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## EXPLORING MEDIATING ROLE OF INSTITUTIONAL IMAGE THROUGH A COMPLETE STRUCTURAL EQUATION MODELING (SEM): A PERSPECTIVE OF HIGHER EDUCATION

**Abstract:** *The prime objective of this study is to investigate the mediating role of institutional image between student satisfaction, program quality, and service quality in the context of higher education. To attain this aim, the Nordic model was used as theoretical foundation of the study. The Structural Equation Modeling (SEM) was used to analyze the influence of mediating variable and hypotheses testing. The population of this study was fourth-year business students of nine 'grade one' private universities in Bangladesh. Data (n=310) were gathered from students pursuing studies at different private universities in Bangladesh. The findings of this study revealed that image occupied full mediation role between student satisfaction and service quality. Furthermore, it also disclosed that the direct path of student satisfaction and service quality was not statistically significant. These exceptional findings indicate that academic experts should promote the institutional image, student satisfaction and program quality rigorously in order to enhance service quality of education. The outcomes of this study would provide substantial benefits to both practitioners and academics, especially in the context of private higher education. There is a deficiency of indirect link between student satisfaction, program quality and service quality. This study has integrated institutional image as a mediating variable to fulfill the deficiency between student satisfaction, program quality, and service quality.*

**Keywords:** *Service quality, Program quality, Institutional image, Student satisfaction*

### 1. Introduction

Nowadays, quality becomes a vital leading factor to the organization to grasp, reinforce,

and sustain its competitiveness (Magd et al., 2003). Numerous past studies have found that service excellence has a meaningful affirmative correlation with customer satisfaction (Hanief et al., 2010; Yunus et al., 2010). In a higher education setting, service quality becomes a significant factor due to rigorous rivalry among universities, cross-

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border image, high demands of higher education, higher program fees, and the segmentation of higher studies treated as a commercial service (Kwek et al, 2010). Service quality is generally evaluated by students' perceptions because the argument is that students are the primary customers of higher education (Sakhivel et al., 2005). Students ensure service quality before choosing a university to avoid uncertainty and high risk (Donaldson & McNicholas, 2004, p.349). Therefore, insufficient knowledge of dealing students, and nonexistence of service quality measurement device, will finally bring the demerits of the institution. This consequence has been visualized by Sines and Duckworth (1994, p.2) who concluded that "it is an unfavorable situation for tertiary level institutions to face two facts: they are in an aggressive fight for students, and students are users".

Tertiary level institutions are breeding centers for producing and dissemination of knowledge. However, the quality of higher studies is not visible in the universities of Bangladesh and gradually getting worse (UGC, 2004). Rouf, Habibullah, and Islam (2015) conducted a study in Bangladesh private university perspective to explore the level of quality education and revealed that respondents' satisfaction status was poor regarding campus facilities, lab, and library services. Researchers also pointed out that a few non-government institutions are quality focused and rests of them are far away from quality education. Furthermore, Mohsin and Kamal (2012) posited in their study that the quality of both government and non-government higher educational institutions of Bangladesh have been at a miserable stage. The rank of Bangladesh is 146<sup>th</sup>, according to the Human Development Index (HDI) in the world with compared to Singapore and Malaysia which are 26<sup>th</sup> and 61<sup>th</sup> position according to HDI, 2011. The Human Development Index (HDI) is an integrated statistic of lifespan, education, and earnings per person indicators, which are considered to nominate countries into four

levels of human development. Over last two decades, the general view of educational scholars and other interested party is that the quality of higher education in Bangladesh has been worsening steadily and in particular areas pretty terrifyingly (Salahuddin & Aminuzzaman, 2011). Significant growth of both the government and private universities have observed, but the quality of higher studies is not meeting the satisfaction level compared to nearby countries. Not a single institution of Bangladesh has occupied in the list of topmost 400 world's finest universities (U.S. News & World Report, 2011). In connection with this discussion, it is clear that performance of the private and public universities is not satisfactory due to poor quality education services.

The purpose of this study is the representation of indirect relationship between student satisfaction, program quality and service quality. This is a rare effort in the context of private higher education. Most of the studies have shown direct assessment of service quality (Abili et al., 2012; Asaduzzaman et al., 2013; Dib & Alnazer, 2013; Hishamuddin et al., 2008; Gruber et al., 2010; I-Ming et al., 2006; Malik et al., 2010; and Sapri et al., 2000). So there is a clear deficiency of indirect link of student satisfaction, program quality and service quality of higher education. To mitigate this deficiency, the priority has been given on institutional image and considered as a mediating variable in this respect. Several scholars (Hu et al., 2009; Johnson et al., 2001; Omar et al., 2013; and Parvez & Ho, 2012) recommended that student satisfaction was responsible for creating institutional image. Chitty, Ward, and Chua (2007) further stressed that organizational image does not appear to have been extensively researched in what its relationship with other variables directly/indirectly.

The design for this paper is as follows: first, the theories are concisely reviewed, as are the relevant literatures on the variables enlisted in the framework. Next, the research

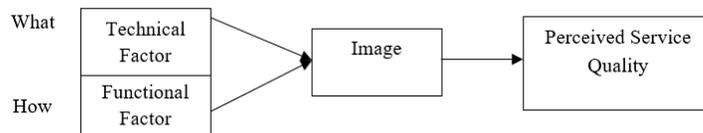
model and hypotheses are presented, followed by a discussion of the research method and findings from the data analyses. A discussion of the meaning of the results and their implications ends the paper.

## 2. Theoretical underpinnings

The relevant underpinning theory is the ‘Service Quality Model’ developed by Gronroos (1984) and it is also known as the Nordic Model. The model was developed and tested in 1981 on a sample consisting of a Swedish service firm’s executives. The Nordic model is the first attempt which measures quality of service (Ghotbabadi, Baharun & Feiz, 2012). This early conceptualization has been constructed by Grönroos (1982, 1984). According to Grönroos (1982, 1984), service quality is defined by two variables: the ‘technical or outcome variable’ and the ‘functional or process related concept’. The ‘technical dimension’, refers to what the customers receive from the service process, the latter, the ‘functional dimension’, refers to how the

customers receive and experience the service process which are mediated by the image factor. In addition, Kang and James (2004) suggested that image functions as a filter in service quality perception.

This model is reflected to be a general framework which is not restricted to only two measures of quality because there is no general agreement as to the nature or content of service quality dimensions (Brady & Cronin, 2001). Nevertheless, there is a general viewpoint that service quality is a multidimensional or multi- attribute construct (Kang & James, 2004; Grönroos, 1990 and Parasuraman et al.1985, 1988). While the contemporary studies on service quality seemingly focused on the process of service delivery, additional aspects to be considered have already been suggested, especially by European scholars. For instance, Grönroos (1990) and Brady & Cronin (2001) noted that the quality of a service perceived by customers has three dimensions: functional or process dimension, technical or outcome dimension and image.



**Figure 1.** The Nordic Model of Service Quality, **Source:** Grönroos (1984)

## 3. Literature review

### 3.1. Service quality

Service quality is acknowledged as a critical characteristic for creating and sustaining relationship with customers (Park et al., 2006). Since it has noteworthy significance on customer satisfaction thus this construct has valued as a major influential factor of organization’s success or failure in a competitive environment (Lin et al., 2009). Surprisingly, several studies have highlighted the importance of service quality in educational institutions (Pereda, Airey &

Bennett, 2007; Shkarhizadeh et al., 2011; and Annamdevula & Bellamkonda, 2012). Parasuraman et al. (1985) developed SERVQUAL (gap model), an extensively recognized instrument for measuring service quality. On the other hand, the SERVPERF (purely-performance measure) another popular device was developed by Cronin and Taylor (1992). They debated that SERVPERF explains a greater extent of variance in a complete measure of service quality than does SERVQUAL. As a result of the less predictable power of SERVQUAL model, this study deployed

SERVPERF model to curtail the shortcoming.

### 3.2. Student satisfaction

In reality, students' satisfaction is directly linked to university reputation and image which is aligned towards perceived service quality of education in the higher education sector as a whole (Osman & Ashraf, 2014). In recent times, Weerasinghe and Farnando (2017) define students' satisfaction as: "a short-term attitude resulting from an evaluation of students' educational experience, services and facilities". Satisfaction is an emotional reflection to a product or service experience (Spreng & Singh, 1993). The satisfaction perception has been stretched in recent times to the perspective of higher education. A limited number of researches suggest that student satisfaction is a difficult concept, comprising of multiple items (Richardson, 2005). Student satisfaction is evaluated by students' expectations and their perception about quality of services provided (Babaei et al., 2015). When students are satisfied, they produce optimistic views about the institution and feel proud to endorse the same to other students. Originally, Parasuraman et al. (1985, 1988) recommended that perceived service quality is an antecedent to customer satisfaction. Quite reversely, Bitner (1990) and Bolton and Drew (1991) concluded that customer satisfaction is an antecedent to service quality. The current study incorporates student satisfaction as an antecedent to service quality in higher education.

### 3.3. Program quality

Program quality is an essential attributes of education in terms of service rendered to the students as well as institutional image of higher education for which talented international students are attracted to get that education service (Ashraf, Osman & Ratan, 2014; Osman & Ashraf, 2014). Hénard and

Roseveare (2012) suggested that higher education institutes have need of making sure that the service of education they offer confirm to the expectations of students. As quality program in higher education is imperative for student learning, higher education institutes' farsighted vision and proper strategy must be consistent with research and innovations in teaching and learning (Osman & Ashraf, 2014; Ashraf, Yusnidah & Joarder, 2009). Program quality is considered as a specific element that is broadly taken by many researchers. Several empirical studies made evidences that program quality had a positive correlation with service quality (Fernandes, Ross, & Meraj, 2013; Sahney et al., 2011; Sik, Gede, & Nur, 2012; Wilkins & Balakhishnan, 2013). The way it is stated earlier, program quality has an impact on service quality and it has been identified as an important dimension of service quality. The dimensions of program quality in the proposed model are characterized by the following four sub-dimensions: such as academic factor, curriculum and teaching method.

### 3.4. Institutional Image

In the perspective of Australian universities, Brown and Mazzarol (2009) revealed that student satisfaction is influenced by the apparent image of the institution. They equally indicated that an institution with a solid brand image will give students a superior advantage in the competitive market upon the completion of their studies and this in turns prompt satisfaction. The current literature is insufficient to describe the image formation processes in the context of higher education sector (Gallifa & Batalle, 2010). Student perception of university image is important as it summaries students' insights of the standing of a university in the market. Since university image is a guide to and a simple way for a student to evaluate its programs, service offered and overall value in the market (Parves & Ho, 2012).

Competitiveness is another aspect which is loaded with the value of image in the institutional level. Due to the growing competence in international education, institutions need to maintain and develop a distinctive image in order to reach a competitive advantage (Arambewela & Hall 2009). According to the Gestalt theory, university image is usually seen as a Gestalt or oneness and integrated whole which is often composed of ideas about faculty, the curriculum, the teaching quality and the tuition-quality relationship (Alves & Raposo, 2010). Arpan et al. (2003) found three stable factors influence university image: academic attributes, athletic attributes and news media coverage but only academic attributes were consistent across groups. One institution completely depends on its image in order to prosper and survive in the market (Gray &

Balmer, 1998). This is the time for institutions to create and nurture distinctive image to obtain a competitive advantage because constantly competition is increasing in the arena of tertiary education (Paramewaran & Glowacka, 1995).

#### 4. Research framework and hypotheses

The research model used in the study, presented in Figure 1, is based on the Nordic Model formulated by Grönroos (1984). In the model, dependent variable is service quality of education which is mediated by the institutional image for recognizing the influences of program quality and student satisfaction.

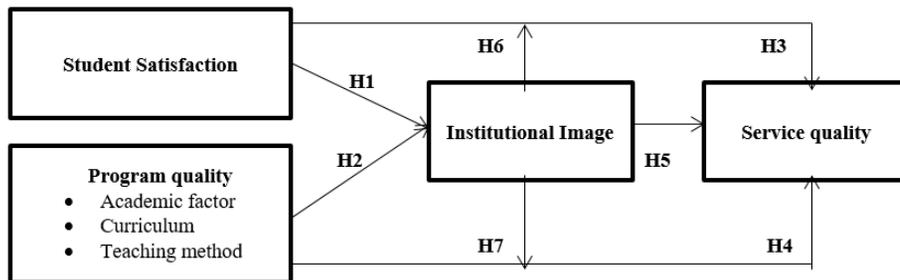


Figure 2. The Research Model of Service Quality

##### 4.1. Hypothesis development

- H1:** There is a significant positive relationship between student satisfaction and institutional image.
- H2:** There is a significant positive relationship between program quality and institutional image.
- H3:** There is a significant positive relationship between student satisfaction and service quality.
- H4:** There is a significant positive relationship between program quality and service quality.
- H5:** There is a significant positive relationship between institutional image and service quality.

- H6:** Institutional image mediates between student satisfaction and service quality.
- H7:** Institutional image mediates between program quality and service quality.

The seven hypotheses embodied in the model are listed below. The directionality stated in each hypothesis is derived from the prior literature about different variables and designed based on the primary structure of the Nordic model. As is stated earlier, student satisfaction has an important impact on image which subsequently impacts on service quality of education. The relationship between customer satisfaction and corporate image has been studied much extensively (Hegelsen & Nasset, 2007; Hu,

Kandampully & Juwaheer, 2009; Parvez & Ho, 2012). Hu et al. (2009) seek to identify the relationships that exist between service quality and perceived value and how they impact customer satisfaction, corporate image, and behavioral intentions. The proposed model indicates that delivering high quality service and creating superior customer value can result in achieve high customer satisfaction, thus influencing the firm's corporate image, and ultimately leading to consumer retention. It implies that the impact of customer satisfaction has a positive and significant effect on corporate image. Based on these studies, it is therefore hypothesized as:

**H1:** *Student satisfaction has a significant positive effect on institutional image.*

As is stated earlier, program quality has an important impact on image which subsequently impacts on service quality of education. Several empirical and conceptual analyses support the program quality dimension affecting institutional image available in the higher education literature (Abdullah, 2006; Ko & Pastore, 2005; Omar et al., 2013). Kassim, Najdawi, Azmeh, & Sadiq (2010) pointed out that academic program is extremely important because it is an obligatory component in constructing and enriching both the image and value of the institution. Furthermore, Osman and Ashraf (2014) found that life-time image of education is dominated by program quality in their recent study. Based on these studies, it is therefore hypothesized as:

**H2:** *Program quality has a significant positive effect on institutional image.*

The concept of quality/satisfaction processes working under various circumstances is particularly well established concerning physical goods (Cengiz, 2010; Tse & Wilton, 1998). However, not many studies have been performed to investigate if the parallel concept utilizes to services (Prabhakar & Ram, 2013). Bitner (1990) recommended that customer satisfaction

should be reflected as an antecedent of service quality. Quite the reverse, Parasuraman et al. (1985) and Cronin and Taylor (1992) stated that service quality should be placed before customer satisfaction. There is a common understanding among scholars that there is a relationship between service quality and customer satisfaction but what is unclear is the direction of this relationship. Therefore, researchers have visualized a unique privilege to revisit the relationship as a theoretical gap and the hypothesis can be drawn in this manner:

**H3:** *Student satisfaction has a significant positive effect on service quality.*

Superior program of study enriches students with up-to-date knowledge which leads to skills and experiences. Hence, it generates demand for college graduates in the job market and decreases lead time for getting a job. Several empirical studies made evidences that program quality had a positive correlation with service quality (Fernandes et al., 2013; Sahney et al., 2011; Sik et al., 2012; Wilkins & Balakhishnan, 2013). On this basis it is hypothesized that:

**H4:** *There is a significant positive relationship between program quality and service quality.*

Parves and Ho (2012) mentioned that student perception towards university image carried significant value, and it summarized students' perceptions about a university. Subsequently, image provides a right path in an effective way for a student to evaluate its entire program and services consumed in course of time. Institutional image is depicted as the common notion made in the minds of general people about an organization (Barich & Kotler, 1991). Furthermore, Sung and Yang (2008) stated that university image is the demonstrative of students' perception about a university as a whole. Therefore, hypothesis can be drawn in this manner:

**H5:** *There is a significant positive relationship between institutional image and service quality.*

#### 4.2. Mediating role of Institutional image

Image as a mediation variable is rarely explored in the construct of student satisfaction, program quality and service quality in higher education perspective. However, several researchers suggested that customer satisfaction has a significant positive influence on corporate image (Parvez & Ho, 2012; Hu et al., 2009; Hegelsen & Nettet 2007). In recent times, several researchers stressed that program quality has a significant positive impact on image of the institution (Omar et al., 2013; Kassim et al., 2010; Osman & Ashraf, 2014). A number of researchers posited that image has a significant positive impact on service quality (Parvez & Ho, 2012; Sung & Yang, 2008). Visualizing the above discussion, it is justified to construct two paths such as; *student satisfaction* → *image* → *service quality* and *program quality* → *image* → *service quality*. Therefore, image as a mediating variable is rightly positioned and well-justified to explore its impact on service quality of education and hypotheses can be drawn in this manner:

**H6:** *Institutional image mediates between student satisfaction and service quality.*

**H7:** *Institutional image mediates between program quality and service quality.*

### 5. Research Methods

#### 5.1. Research design

The target population was 5397 final-year students pursuing education in business management program at nine 'grade one' private universities in Bangladesh. According to the endorsement of Gay and Airasian (2003), if population go beyond 5,000 then sample size of 400 would be reasonably sufficient. Thus, a total of 450

samples were chosen through the systematic random sampling technique and 334 (74.22%) were returned. Three samples were eliminated due to the imperfect responses and left total useable samples of 310 after deleting 21 outliers according to Mahalanobi's distance ( $d_2$ ) and  $\chi^2 = 81.40$  cut-off point (Tabachnick & Fidell, 2007) in this study. The justification of systematic sampling was to let the respondents arrange for an equal opportunity to participate in this study. The research approach for this study is a quantitative method in nature and data was gathered through a self-regulated questionnaire. The study embraced a cross-sectional research design where the data were collected at single point in time (Sekaran & Bougie, 2013) from August 20, 2016 to October 26, 2016.

#### 5.2. Sampling frame

The sampling frame refers to an entire list of components in the population from which sample is collected. The population of this study was final year (fourth-year) students of business faculty at 'grade one' private universities in Bangladesh. There are in total 9 universities, six is in Dhaka city and the remaining three is in Chittagong city. The total number of fourth-year students in business faculty represents the population of this study. The 'grade one' private universities are nominated by the Ministry of Education of Bangladesh based on permanent campus which is the minimum requirements of University Grant Commission (UGC) of Bangladesh. The rest of the private universities fail to comply with the minimum requirements of University Grant Commission (UGC) of Bangladesh. Thus, selecting of 'grade one' private universities is logically justified because they have at least some endorsement from government side which others do not have. The selecting of business students in this study is justified since approximately 35.75 % students are pursuing business studies at 'nine grade one' private universities of

Bangladesh, and this is the highest student body compared to any program at ‘nine grade one’ private universities in Bangladesh (UGC, 2014). Furthermore, the last justification of selection regarding final year business students is that they are more

experienced with higher education system in general; thus, their perceptions are better to consider (Shakthival et al., 2005). The detailed of the population frame is shown in the Table 1.

**Table1.** Nine ‘Grade One’ Private Universities in Bangladesh

Name of the University	Number of Fourth-Year Students in Business School	Total Number of Students in Business School
North South University	2480	11000
Independent University	560	2845
BRAC University	635	3100
Ahsanullah University of Science & Technology	173	850
University of Science & Technology Chittagong	98	950
BGC Trust University Bangladesh	259	2147
International University of Business, Agriculture and Technology (IUBAT)	141	650
Bangladesh University of Business & Technology (BUBT)	572	4500
International Islamic University Chittagong	479	2050
	Total = 5397	Total = 20,894

Source: Registrar Office, November, 2015 through personal communication.

### 5.3. Research instrument

Service quality was operationalized based on the SERVPERF model proposed by Cronin and Taylor (1992). The construct was measured through five basic dimensions of service quality (i.e. tangibility, reliability, responsiveness, assurance, and empathy). Program quality was operationalized based on three dimensions, such as academic factors, curriculum, and teaching methods adapted from Angell et al., (2008); Kwan and Ng (1999); and Navarro et al., (2005) consisting of 18 items. Institutional image was assessed through six items adjusted from Turkyilmaz and Ozkan (2007). Student satisfaction was measured through eight items proposed by Sultan and Wong (2012) and Wilkins and Balakrishnan (2013).

Respondents have been asked to indicate their responses regarding their perceptions on the level of satisfaction, program quality, institutional image and service quality within their institutions on a five point scale

(ranging from 1-5, indicating strongly disagree to 1, indicating strongly agree to 5). A pilot test was conducted for the refinement of questionnaire and instrument’s reliability was confirmed through the Cronbach’s alpha. The results of Cronbach’s alpha for each construct was 0.938 (student satisfaction), 0.765 (service quality), 0.826 (program quality), and 0.890 (institutional image). The result of the pilot test ensured that the respondents understood the instruments well.

### 5.4. Reliability measures

Reliability is the estimation of a measurement to what extent a measurement is free of random or unstable error. Reliable instruments are strong and they perform well at different phases under diverse perspectives (Cooper & Schinder, 2006). The Cronbach's alpha was deployed to verify the inner stability of participants’ responses to the entire items in a measure (Sekaran,

2010). According to Hair et al. (2006), the lower limit value of Cronbach's alpha is 0.70 and it can be reduce to 0.60 for exploratory research. Thus, the Cronbach's alpha value

of 0.60 or higher was reflected for inner consistency in this study. The study found Cronbach's alpha value of 0.83 to 0.911 (See Table 2).

**Table 2.** Reliability, Validity, and Uni-dimensionality Assessment

Construct	Factor Loadings	Cronbach's Alpha	CR	AVE
Service Quality (SQ)		0.911	0.94	0.75
• Tangibility	0.73			
• Reliability	0.83			
• Responsibility	0.96			
• Assurance	0.86			
• Empathy	0.93			
Program Quality		0.911	0.95	0.87
• Academic factor	0.90			
• Curriculum	0.94			
• Teaching Method	0.95			
Institutional Image		0.830	0.77	0.53
• Img4	0.75			
• Img5	0.75			
• Img6	0.68			
Student Satisfaction		0.897	0.90	0.60
• Satis1	0.84			
• Satis2	0.81			
• Satis3	0.80			
• Satis4	0.79			
• Satis5	0.69			
• Satis8	0.72			

In this study, the validity is ensured through convergent validity. The convergent validity can be assessed through AVE. Fornell and Larcker (1981) recommended that reliable variables can have less than 50 percent explained variance (AVE). Hair et al. (2010) recommended that a threshold level of AVE for obtaining convergent validity is least 0.50. Thus, the study achieved the convergent validity constructed on the suggestion of Fornell and Larcker (1981), and Hair et al. (2010). The composite reliability is another measure of convergent validity. It indicates that the level to which a number of items unvaryingly indicate the hidden construct. The suggested value is 0.70 or bigger (Hair et al., 2010). The current study achieved the composite reliability because the value is from 0.77 to 0.95. The item loading for an item must be

0.60 or higher for previously proven scales to obtain the uni-dimensionality (Awang, 2012). In this study, item loadings under 0.6 were deleted one item at each time with the smallest value first. The process was continued until the uni-dimensionality was obtained.

**5.5. Discriminant validity**

According to the suggestion of Fornell-Larcker (1981), discriminant validity can be judged by matching the amount of the variance capture by the construct and the shared variance with other constructs. Several authors recommend a threshold value of correlation between two constructs 0.85 (Clark & Watson, 1995; and Kline, 2011), although others recommend a value of 0.90 (Gold, Malhotra & Segars, 2001; and

Teo, Srivastava, & Jiang, 2008) is acceptable for avoiding multicollinearity. In this study, correlation value 0.90 was considered to achieve discriminant validity. The

discriminant validity is attained because correlation value between two constructs is below the cut-off point (see Table 3).

**Table 3.** Correlations from AMOS Output

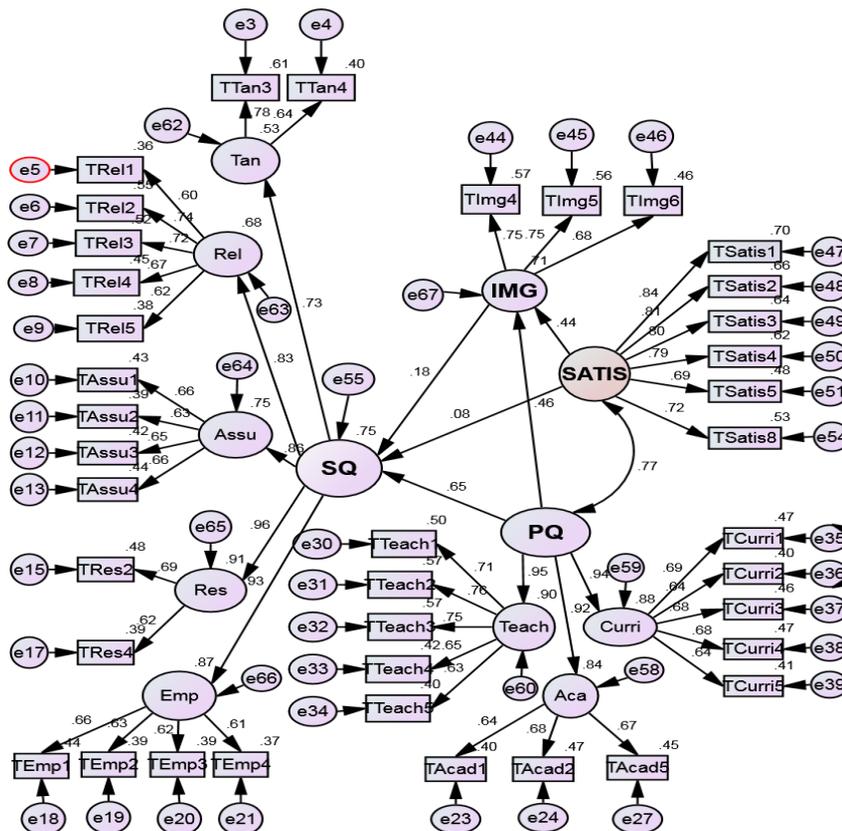
Construct	SQ	PQ	IMG	SATIS
SQ	1.00			
PQ	0.856	1.00		
IMG	0.763	0.796	1.00	
SATIS	0.723	0.768	0.793	1.00

## 6. Results

### 6.1. Confirmatory Factor Analysis (CFA)

It is an exceptional factor analysis tool. It has supremacy to ensure about a construct and its indicators are stable with the researcher's hypothesizing of the nature of that construct.

Before running the CFA for all constructs, uni-dimensionality, validity, and reliability must be achieved (Awang, 2012). In this study, uni-dimensionality, validity, and reliability have confirmed (see Table 2). The below listed structural fit model (Figure 3) is constructed after performing the CFA.



**Figure 3.** The Final Fit Model

### 6.2. Goodness of fit

This study provided a good fit of the research model to the data. The ratio  $\chi^2/df$  was 1.584, lower than the value of 5.0 as recommended by Hair et al. (2010) and Holmes-Smith (2006). Incremental fit indexes were higher than 0.90, with CFI of 0.927, and TLI of 0.922. In terms of absolute fit index, the RMSEA was 0.043 which is

lower than recommended value of 0.08. Together with these indexes, it is confirmed that the research model was a proper fit. Table 4 demonstrates the findings of the goodness of fit indexes listed below: According to the recommendation of Hair et al. (2010) and Holmes-Smith et al. (2006), at least one index from each category will ensure of model fit. Thus, the goodness of fit was confirmed in this study.

**Table 4.** The Assessment of Fitness of Final Fit Model (Figure 3)

Name of Category	Index	Acceptable Level	Comments
1. Absolute fit	RMSEA = 0.043	RMSEA < 0.08	Required level achieved
2. Incremental fit	CFI=0.927	CFI > 0.90	Required level is achieved
	TLI=0.922	TLI > 0.90	Required level is achieved
3. Parsimonious fit	Chisq/df= 1.584	< 5.0	Required level achieved

### 6.3. Status of hypothesis testing

In this study, seven hypothesizes were tested and their status is demonstrated below in Table 5. The Figure 4 represents the significance of direct and indirect paths. In

this study, mediation was tested according to the direction of Hair et al. (2010, p773). They proposed that if direct path is not significant and indirect paths are significant then full mediation is occurring.

**Table 5.** Results of Hypothesis

Hypothesis	Standardized beta Estimate	P Value	Results
<b>H1:</b> There is a significant positive relationship between student satisfaction and institutional image.	0.44	***	Significant
<b>H2:</b> There is a significant positive relationship between program quality and institutional image.	0.46	***	Significant
<b>H3:</b> There is a significant positive relationship between student satisfaction and service quality.	0.08	0.40	Not Significant
<b>H4:</b> There is a significant positive relationship between program quality and service quality.	0.65	***	Significant
<b>H5:</b> There is a significant positive relationship between institutional image and service quality	0.18	0.09*	Significant
<b>H6:</b> Institutional image mediates the relationship between student satisfaction and service quality.	Direct path is not significant (0.08) and indirect paths are significant.		Fully mediated
<b>H7:</b> Institutional image mediates the relationship between program quality and service quality.	Direct path is significant (0.65) and indirect paths are also significant.		Not mediated

**Note:** ns = not significant, p < 0.10\* and p < 0.001\*\*\*

According to the Table 5, hypothesis H1 is supported because direct path of student satisfaction and institutional image is statistically significant. Regarding Table 5, hypothesis H2 is supported because program

quality is showing statistically significant relationship with  $\beta$  value of 0.46 and p value at less than 0.001. Hypothesis H3 is not supported due to less  $\beta$  value and high p value. Hypothesis H4 is supported because

the  $\beta$  value is 0.65 and p value is less than 0.001. In respect of Table 5, hypothesis H5 is supported because  $\beta$  value is 0.18 and p value less than 0.10. Table 5 demonstrates that hypothesis H6 is supported by the study because direct path is not significant but indirect paths are significant. Eventually, Table 5 demonstrates that hypothesis H7 is not supported because direct and indirect paths are significant and not supported by

mediation rule of Hair et al. (2010). According to Figure 4, the study discloses that 71 percent variation in image is explained by student satisfaction and program quality representing  $\beta$  value 0.44 and 0.46 respectively at p value less than 0.001. Figure 4 further discloses that 75 percent variation in service quality is explained by institutional image.

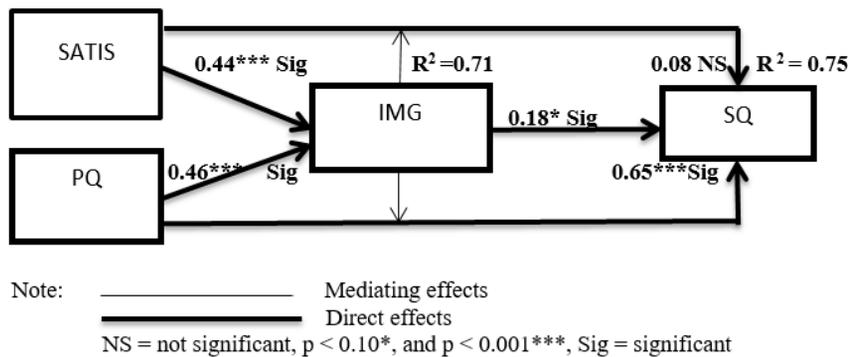


Figure 4. Evaluated Model of Service Quality

## 7. Discussion

Table 5 exposes that there is a significant positive relationship between student satisfaction and institutional image. Thus, hypothesis H1 is supported. This finding is consistent with (Jonine & Sharyn, 2013; Hu, Kandampully & Juwaheer, 2009; Parvez & Ho, 2012). Figure 4 indicates that student satisfaction is responsible for explaining the institutional image because  $\beta = 0.44$  and significant at  $p < 0.001$  level. Thus, management of higher education institutes should emphasize more on student satisfaction.

According to Table 5, the study disclosed a significant positive relationship between program quality and institutional image. Thus, hypothesis H2 is supported. This finding is consistent with (Omar et al., 2013; Kassim et al., 2010). Here, students strongly perceive that program quality has the power to influence institutional image. The  $\beta$  value (0.46) is also representing the same.

The study disclosed that there is no significant relationship between student satisfaction and service quality. Thus, hypothesis H3 is not supported and exposed as a rare finding. This result is inconsistent with a number of scholars (Hishamuddin et al., 2008; Bitner, 1990). Here, student satisfaction is not sufficient enough to influence service quality in perspective of private higher education in Bangladesh. Undoubtedly, some other direct or indirect contributing factors may perhaps responsible for influencing service quality.

Table 5 also demonstrated that there is a significant relationship between program quality and service quality. As a result, hypothesis H4 is sustained. This result is consistent with several scholars (Abdullah, 2006; Joseph & Joseph, 1997). The  $\beta$  value (0.65) is significant at  $p < 0.001$  level and indicating that program quality is the influential factor to explain service quality.

As demonstrated by Table 5, the study revealed that there is a significant

relationship between institutional image and service quality of education. Thus, hypothesis H5 is supported. This finding is consistent with (Parves & Ho, 2012; Sung & Yang, 2008). Furthermore, the Table 5 identified that institutional image mediates the relationship between student satisfaction and service quality thus hypothesis H6 is supported. Finally, the Table 5 disclosed that institutional image is incapable of mediating the relationship between program quality and service quality. Therefore, hypothesis H7 is not supported. The reality is that program quality significantly influencing service quality without intervention of image. According to the Figure 4, student satisfaction and program quality explained 71 percent variation in image means that these two factors are influential for explaining institutional image. Furthermore, institutional image explained 75 percent variation ( $R^2 = 0.75$ ) in service quality of education. Thus, this factor is an influential factor for explaining service quality and leaders of higher education should give more dedication to nurture this factor unceasingly for enhancing service quality.

## 8. Practical implications

Findings of this study indicate that academic experts should promote the institutional image, student satisfaction and program quality rigorously in order to enhance service quality of education. Practically, investigating service quality of education can provide valuable information for university marketers to develop marketing strategies in future. The outcomes of this study would also provide substantial benefits to both practitioners and academics, in order to ensure service quality of education.

## 9. Limitations

There are few inherent deficiencies detected in this study that need to be uncovered: Firstly, the study is concentrating absolutely in private-university perspective of

Bangladesh. Thus, generalization of the findings in tertiary education perspective is controversial. Secondly, the study integrated only 'grade one' nine private universities of Bangladesh. Henceforth, it is not wise to generalize the findings to other tertiary education environments in different areas or to separate business entities. Thirdly, the study focused final-year business students only thus the results of the study are still doubtful to generalize.

## 10. Conclusions

In conclusion, the study highlights the significance of institutional image and explores the mediating role between student satisfaction, program quality and service quality of education. The study reveals that institutional image completely mediating between student satisfaction and service quality of education. It signifies that student satisfaction exclusively unable to influence service quality of education. Mediating role of image exposed as a vital role for establishing service quality. In another instance, image fails to mediate between program quality and service quality because direct path of program quality and service quality is highly statistically significant. In addition, the study discloses significant positive relationship between student satisfaction, program quality and institutional image. Therefore, student satisfaction, program quality and institutional image are serious issues to consider for upholding service quality in higher education and this study reinforced these through the conceptual model of service quality. This study incorporates institutional image as a mediating variable, which is an exceptional endeavor in higher education for enriching existing body of literature. The study is concentrated absolutely in private-university perspective thus generalization of the findings is still controversial in nature and it is regarded as a major limitation. The study should be imitated in other parts of the world to earn

the validity of the model. There is a unique prospect to magnify the research further, focusing on other stakeholders of education, including schools, colleges, and vocational institutions, who perceive the identical quality improvement intentions.

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