction is defined as the satisfaction of students with their overall educational experience (Arambewla & Hall, 2013). The growing importance on student satisfaction has been driven by the fact that greater student satisfaction can direct to a stronger competitive position, which will attract new students and maintain the existing ones. In fact, student satisfaction has been acknowledged to be a critical indication of word-of-mouth, retention and loyalty (Temizer & Turkyilmaz, 2012). Undoubtedly, as primary customers, student satisfaction is critical to the existence of any higher educational institution (Ibrahim, Rahman, & Yasin, 2014). Most of the available studies on the subject matter have been conducted in Western educational context (Parahoo, Harvey, & Tamim, 2013). In particular, these studies were conducted in countries, such as the UK and USA (Li, 2005; Maggs, 2014), Australia (Arambewla & Hall, 2008), the Netherlands (Kleijn, Meijer, Pilot, & Brekelmans, 2013; Mainhard, Rijst, & Tartwijk, 2009), and the Gulf region (Parahoo et al., 2013), where both the culture and climate are significantly different from those of the Southeast Asian Countries. Hence, the generalizability of their findings to the context of the current study is arguable.

A little research has been done incorporating 'student quality' dimension to measure students' satisfaction. This gap inspired authors to investigate whether there is any positive relationship between student quality and student satisfaction. Additionally, study concerning student satisfaction in the context of private higher education of Bangladesh is limited. In this study SERVQUAL tool has been implemented to assess student satisfaction due to its enormous popularity.

## LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

### Service Quality

Service quality encompasses more than one dimension (Sumaedi *et al.* 2012b; Lin et al, 2011; Clemes *et al.*, 2008). Gronroos (1982) has proposed two dimensions of service quality, which are technical and functional quality. According to Rust and Oliver (1994) service product, service delivery, and service environment are three service quality dimensions. Parasuraman *et al.* (1985, 1988, 1991) identified the following five generic dimensions of service quality that must be present in the service delivery in order for it to result in customer satisfaction and these are *tangibility, responsiveness, reliability, assurance, and empathy*. They claimed that SERVQUAL was a concise, multiple-item scale with good reliability and validity that retailers can use to better understand the service expectations and perceptions of consumers, and as a result, improve service. Sureschander *et al.* (2001) stated that there is good evidence that the original 22 items are good predictors of service quality in its entirety. Indeed, Parasuraman *et al.* (1991, p. 445) recommended that 'since SERVQUAL is the basic "skeleton" underlying service quality; it should be used in its entirety as much as possible. While minor modifications in the wording of items to adapt them to specific setting are appropriate, deletions of items could affect the integrity of the scale and cast doubt on whether the reduced scale fully captures service quality. To date, the Parasuraman *et al.* (1988) dimensions are the most popular and accepted service quality dimensions (Markovic & Rasper, 2010; Landrum et al, 2009). In this study, items have been adopted based on SERVQUAL scales to measure all the five dimensions. Moreover, 'student quality' an additional dimension has been added to measure

the input quality of students and intention to explore the impact of '*student quality*' on student satisfaction. This is one of the rare attempts to explore in higher education perspective.

### Service quality and Satisfaction

Gi-Du and Jeffrey (2004) found that there is a positive relationship between overall service quality and customer satisfaction (beta value = 0.41) in the context of cell phone services in Europe. Taylor *et al.* (1993) in a cross-sectional study have found that service quality dimensions positively influenced satisfaction in sports environment. Nicholas *et al.* (2001) found that there is a statistically positive correlation of all five service-quality dimensions with satisfaction and the study also indicated that service-quality dimensions significantly predicted 40 percent of the variation in overall satisfaction. Reliability and tangibles (competence) seemed to exert the strongest influence on satisfaction followed by responsiveness. Lentell (2000) found a positive correlation among three service-quality dimensions and overall satisfaction and also reported that perceptions of service quality predicted a significant variance in satisfaction responses. Still most researchers have not coincided at a single point about a definition of service quality. However, most would agree with the general proposition put forward by Rust and Oliver (1994) that service quality is "... a comparison to excellence in service encounters, by the customers". Most of the researchers claimed that the process of forming perceptions of service quality is mainly cognitive. In contrast, customer satisfaction judgments are influenced by both cognitive and affective elements (Taylor, 1997). Oliver (1997) defined satisfaction as the consumer's "fulfillment response". Some researchers have proposed a causal link from customer satisfaction to service quality (Bitner, 1990), whereas others have proposed a causal link in the opposite direction (Bolton & Drew, 1991). Dabholkar (1995) stated that the direction of this relationship varies according to the service situation. Iglesias and Guillen (2004) found in their study that perceived service quality has a direct and positive impact on the level of customer satisfaction (beta coefficient = 0.509, significant at  $p=0.001$  level) in respect of restaurant customers. Ambrose *et al.* (2014) stated that service quality has positive impact on customer satisfaction (beta coefficient = 0.396,  $p < 0.05$ ) SMEs in Kenya. Wen *et al.* (2005) and Lai and Chen (2010) examined the relationship between service quality and customer satisfaction in public transport service. They revealed that service quality has a positive effect on customer satisfaction. The study of Sumaedi *et al.* (2011) found that service quality positively influence customer satisfaction in higher education service. Lien and Yu's (2001) research results showed that service quality affects customer satisfaction in telecommunication industries. Another study conducted by Clemes *et al.* (2008) confirmed that there is a significant relationship of service quality with customer satisfaction in airlines industry. Wang and Shieh (2006) found that service quality has positive impact on customer satisfaction in library services context. Cristina *et al.* (2013) found in their study that *competence* has significant and positive impact on perceived service quality in higher education environment (beta value = 0.447, t-value = 2.256, significant at  $p < 0.05$  level). Here, it is indicating that service quality is a consequence of student satisfaction. Bakti and Sumaedi (2013) found that *tangible* dimension explained 55.483% variation in the context of library services. That means, this dimension is very important to consider in assessing student satisfaction.

Gilbert and Harry (2013) stated that service quality is significantly related with customer satisfaction (beta coefficient = 0.64, significant at  $p < 0.05$  level) and found that *reliability* dimension has the greatest gap value means that expectation was high while the perception of service quality was low. Thus, it can be noted that customer satisfaction is less on *reliability*

dimension. Wang and Shieh (2006) found that all five dimensions of service quality are significantly related on overall satisfaction except *responsiveness*.

Cristina *et al.* (2013) found in their study that *empathy* has significant and positive impact on perceived service quality in higher education environment (beta value = 0.386, t-value = 1.843, significant at  $p < 0.05$  level). That means a high degree of empathy lead to a higher level of perceived quality.) Wang and Shieh (2006) found in their study that *empathy* has the strongest influence on satisfaction (beta value = 0.867) followed by *reliability* and *tangibles*. From the above discussions, hypotheses can be drawn in this manner:

**H1:** There is a significant positive relationship between overall service quality and student satisfaction.

H<sub>1.1</sub>: There is a significant positive relationship between tangibles and satisfaction.

H<sub>1.2</sub>: There is a significant positive relationship between responsiveness and satisfaction.

H<sub>1.3</sub>: There is a significant positive relationship between reliability and satisfaction.

H<sub>1.4</sub>: There is a significant positive relationship between empathy and satisfaction.

H<sub>1.5</sub>: There is a significant positive relationship between assurance and satisfaction.

### **Customer Satisfaction**

Fornell, Johnson, Anderson, Cha, and Bryant (1996) operationalized the definition under six dimensions these are customer expectations, perceived quality, perceived value, ACSI (American Customer Satisfaction Index) customer complaints, and customer loyalty. Customer expectations were measured by three items such as overall expectations, expectations regarding customization and expectations regarding reliability. Perceived quality is operationalized through three measures such as overall evaluation of quality experience, evaluation of customization experience and evaluation of reliability experience. Perceived value is measured through two items such as rating of quality given price and rating of price given quality. Overall customer satisfaction was operationalized through three measures such as an overall rating of satisfaction, the degree to which performance falls short of or exceeds expectations and rating of performance. Customer complaints were measured by whether a customer had complained either formally or informally. Customer loyalty was operationalized through three items such as repurchase likelihood, price tolerance (increase) given repurchase, and price tolerance (decrease) to persuade repurchase. Authors used 15 items under six dimensions of customer satisfaction. In this study, total 10 items have been adopted from Fornell *et al.* (1996) to measure the student satisfaction (DV). Service quality is perceived as a component of customer satisfaction (Kiran, 2011). Some studies have identified service quality as an antecedent of customer satisfaction (Ganguli & Roy, 2011, Pollack, 2009). In this study, service quality has considered as an antecedent of customer satisfaction.

### **Student Quality and Satisfaction**

Quality of students and faculty refer to input quality (Sohail & sheikh, 2004; Sohney *et al.*, 2006). Input quality has been accepted by researchers as an important determinant for service quality (Owlia & Aspinwell, 1998; Shaney *et al.* 2004). Biggs (1993) pointed out that quality of students is the presage variable but items are not suggested. In this study, admission test, difficulty of admission test, GPA, competitive admission and international English test

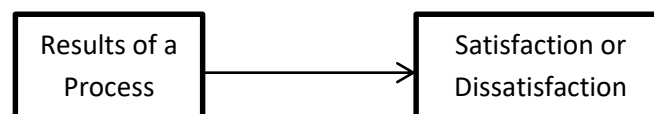
requirements have been chosen to measure the student quality. Therefore, hypotheses can be drawn in this manner:

**H<sub>1.6</sub>:** There is a significant positive relationship between student quality and student satisfaction.

### **THEORETICAL UNDERPINNINGS AND CONCEPTUAL MODEL**

The construction of this research model was established based on the essence of The Equity Theory. The Equity Theory was developed by John Stacey Adams in 1963. It debates that customer satisfaction occurs when a given party realizes that the fraction of the outcomes of a process is somehow attuned with inputs as expense, time, and effort (Oliver & Desarbo, 1988). Apparently, The Equity Theory has received a wide-ranging acknowledgement in recent times in clarifying customer behavior and customer satisfaction (Grigoroudis & Siskos, 2010). In addition, Hoyer and MacInnis (2008) further detailed out that this theory is appropriate in the study of marketing because it aids in giving perceptions for understanding customer satisfaction and dissatisfaction. This declaration has been strongly reinforced by Yuan, Qian, and Zhou (2010).

**Figure 1:** The Equity Theory of Customer Satisfaction

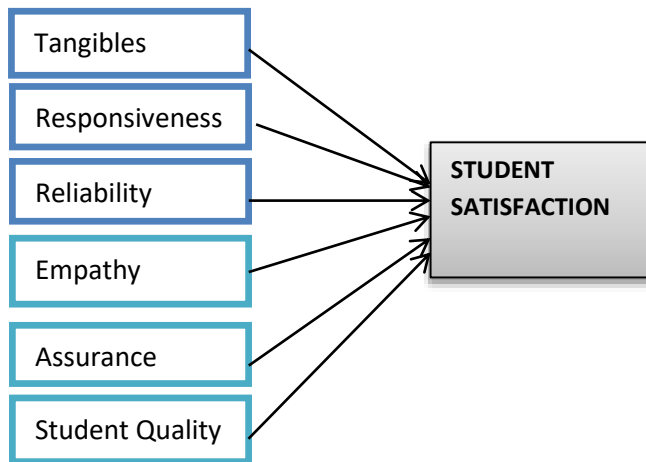


*Source: Oliver and Desarbo (1988)*

In a higher education environment, results of a process are related to numerous outcomes such as service quality, program quality, placement, image of the institution, competent graduate, employability rate, quality research outcomes, quality academic materials, industrial link, international recognition etc. These results of a process are not confined to particular factors or to a particular situation. They are diverse in nature therefore applicability of the Equity Theory is universal in explaining customer behavior and satisfaction. In this proposed model, considering the relationship between service quality dimensions and student satisfaction, it can be enlightened that when students enroll in a university, they need to go through various service processes and earn different kinds of experience. Therefore, their perception towards that experience would result in either satisfaction or dissatisfaction. Meanwhile, dissatisfaction may occur when students perceive that their desires are not met. The conceptual framework demonstrates (see Figure 2) how independent variables are influencing satisfaction of students in private university context of Bangladesh.



### Service Quality Dimensions



**Figure 2:** Conceptual model of student satisfaction

## RESEARCH METHODS

### Sample and Sampling Procedure

In this study, 140 questionnaires have been distributed for data collection and four private universities have been selected from Dhanmondi region of Dhaka city. These are United International University, Daffodil International University, University of Liberal Arts, and Stamford University Bangladesh. Total eight universities are operating in this region and four universities are selected for this study due to their popularity among students.

A *proportionate random sampling* procedure was chosen in this study. This sampling method improves the representativeness of the sample by reducing sampling error (Chang *et al.*, 2010). A total of 119 samples were collected for this study through convenient approach and respondent rate is 85.00 percent. In total 119 questionnaires, 117 found useable. Therefore, total sample for this study is 117. The respondents in this study are undergraduate business students. The proportionate sampling technique has been used to minimize the sampling bias. To determine the proportionate sample size for each university with the target sample size 140, the number of elements for each university was divided by the total elements and then multiplied by target sample size.

**Table 1:** Population Frame and Sample Size

Institution	Population	Sample Size
United International University (UIU)	7,104	30
Daffodil International University	13,679	57
University of Liberal Arts (ULAB)	4,201	18
Stamford University	10,787	35

*Source:* UGC (2014) Annual Report, University Grant Commission

## Instrument

Service quality was measured using SERVQUAL consisting of 22 items represent five dimensions and student quality consisting of 5 items. These are as follows:

- Tangibles: 5 items
- Responsibility: 4 items
- Reliability: 4 items
- Empathy: 4 items
- Assurance: 5 items
- Student quality: 5 items

The independent variable 'student quality' has been included as a part of service quality dimension to measure student satisfaction in this study and comprising 5 self-construct items based on admission test, difficulty of admission, GPA, competitive admission and International English Test requirements. Sahney *et al.* (2006) suggested 'student quality' variable but did not suggested items associated to it. Osman and Ashraf (2014) incorporated 'student quality' with single item measurement. Realizing the inadequacy of items in 'student quality' this study suggested multi-items (five items) for assessing student satisfaction. Four items remained and one item deleted due to the low factor loading. Four items average Cronbach's Alpha is 0.707 which demonstrated reliability of instrument. According to Hair *et al.* (2006), the lower limit value of Cronbach's Alpha is 0.70 and it may decrease to 0.60 for exploratory research.

All 27 items of the scale are perception-performance statements. The instrument does not include any expectation criteria, in contrast to the suggestions of other researchers (Parasuraman *et al.*, 1988; Carman, 1990). In support of the use of perception-performance measurements, Cronin and Taylor (1992) suggested that such measurements are a better indicator of overall service quality than expectation-performance measurements. In addition, Boulding *et al.* (1993) found that only perceptions of the service quality influence overall service quality. Respondents were instructed to indicate the extent of their agreement with each item using a five-point scale ranging from "strongly agree"(1) to "strongly disagree" (5). Fornell *et al.* (1996) used 15 items under six dimensions of customer satisfaction. In this study, total 10 items have been adopted from Fornell *et al.* (1996) to measure the student satisfaction.

## Internal Consistency

The internal consistency of measures is an indicative of the homogeneity of the items in the measure that fit the construct. The most popular test of inter-item consistency reliability is the Cronbach's coefficient alpha which is used for multipoint-scaled items. The higher the coefficients, the better the measuring instrument (Sekaran, 2003). The present study finds Cronbach's alpha value ranging from 0.419 to 0.906 for 7 variables comprising 34 items in the construct. The lowest Cronbach's alpha is 0.419 under 'competence' dimension and ultimately which is eliminated from this study due to low Cronbach alpha (see Table 2). Zikmund *et al.* (2010) mentioned that scales with a coefficient alpha between 0.70 and 0.80 are considered to have good reliability.

## Factor Analysis

Factor analysis is a data reduction technique to ensure internal consistency. In this study data reduction technique is used to enhance consistency. Total six items from six independent variables are excluded based on cut-off point less than 0.50. Hair *et al.* (2010) mentioned that if sample size is 120 then cut-off point is 0.50. In this study, sample size is 117 thus cut-off point 0.50 is selected. These are as follows:

- \* Tan5 = my institution is maintaining safe and secured environment
  - \* Rel 1 = my institution is providing reliable services in time
  - \* Rel4 = faculty members are always adherent to course objectives
  - \* Em2 = faculties are exposing personal attention to students
  - \* Assu6 = my teachers are assessing bias free grade
  - \* Stu4 = my institution is requiring international test such as TOEFL, IELTS, ACT, SAT etc.
- After reduction of items from various dimensions above, remained items are listed below:

**TABLE 1:** Items after Reduction

Independent Variables and Items	Factor Loading	Total % of Variance Explained
<b>Tangibles:</b>		31.003
1. Excellent physical facilities	0.733	
2. Faculty knowledge, skills and abilities	0.674	
<b>Responsiveness:</b>		8.755
1. Staff interested to solve problems	0.889	
2. Staffs are cooperative	0.808	
3. Caring attitude of staffs	0.785	
<b>Reliability:</b>		7.090
1. Experienced faculty	0.643	
2. Sufficient faculty	0.749	
3. Faculty reliable behavior	0.630	
<b>Empathy:</b>		6.322
1. Faculty's teaching ability	0.521	
2. Faculty shows willingness to help students	0.568	
3. Faculties are polite and courteous	0.508	
4. Faculties are showing respect	0.846	
5. Concern about students' understanding	0.692	
6. Faculties are showing caring attitude	0.669	
<b>Assurance:</b>		5.580
1. Fairly and firmly enforced rules	0.681	
2. Curriculum relevant to subject	0.673	
3. Updated course curriculum	0.831	
4. Maintaining semester schedule	0.766	
5. Class duration and number of classes	0.726	
6. Completing course according to course outlines	0.720	
<b>Student Quality:</b>		4.294
1. Conducting admission test	0.517	



2. Difficulty of admission	0.806	
3. Requiring high GPA	0.716	
4. Maintaining competitive admission	0.660	
SATISFACTION:		
1. Satisfied with counseling hours	0.748	
2. Continue here until graduation	0.768	
3. Quality education met my expectations	0.710	
4. Willing to recommend friends	0.650	
5. Education is worthy to build-up career	0.637	
6. Gives value to students' needs	0.676	
7. Culture is suitable for earning knowledge	0.610	
8. Encourages industrial attachment	0.838	
9. Good linkage with local industries	0.895	
10. Feel proud of my institution	0.668	

**Note:** A factor loading indicates how strongly correlated a measured variable is with that factor.

**TABLE 2:** Reliability Statistics

Factor	Cronbach's Alpha	Number of Items
Tangibles	<b>0.419</b>	2
Responsiveness	0.836	3
Reliability	0.654	3
Empathy	0.831	6
Assurance	0.873	6
Student Quality	0.707	4
Satisfaction	0.906	10

**Note:** Alpha value for *tangibles* is found 0.419 which is less than 0.60 thus this factor is ignored for further analysis: Zikmund *et al.* (2010) mentioned that alpha value less than 0.60 represents poor reliability.

## DATA ANALYSIS

The below listed tables are representing the data analysis outcomes for this study.

**TABLE 3:** Descriptive analysis

N = 117	Mini	Maxi	Mean	Std. Deviation
1. Tangibles	1	5	4.08	0.988
2. Responsiveness	1	5	3.65	1.011
3. Reliability	1	5	4.13	0.783
4. Empathy	1	5	4.16	0.768
5. Assurance	1	5	4.20	0.843
6. Student quality	1	5	3.62	0.973
7. Student satisfaction	1	5	3.81	1.006

**TABLE 4:** t- test Results

Factor	Gender	N	Mean	Mean Difference	Sig.(2-tailed)	T
Responsiveness	Male	67	3.5129	-0.3379	0.04	-
	Female	49	3.8503			2.074*
Reliability	Male	67	4.1095	-0.06062	0.60	-0.526
	Female	49	4.1701			
Empathy	Male	67	4.0398	-0.09285	0.419	-0.811
	Female	49	4.1327			
Assurance	Male	67	4.1692	-0.24921	0.036	-
	Female	49	4.4184			2.120*
Student Quality	Male	67	3.5821	-0.11689	0.390	-0.862
	Female	49	3.6990			
Satisfaction	Male	67	3.6090	-0.47472	0.001*	-
	Female	49	4.0837			3.531*

**Note:**\*Significant at  $p \leq 0.05$ . The study can conclude that there is a significant mean difference

between male and female on responsiveness, assurance, and satisfaction factors.

**TABLE 5 ANOVA:** Different Levels of Students (first, second, third, and fourth year students)

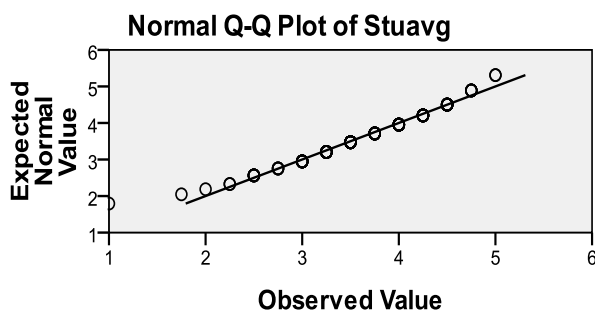
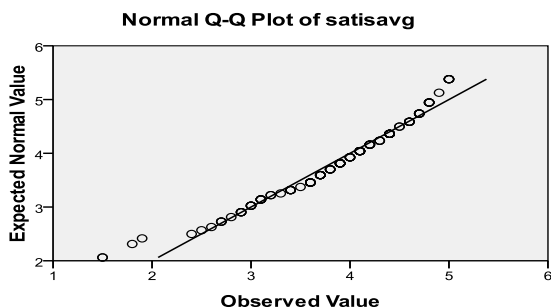
Variables	Sum of Squares	Df	Mean Squares	F	Sig.
Satisfaction					
• Between groups	11.680	4	2.920	6.151*	0.000*
• Within group	53.170	112	0.475		
• Total	64.851	116			
Student Quality					
• Between groups	2.302	4	0.576	1.121	0.350
• Within group	57.525	112	0.514		
• Total	59.827	116			
Assurance					
• Between groups	4.807	4	1.202	3.240*	0.015*
• Within group	41.544	112	0.371		
• Total	46.351	116			
Empathy					
• Between groups	4.426	4	1.106	3.243*	0.015*
• Within group	38.215	112	0.341		
• Total	42.641	116			
Reliability					
	3.910	4	0.977		

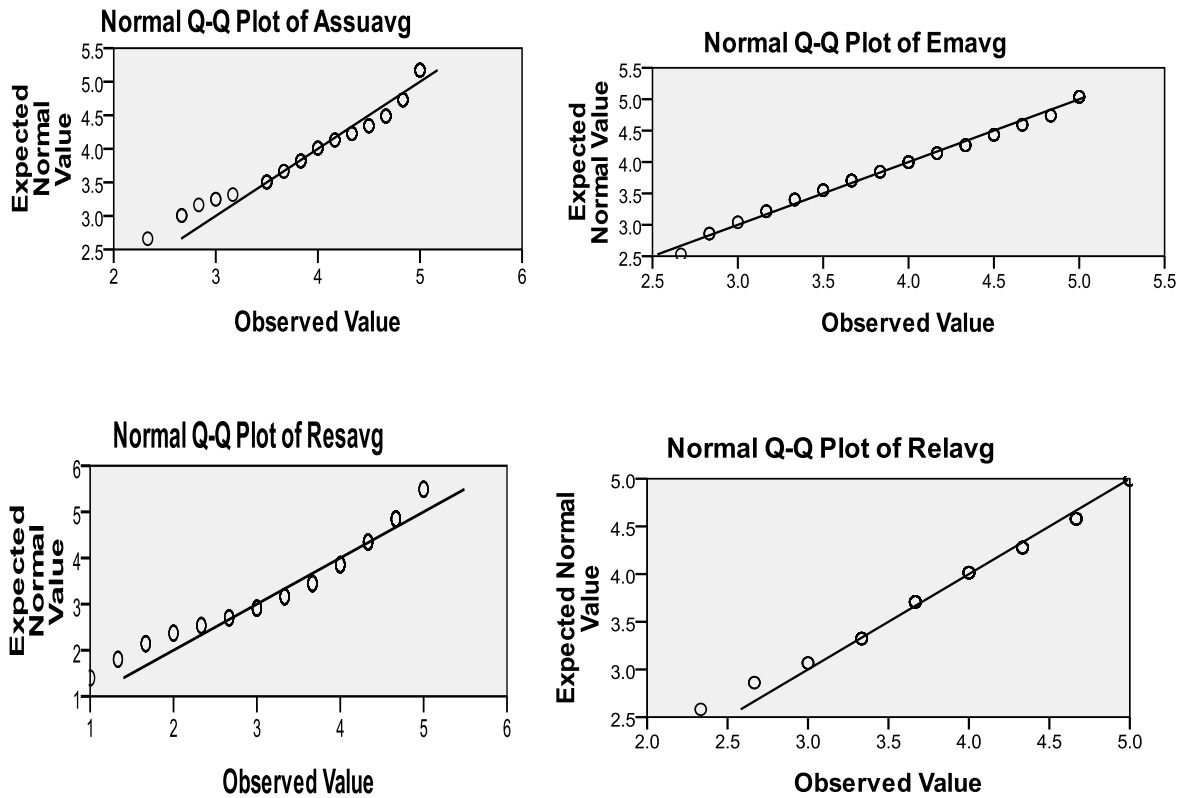
<ul style="list-style-type: none"> <li>• Between groups</li> <li>• Within group</li> <li>• Total</li> </ul>	39.255 43.164	112 116	0.350	2.789 *	0.030 *
Responsiveness	7.985 81.857	4 112	1.996 0.731	2.731 *	0.033 *
<ul style="list-style-type: none"> <li>• Between groups</li> <li>• Within group</li> <li>• Total</li> </ul>	7.985 81.857 89.842	4 112 116	1.996 0.731	2.731 *	0.033 *

\*Significant at  $p < 0.05$ .

### Normality Test

Q-Q Plot (Quintile- Quintile Plot): To Check Normality: Q-Q plot is a plot of the percentiles (quintiles) of a standard normal distribution against the corresponding percentiles of the observed data. If the observations follow approximately a normal distribution, the resulting plot should be roughly a straight line with a possible slope. If the data is normally distributed, the points will fall on the 45-degree reference line. If the data is not normally distributed, the points will deviate from the reference line. The Q-Q plot should be linear. Observing the graphs listed below, study found that data is normally distributed because they are showing straight lines with positive slopes.





**Multiple Regression**

$R^2 = 0.559$  means that **55.9 %** of variation in dependent variable (student satisfaction) is explained by the independent variables.

**Table 6 ANOVA: Regression Output**

Model	Sum of Squares	Df	Mean Square	F	Sig
<b>Regression</b>	36.232	5	7.246	28.106	.000 <sup>a</sup>
<b>Residual</b>	28.618	111	0.258		
<b>Total</b>	64.851	116			

a. Predictors: (constant), Stu, Res, Rel, Assu, Emp. Significant<sup>a</sup> at p = 0.000 level

b. Dependent variable: Satisfaction.

**TABLE 7: Coefficients & Collinearity**

Independent variables	t value	Sig.	Standardized Coefficients, Beta	Collinearity Statistics VIF
<b>Responsiveness</b>	2.519*	0.013*	0.173	1.182
<b>Reliability</b>	1.216	0.227	0.088	1.333
<b>Empathy</b>	3.204*	0.002*	0.263	1.690

<b>Assurance</b>	3.822*	0.000*	0.304	1.590
<b>Student Quality</b>	3.156*	0.002*	0.221	1.230

Note: \*Significant at  $p < 0.05$

### Regression: Overall Service Quality

The study found through the statistical analysis,  $R = 0.724$ , and adjusted  $R^2 = 0.510$ . Here, 51.0% of variation in dependent variable (student satisfaction) is explained by the independent variable (overall service quality).

TABLE 8: ANOVA

Model	Sum of Squares	Df	Mean Square	F	Sig
<b>Regression</b>	34.062	5	34.062	114.686	.000 <sup>a</sup>
<b>Residual</b>	30.789	111	0.297		
<b>Total</b>	64.851	116			

- Predictor: (constant), Overall Service quality. Significant<sup>a</sup> at  $p = 0.000$  level
- Dependent variable: Satisfaction.

### BRIEF DISCUSSION

Alpha value (Cronbach's alpha) for *tangibles* factor is found 0.419 which is less than 0.60 thus it indicates poor reliability. Therefore, this factor is eliminated from the study. Other factors' alpha value found 0.65 and above thus good reliability is ensured and kept them for further analysis.

Descriptive statistics showed that the highest mean average (4.26) is related with *assurance* factor and in this factor two items completing course according to course outlines and class duration and number of classes rated highest. The lowest mean average score (3.62) is related with *student quality* factor, indicates that student quality is in between agree and neutral. Another high mean score (4.13) achiever factor is *reliability* and in this factor item such as 'experienced faculty' rating is very high and means that students are more positive about this item. The results on satisfaction factor with highest and lowest score items are: continue until graduation (mean =4.22) and good linkage with local industries (mean = 3.06) respectively.

In *student quality* dimension, the lowest score item is "requiring high GPA" (mean =3.19). It indicates that university authorities are not demanding for high GPA for admission test. To improve the student quality, the university definitely needs to attract good students to maintain quality education. Better inputs mean better outcomes. This simple logic can bring huge positive changes in higher education. Ultimately, better input creates image of the institutions which is invaluable asset for sustainability and contributions for mankind. Nguyen and LeBlanc (1998) specified that the level of satisfaction derived from each service meeting is viewed as having an effect on image assessments.

To improve the satisfaction level of students, private universities should focus on maintaining good relationships with local industries and encouraging & managing them with industrial

attachment in local or multinational organizations. The university authorities should put extra efforts to maintain and improve quality education. Rajani *et al.* (2013) mentioned that “*industrial interaction*” is accounted for 8.028 percent of the variance in their study. The three items defined this factor such as; summer internships, industrial tours and guest lecturers from industry experts with factor loadings 0.811, 0.798, and 0.705 respectively. The study also demonstrated that *industry interaction* is positively correlated with overall service quality (t-statistic = 3.1, significant at 0.05 level). Thus, it will be ultimately responsible for student satisfaction.

T-test results showed that female students were more satisfied than male students. Mean value of female students is 4.08 and male students is 3.6. It signifies male students are more demanding than female students in terms of quality education. Ho (null) hypothesis is rejected because p value is less than  $\alpha$  value (0.05). So, study can conclude that there is a significant mean difference between male and female on satisfaction factor.

Table 5 showed that mean score of *satisfaction, student quality, assurance, empathy, reliability, and responsiveness* were not equal based on different levels of students’ response. Ho is rejected because p value is less than 0.05. Except *student quality*, all others are significant on different levels of students’ response. Different levels of students have different types of expectations and experiences thus their mean scores on various factors would be different which is very natural. The study also revealed that first-year students were more satisfied than other higher levels of students.

Multiple regression revealed that  $R^2 = 0.559$ , it means that 55.9% variation is in dependent variable (satisfaction) is explained by the independent variables in this study. F test is highly significant because  $F=28.106$ , significant at 0.000 level (Table 6). Thus, independent variables (student quality, responsiveness, reliability, assurance and empathy) explained a large portion of the variance in the dependent variable (satisfaction).

### Results of Hypothesis (Dimension Wise)

H<sub>1.1</sub> is eliminated due to poor reliability ( $\alpha = 0.419$ ). Rest of the hypotheses explained below:

**H<sub>1.2</sub>: Significant:** So, there is a significant relationship between responsiveness and satisfaction: Here, beta = 0.173 and  $p < 0.05$ .

**H<sub>1.3</sub>: Not significant:** So, there is no significant relationship between reliability and satisfaction. Here, beta = 0.088 and  $p > 0.05$ .

**H<sub>1.4</sub>: Significant:** So, there is a significant relationship between assurance and satisfaction. Here, beta = 0.304 and  $p < 0.05$ .

**H<sub>1.5</sub>: Significant:** So, there is a significant relationship between empathy and satisfaction. Here, beta = 0.263 and  $p < 0.05$ .

**H<sub>1.6</sub>: Significant:** Therefore, there is a significant relationship between student quality and satisfaction. Here, beta = 0.221 and  $p < 0.05$ .

### Overall Result of Hypothesis

**H1: Significant:** So, there is a significant positive relationship between overall service quality and student satisfaction. Here, this result is consistent with few researchers (Gi-Du & Jeffrey,



2004; Sumaedi *et al.*, 2011; and Wang & Shieh, 2006). The largest beta value has the strongest influence on dependent variable. In this case, *assurance* showed the strongest influence on satisfaction (dependent variable). Other three independent variables, *empathy*, *student quality*, and *responsiveness* have also strong influence on dependent variable (satisfaction). According to VIF scores, there is no collinearity is found among dimensions of SERVQUAL because all VIF value is less than 5 (Zikmund *et al.*, p-487, 2010). The study also disclosed that ‘*reliability*’ had no influence on satisfaction (Table 7).

## CONCLUSION

The study intended to explore the relationship between various dimensions of service quality and student satisfaction. The study specified that there was a significant relationship between all service quality dimensions and student satisfaction except ‘*reliability*’ dimension. The study also revealed that ‘*assurance*’ had the strongest influence on satisfaction followed by ‘*empathy*’ and ‘*student quality*’. Multiple regression dictated that ( $R^2=0.559$ ) 55.9 percent variation is in dependent variable (satisfaction) was explained by the independent variables in this study. F-test ( $F=28.106$ , at  $p=0.000$  level) is found highly significant which means that five dimensions (*responsiveness*, *reliability*, *assurance*, *empathy*, and *student quality*) explained the large portion of the variance in the dependent variable (satisfaction). T-test results concluded that there was a significant mean difference between male and female on satisfaction factor. Female students are more satisfied than male students about service quality of education. ANOVA results showed that there was no variation among different levels of students on ‘*student quality*’ dimension. The study also found that there was a significant positive relationship between overall ‘*service quality*’ and student satisfaction (see Table 8). The concluding remark is that the dimensions of service quality are significantly related to student satisfaction except ‘*reliability*’ in higher education context of Bangladesh and university authority must pay attention more on *assurance*, *empathy*, *student quality*, and *responsiveness* dimensions of service quality to ensure student satisfaction and competitive advantages.

## Limitations and future research

The research contains some limitations such as it is conducted in private-university perspective at Dhaka city only and sample size is not large enough to generalize the results in higher education environment. Moreover, the study included only four private universities from Dhaka city in total of 82 universities in entire country and respondents are undergraduate business students only. It is suggested that the future study should incorporate more universities from entire country with sufficient samples including different areas of study in order to generalize the research results. The study is also encouraging researchers to study in different countries in different times. In addition, it would be worthy if institutional image is considered for mediating variable in the construct of service quality and student satisfaction in future.

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