CUSTOMER SATISFACTION IN MOBILE PHONE SERVICES IN BANGLADESH: A SURVEY RESEARCH

Assistant Professor Mohammed Belal Uddin
Comilla University, Bangladesh
Email: belal_137@yahoo.com
Assistant Professor Bilkis Akhter
University of Dhaka, Bangladesh
Email: bilkis_akhter@ yahoo.com

Abstract:
This study seeks to explore customer satisfaction and its influencing factors of the mobile phone operation industry in Bangladesh. Data were collected through a questionnaire survey form a diversified representative sample. An iterated factor analysis with principal component analysis (PCA) and structural equation modeling (SEM) including measurement model and structural model were applied to analyze data. The empirical results demonstrate that service quality and fair price have indirect influence on customer satisfaction of a mass service industry (i.e., mobile phone operators) through perceive value. Perceived value has mediating role between quality, charge fairness and satisfaction. Furthermore, result shows that fair price has positive direct impact on customer satisfaction, whereas, the results did not find any significant direct impact of service quality on customer satisfaction. Mobile phone operators are recommended to formulate operations and marketing strategies that focus on expectations of customers to enhance level of satisfaction. Similar industries may reveal similar relationship features in respect to these relationship constructs, if they are under similar category.

Keywords: Service quality, Price, Perceived value, Customer satisfaction, mobile phone service

Introduction

Mobile phone services are the fast growing services in telecommunication industry in Bangladesh. This sector is showing an inspiring growth in last few years. Land phone market has no competency to compete with mobile phone market. Land phone market faces some problems such as weak and inadequate infrastructure, corruption, long procedures, limited income of consumers etc. It is expected that Bangladesh will be the third biggest telecom market in Asia after China and India (Hasan, 2008). But mobile phone service charges in Bangladesh were high before 2005 because of weak regulatory systems, restricted openness, and concentrated market orientation. Effective regulation, more openness, and entrance of competitive firms including launching a new state-owned mobile phone service company foster competition in this sector since 2005. It is assumed that, currently the number of mobile phone subscriber is more than 46 million and expected it will cross 60 million by 2012 (Hasan, 2008).

Telecommunication sector of a country can tremendously affect the society with different products and services which is also true for Bangladesh. In Bangladesh, mobile phone operators are contributing a lot

with their services by the creation of value to the society. Citycell, GrameenPhone, Robi (Aktel), Banglalink, Teletalk (state-owned company), and Airtel(Warid) are the mobile phone service providers in Bangladesh. Citycell (Pacific Bangladesh Telecom Limited) is the first mobile phone operator of Bangladesh which, obtained a license in the name as Bangladesh Telecom Limited (BTL) to operate cellular, paging, and other wireless communication networks in 1989 and in 1990 a joint venture Hutchison Bangladesh Telecom Limited (HBTL) was incorporated. Citycell started its commercial operation from 1993. Ministry of Posts and Telecommunications of Bangladesh in November 28, 1996 gave license to Grameenphone and in March 26, 1997 Grameenphone launched its service. Grameenphone has built the largest cellular network in the country and introduced the pre-paid service in September 1999. Telecom Malaysia International (Bangladesh) commenced its operation in 1997 under the brand name Aktel which is a joint venture company between Axiata Group Berhad, Malaysia and NTT DOCOMO INC, Japan. The company changed its brand name Aktel with the brand name Robi on 28th March, 2008. Under the Companies Act, 1994, Teletalk Bangladesh Limited (the "Company") was incorporated on 26 December, 2004 as a public limited company. Bangladesh Government sponsored the company. In February 2005, Banglalink entered the telecommunication sector of Bangladesh and it became one of the fastest growing mobile operators. In July 2007, a joint venture between Abu Dhabi Group & SingTel Group named as Warid Telecom started its operation in Bangladesh. Later on its ownership has changed and now it is providing service with the name Airtel. All of these mobile phone operators in Bangladesh are competing with each other to capture a major portion of market share which is about 56.36 million subscribers.

Mobile phone operators provide voice service and value added services including SMS (short message service), MMS (multimedia message service), ringtone, games, electronic transaction, and web browsing etc. The improvement of service quality, perceived value, and satisfaction ensure customer loyalty (Kuo et al., 2009; Lai et al., 2009; Wu and Liang, 2009). These are the key source of success in the business and competitive advantage. Besides, voice services proving value added services are becoming great prospect for mobile phone service providers. Since the studies regarding service quality and customer satisfaction issues in telecom industry is limited and there is no available measurement scales for service quality, especially in Bangladesh, this study attempts to design the measurement scales for factors affecting customer satisfaction and for customer satisfaction itself. The objectives of this study are firstly, to recognize the influencing factors of customer satisfaction and post-purchase intentions. Secondly, to examine the interrelationship between customer satisfaction and influencing factors of satisfaction such as service quality, price, and perceived value. The result of this study has managerial and academic implications. Managers of mobile phone service providers can use the findings as sources of reference to manage their business and improve their service quality, and academicians can use the finding for application of service marketing field and further extension of this topic or related topics.

The rest of the paper is structured as follows. The next section provides the theoretical background and hypotheses (see Figure-1) of the study. The following two sections outline research methodology and offer statistical analysis and major findings of the study. The last section presents

discussion, theoretical and managerial implications, limitations of this study, and guidelines for further study.

Theoretical background and hypotheses development

Service quality

Service quality is the gap between customers' expectation and actual performance of a service (Parasuraman et al., 1985; 1988). Mentioning five dimensions such as tangibility, responsiveness, reliability, assurance, and empathy; Parasuraman et al., (1988) developed the SERVQUAL model. The conceptual framework and measurement method of this model have been heavily criticized by several scholars. In 1992, the alternative method, referred to as SERVPERF, was proposed by Cronin and Taylor. They argued that, to assess service quality, perception of customers regarding the performance of service provides better results than using SERVQUAL. Along with other researchers in 1994, Parasuraman et al. also mentioned that measurement method using SERVPERF is better than using SERVQUAL, though SERVQUAL can provides better diagnostic results of service quality. Service quality has a distinct constructs and distinguish features for different services. For instance, website service quality depends on usability, usefulness of content, adequacy of information, accessibility, and interaction (Yang et al., 2005). On the other hand, Kuo et al. (2009) proposed four dimensions of service quality of mobile value-added services including customer service and system reliability, navigation and visual design, content quality, and connection speed. Thus, this study will concentrate on perceived service quality of mobile phone services in Bangladesh.

Perceived value

Value is the quality or expectation in mind. Perceived value is the customers' psychological assessment regarding the product and service about the utility of that product or service comparing with expectation. Recently marketing researchers and managers are focusing on value perceptions as a key strategic component to explain customer satisfaction and loyalty (Lin and Wang, 2006). To assess value perception customers consider perceived benefits relative to sacrifice (Lee et al., 2007). Except monetary sacrifice perceived value assessment includes social psychological perspective and non monetary costs such as search cost, transaction cost, negotiation cost, and consumption of time (Kuo et al., 2009; Chen and Tsai, 2008). Purchasing some goods or services sometimes has some meaning that increases social status as well as value of the customers in the society. Customer desire to obtain or retain of any product or service is reflected by value perception. Value perception deals with the agreement of performance of product or service and the value system of customer (Neap and Celik, 1999). Thus, perceived value is a consumers' evaluation of perceived benefits with expectation and sacrifice.

Relationship between service quality and perceived value

With the consumption of any product or service customers have some benefits expectation based on their advance sacrifice of resources. Perceived value is the appraisal of the expected benefits with actual performance of the products or services. Several scholars examined association between service quality and perceived value in their studies (Hutchinson et al., 2009; Kuo et al., 2009; Lai et al., 2009; Wu and Liang, 2009). They found high service quality is correlated with high perceived value. Experience about service quality positively and significantly persuade perceived value of a customer (Chen

and Chen, 2010). By studying luxury hotel-restaurant industry in Taiwan Wu and Linag (2009) stated that, to increase customer experiential value hotel managers should emphasize on three quality aspects including service environment, employee service performance, and interaction with clients. Therefore, there exists a positive relationship between service quality aspect and experiential well as perceived value. Kuo et al. (2009), Lai et al. (2009), and Turel and Serenko (2006) studied relationship between service quality and perceived value along with other constructs in mobile phone service industry and found service quality positively motivate perceived value. Having influencing role of service quality also is an antecedent of value perceptions (Hutchinson et al., 2009). Thus, there is a positive relationship between customer perceptions of service quality and value perceptions, and service quality is the best predictor of perceived value. So, we posit:

H1: Service quality has positive influences on perceived value in mobile phone services.

Customer satisfaction

Customer satisfaction is the authentic expression of the status of satisfaction will differ from person to person and product/service to product/service and is an appraisal of how products and services of a company meet up or exceed customer anticipation. Satisfaction is the consequence of a number of both psychological and physical factors which associate with satisfaction behaviors. Kotler (2000) defined satisfaction as: “a person’s feeling of pleasure or disappointment resulting from comparing a product’s perceived performance (or outcome) in relation to his or her expectations”. Hokanson (1995) focuses on different factors affecting customer satisfaction and the factors are responsive employees, well-mannered employees, educated employees, cooperative employees, correctness of billing, billing relevance, competitive pricing, service feature, superior value, billing transparency and fast service. Alternative options and products/services available for a customer may create differences in satisfaction level. Organizations can accomplish customer satisfaction by satisfying their customers’ needs and wants (La Barbera and Mazursky, 1983). Customer Satisfaction is customers’ collective conception of a firm’s service performance (Johnson and Fornell, 1991). In case of mobile commerce, customer satisfaction is customer’s post-purchase appraisal and emotional response or reaction to the overall product or service familiarity in a mobile commerce environment (Lin and Wang, 2006).

Relationship between service quality and customer satisfaction

Customer satisfaction literature discusses about satisfaction model in marketing. According to the satisfaction model customer satisfaction is influenced by service quality. When customers get expected service quality, it leads to higher satisfaction (Hutchinson et al., 2009). The difference between customers’ expectations and the real performance is reflected as perceived service quality. The higher perceived performance has a positive association with higher perceived service quality. And expectation has a negative relationship with perceived service quality. So, perceived performance has direct and positive relationship with satisfaction (Chen, 2008). Tourists’ perceived experience quality influences positively and significantly both perceived value and satisfaction, in the tourism context (Chen and Chen, 2010). In the telecommunication context, service quality implies network quality which includes clarity of voice reproduction,

indoor and outdoor coverage, smoothness of connectivity along with effective delivery of other value added services (Gerpott et al., 2001). Service quality is the determinant of customer satisfaction (Cronin and Taylor, 1992) and by ensuring good service quality; telecom operators can enrich customer satisfaction (Kuo et al., 2009). A positive behavioral intention is the refection of satisfaction that is also influenced by service quality. A negative intention is the outcome of dissatisfaction that may arise from experiences of customers regarding service quality issue (Zeithaml et al., 1996). Gerpott et al. (2001), Kim et al. (2004), Kuo et al. (2009), and Lin and Wang (2006) studied telecommunication customer satisfaction aspects in Germany, Korea, Taiwan, and Taiwan respectively and found the positive relationship between service quality and customer satisfaction. Thus, we propose:

H2: Service quality has positive influences on customer satisfaction in mobile phone services.

Price

In finance price is termed as the amount of payment requested by the seller of goods or services. The ratio between two products exchanged quantity is defined as price from economic point of view. Price is determined by several factors such as willingness of the buyer to pay, willingness to accept, costs, markup, legal environment, intensity of competition price substitute products etc. For different product/brand quality price also varies and price has influence on economic performance of a product or brand quality (Etgar, 1981). Price fluctuations in many service industries results in price-performance and the level of price-performance stability moderates the relationship between performance potential and successive performance and satisfaction judgments. For consistency in price and performance, potentials have an incorporation effect on performance and satisfaction judgments and for inconsistency potentials have no effect on performance and satisfaction judgments (Voss et al., 1998). The perceived price fairness related to different levels intangible services has direct or indirect effect on customer loyalty in case of banks, auto repair and maintenance shops, and (gasoline) filling stations (Lien and Yu-Ching, 2006). Consumers' knowledge of prices may be affected by economic environmental factors such as interest rates, unemployment, inflation, country of study, and passage of time and GDP growth (Estelami et al., 2001).

Relationship between price and perceived value

Customers are always cost concern. They want such an exchange where benefits exceed the outlays (monetary and nonmonetary costs). Reduction of outlays related with purchasing process, is one the way to enhance perceived value (Chen and Hu, 2010). Customer value is a function of quality and price. It provides a competitive advantage when firms take cost-cutting imitative to ensure customer value (Spiteri and Dion, 2004). Real price competitiveness is an important determinant of customer value. Price satisfaction increases the value perception and there is a direct relationship between price and value (Ralston, 2003). Perceived value is influenced by price factors and non price factors. Monetary price includes advertised sale price, advertise reference price, shipment and handling charges. Whereas, searching costs, product or service evaluation, time effort etc. are included in nonmonetary price (Grewal et al., 2003). Monterey value is the part of value perception of customers. To capture market share, Chinese mobile phone operators provide competitive pricing strategies such as free offer and low charges. If

customers feel these offers are reasonable and acceptable, they perceive these offers as monetary value under their value perception (Deng et al., 2010). Customers may be highly price-conscious or less price-conscious. Highly price-conscious customers response quickly with price changes than that of less price-conscious customers, and price is a significant predictor of their value perception as well as repeat purchase behavior (Hidalgo et al., 2008). Price has an impact on customer buying behavior and value perception. Price needs special consideration to assess value perception of customers, not generalized along with other factors (Lockyer, 2005). Therefore, we propose:

H3: Fair price has positive influences on perceived value in mobile phone services.

Relationship between price and customer satisfaction

Customers' perception about price is that the forces of supply and demand determine the market price and they also consider that price is a pointer of product or service quality. Customer satisfaction is affected by the price awareness (Varki and Colgate, 2001; Iyer and Evanschitzky, 2006). Price level, value for money and special offers may result in both satisfaction and dissatisfaction and price fairness, price perceptibility and price processibility may result in dissatisfaction for customers (Zielke, 2008). In addition to the various levels of product price, a mixture of price awareness dimensions have potentiality to intimidate the customers' satisfaction (Diller, 2000; Matzler and Pramhas, 2004; Matzler et al., 2006). Perceptions of customers about price fairness have been major concern due to huge interest of mass people (Xia et al., 2004, Martin et al., 2009). When the price of a product or service is increased or decreased there is an instant response from the side of the customers in general. If the reasons for increase in price are indefensible then it can be treated as unfair by the customers (Xia et al., 2004; Campbell, 1999). The reason for an increase in price is reasonable if it is related to the factors external to the firm such as increase in supplier's price. On the other hand, reasons are inexcusable when the factors are internal to the firm such as increase in profit margin (Vaidyanathan and Aggarwal, 2003). Customers can be attracted to a retail store by using price and special promotions (Grewal, et al., 1998). Thus, we posit:

H4: Fair price has positive influences on customer satisfaction in mobile phone services.

Relationship between perceived value and customer satisfaction

Value judgments of customers have influence on satisfaction, and perceived value is considered as a powerful measure of customer satisfaction and post-purchase intentions. Recently marketing managers and researchers are focusing more on value judgments of customers. Transactional satisfaction and overall satisfaction are two types of customer satisfaction. Transactional satisfaction is related with particular buying judgment, whereas, overall satisfaction is related with overall experience and value judgment (Spiteri and Dion, 2004). Customer satisfaction is positively influenced by perceived value. The extent of satisfaction depends on extent of perceived value and higher level of perceived value lead to higher level of customer satisfaction (Kuo et al., 2009; Turel and Serenko, 2006). Customer satisfaction tends to positive post purchase behavior, thus, satisfaction playas a mediating role in the relationship of perceived value and behavioral intentions (Lin and Wang, 2006). Among the determinants of satisfaction perceived value is the

important one (Chen and Chen, 2010) and perceived value plays mediating role between service or product quality and customer satisfaction (Chen and Tsai, 2008). To achieve competitive advantages over the rivals firms try to satisfy customers, perceived value is considered as a crucial predictor of overall customer satisfaction. These value judgments of customers connect with customer post purchase behavior as desire to repurchase and word of mouth (Lee et al., 2007). Service quality and fair price both have significant, direct effects on perceived value. Then, perceived value influences on customer satisfaction that lead to positive behavioral intentions i.e. customer loyalty (Lai et al., 2009). Several research works (Kuo et al., 2009; Lai et al., 2009; Lin and Wang, 2006; Turel and Serenko, 2006) have been conducted on mobile phone voice services and value added services regarding customer satisfaction, and found a positive association between perceived value and customer satisfaction. Therefore, the following hypothesis is proposed.

H5: Perceived value has positive influences on customer satisfaction in mobile phone services.

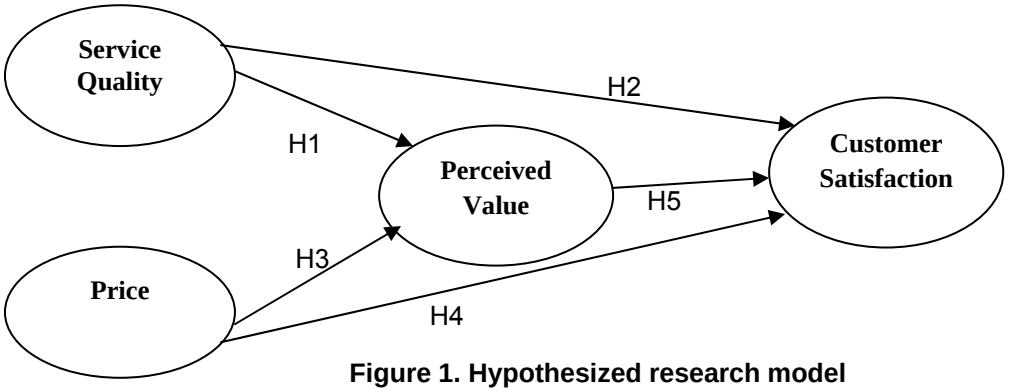


Figure 1. Hypothesized research model

Research methodology

Questionnaire design

The questionnaire was designed according to the existing literatures and experts' opinions. We have reviewed management, marketing (service marketing, relationship marketing, brand management etc.), and operations management literatures. Some items were directly adopted from previous survey instrument to operationalize the constructs in this study. Few new items also included in different constructs to get good response from data collection through survey. The questionnaire has two parts. The first part was intended to understand the personal information of respondents using nominal scale. The second part consists the perceptions of respondents regarding the constructs of the model. All constructs were measured using multiple items by a seven point Likert-type scale (1= strongly disagree, 2= disagree, 3= moderately disagree, 4= neutral, 5= moderately agree, 6= agree, and 7= strongly agree).

The Sample

The study was conducted in Bangladesh – a country of high growing telecommunication services in Asia. Total 433 questionnaires were distributed to the general people who were the target respondents of this study. And 382 responses were received, of which 373 were complete and usable (response rate is 88

percent, whereas, effective response rate is approximately 98 percent). Sixty-two percent (62 percent) respondents were men and 38 percent were women. 60 percent respondents were up to thirty years, 15 percent were thirty-one to forty years, 16 percent were forty-one to fifty years, and 9 percent were above fifty years old. 22 percent respondents were involved in government service, 21 percent were in private service, 18 percent were in business, 16 percent were housewife, and 23 percent were student respondents. 35 percent respondents completed up to college level education, 40 percent completed graduation, and 21 percent completed post-graduation. The summary statistics of the survey are shown in Table 1. In order to control common method biases, it was assured to respondents that there was no right or wrong answers and they should provide answer as honestly as possible and no information will be shared with other person or organization. It has been also assured that the respondents' identity will not be disclosed i.e. as like answers to be anonymous and the information of this survey will be used for researchers' academic purpose.

Table 1

Summary statistics of questionnaire survey

Constructs	No. of items	Mean	SD	Sources of scale
Service quality	6	5.992	0.857	Chae et al., 2002; Wouters, 2004; Yang et al., 2005
Price	4	5.550	1.092	Kim and Lee, 2010; Zielke, 2008
Perceived value	3	4.782	1.203	Chen and Tsai, 2008; Cronin et. al., 2000; Hutchinson et al., 2009; Lai et al., 2009
Customer satisfaction	6	5.090	1.409	Chae et al., 2002; Lin and wang, 2006; Olorunniwo et al., 2006

SD = standard deviation

Analyses and Results

Structural equation modeling (SEM) was employed in this study to test proposed model and hypotheses and used AMOS 17.0 as the analysis instrument. For parameter estimation, maximum likelihood method was adopted. Measurement model and structural model test were used to test fitness of the model. The exploratory factor analysis (EFA) was performed to understand underlying relationship of factors and data reduction purpose. To determine whether the data were appropriate for factor analysis, a Bartlett sphericity test was performed. A KMO (Kaiser–Meyer-Olkin) value of 0.868 and significance level of .000 were obtained using Bartlett's sphericity test, which suggests that the inter-correlation matrix contains sufficient common variance to make factor analysis worthwhile. For EFA, the Principal Component Analysis (PCA), with varimax rotation and eigenvalue greater than 1 was used. As a conservative heuristic, a cut-off point as 0.50 (suppress absolute value less than 0.50) was imposed in factor analysis that enhance the total reliability of the questionnaire. We restricted the number of factors to four as the theoretical background of this study has total four underlying factors. As suggested by the results of EFA one item (v6) was removed. Table-2 shows the rotated

factor loadings and their respective eigenvalue and cronbach alpha values. It is notable that all calculated alpha values are above the widely recognized rule of thumb of 0.70 (Nunnally, 1978), that expresses a good internal consistency among items within each construct.

Table 2

Result of factor analysis

No.	Service quality	Price	Perceived value	Customer satisfaction
Sq1 Sq2 Sq3 Sq4 Sq5	0.868 0.882 0.816 0.770 0.742			
Pr1 Pr2 Pr3 Pr4		0.758 0.775 0.863 0.841		
Pv1 Pv2 Pv3			0.874 0.868 0.852	
Cs1 Cs2 Cs3 Cs4 Cs5 Cs6				0.910 0.933 0.932 0.894 0.921 0.739
Eigenvalue	6.770	3.405	2.091	1.707
Varience explained (%)	35.630	17.922	11.003	8.982
Cronbach alpha	0.887	0.852	0.919	0.957

Overall cronbach alpha is 0.899.

Measurement model

Confirmatory factor analysis (CFA) was conducted to have a more rigorous interpretation of customer satisfaction. The CFA model or Measurement model was employed to identify and determine the relationships of variables within the model. To evaluate the goodness-of-fit of model several measures of indices are used as suggested by Hair et al. (1998), Iacobucci (2010), Schumacker (1992): Chi-square/degrees of freedom ($\chi\surd$/df) ratio, root mean-square error of approximation (RMSEA), goodness of fit index (GFI), normed fit index (NFI),comparative fit index (CFI), incremental fit index (IFI). As Table-3 shows $\chi\surd$/df = 2.235, RMSEA = 0.058, GFI = 0.935, NFI = 0.957, CFI = 0.976, and IFI = 0.976. All measures fulfill the suggested values. Therefore, CFA model can be said as a good fit model.

Table 3

Goodness of fit statistics for measurement model and structural model

	Suggested values	Measurement model values	Structural model values
$\chi\sqrt{}$/df	<3	2.235	2.285
RMSEA	<0.06	0.058	0.059
GFI	>0.90	0.935	0.936
NFI	>0.90	0.957	0.958
CFI	>0.90	0.976	0.976
IFI	>0.90	0.976	0.976

After achieving the well fit indices, the measurement model was further assessed for reliability and validity. The amount of variance in an item because of underlying construct is indicated by item reliability. Standardized loading greater than 0.70 demonstrate item reliability but standardized loadings ≥ 0.50 are also acceptable (Chin, 1998; Hair et al., 1998). For construct reliability, value ≥ 0.70 is required that intends to the degree to which an observed variable reveals an underlying factor. Table-4 presents the item reliability and construct reliability results. Standardized loadings ranged from 0.565 to 0.949 indicating good item reliability. All values of construct reliability were above the threshold value (i.e. 0.70) indicating high level of reliability for all the constructs.

Table 4

Measurement model results

Constructs and variables	Standardized loadings	t-statistics	Construct reliability (CR)	Average variance extracted (AVE)
Service quality				
Sq1	0.861	18.705**	0.88	0.61
Sq2	0.868	19.018**		
Sq3	0.742	15.800**		
Sq4	0.698	14.424**		
Sq5	0.706	14.721**		
Price				
Pr1	0.775	10.991**	0.84	0.57
Pr2	0.940	13.232**		
Pr3	0.687	11.013**		
Pr4	0.565	9.452**		
Perceived value				
Pv1	0.882	21.265**	0.92	0.80
Pv2	0.949	24.034**		
Pv3	0.841	19.878**		
Customer satisfaction				
Cs1	0.902	22.164**	0.95	0.78
Cs2	0.941	23.036**		
Cs3	0.941	23.966**		
Cs4	0.870	21.079**		
Cs5	0.885	21.602**		
Cs6	0.730	16.321**		

**Indicates significance at p< 0.01 level.

CR= (∑ Standardized loadings) √ ⁄ [(∑ Standardized loadings) √ + ∑ (measurement indicator error)]
AVE = ∑ (Standardized loadings√)⁄[∑ (Standardized loadings√) + ∑ (measurement indicator error)]

After being assured that a scale instrument provides necessary levels of reliability, this study stepped to scale validity. Under construct validity convergent validity and discriminant validity were tested in this study. The degree to which dimensional measures of the same concept are correlated is assessed by convergent validity. To assess convergent validity average variance extracted (AVE) is used (Fornell and Larcker, 1981; Hair et al., 1998). Representation of latent constructs by items is truly denoted as higher as the average variance extracted is higher. For latent construct the average variance extracted (AVE) should be more than 0.50 (Hair et al., 1998). Table-4 shows the average variance extracted (AVE) values for constructs ranged from 0.61 to 0.80 exceeded the threshold value 0.50, supportive evidence for convergent validity. Moreover, in a CFA setting, t-statistics related to factor loadings is assessed to measure convergent validity (Rao and Troshani, 2007). All items offer good measures to their respective latent construct because of all t-statistics values are statistically significant at 0.01 level and confirmed convergent validity of the constructs. Average variance extracted (AVE) is also used to assess discriminant validity (Fornell and Larcker, 1981). The role of thumb is that the average variance extracted (AVE) values should be greater than corresponding squired inter-construct correlation estimates (SIC) in the model. Table-5 shows the average variance extracted (AVE) estimates in the diagonal values and corresponding squired inter-construct correlation estimates (SIC) values, supportive evidence for discriminant validity. For example, (Table-5) average variance extracted (AVE) estimate for price was 0.57 and corresponding squired inter-construct correlation estimates (SIC) values were 0.09, and 0.06 for perceived value and customer satisfaction respectively, an indication of discriminant validity.

Table 5

Squared correlations between constructs

	Service quality	**Price**	**Perceived value**	**Customer satisfaction**
Service quality	**0.61***			
Price	0.11	**0.57***		
Perceived value	0.12	0.09	**0.80***	
Customer satisfaction	0.04	0.06	0.20	**0.78***

*Diagonal elements are average variance extracted (AVE)

Structural model

Table-3 shows the common model-fit indices, recommended values and results of the test of structural model fitness. As shown in Table-3, comparison of all fit indices with their corresponding recommended values (Hair et al., 1998; Iacobucci, 2010; Schumacker, 1992) the evidence of a good model fit was revealed. Given the good fit of the model, the estimated path coefficients of the structural model were then examined to evaluate the hypotheses.

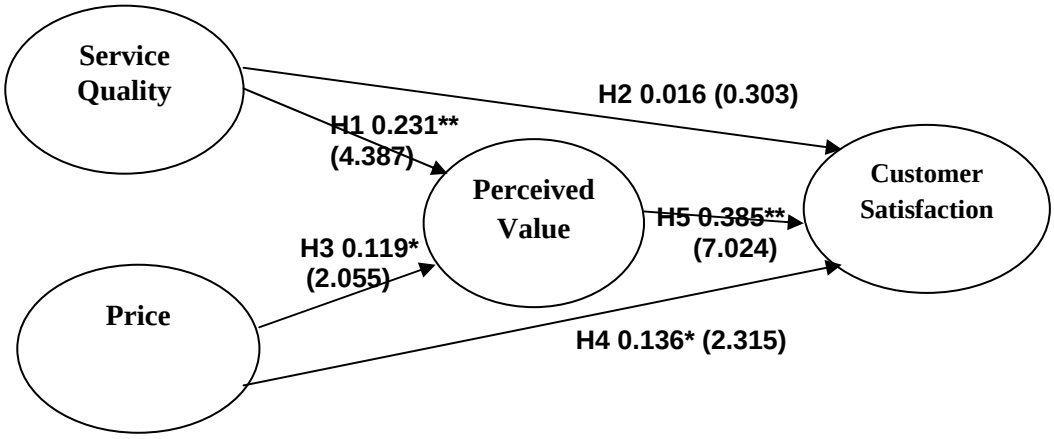
Table 6

Path analysis of structural model

Casual path	Hypotheses	Path coefficient	t-statistics	Results
Service quality ⟶ perceived value	H1	0.231**	4.387	Supported
Service quality ⟶ customer satisfaction	H2	0.016	0.303	Not supported
Price ⟶ perceived value	H3	0.119*	2.055	Supported
Price ⟶ customer satisfaction	H4	0.136*	2.315	
Perceived value ⟶ customer satisfaction	H5	0.385**	7.024	Supported

**indicates significance at p< 0.01 level; *indicates significance at p< 0.05 level

Table-6 depicted the empirical results of structural model by path analysis. The path coefficients along with hypotheses and t-values of the latent constructs are visualized in Figure-2, where hypotheses were drawn in the solid lines. The empirical results support all hypotheses (i.e., H1, H3, H4 and H5) except one hypothesis (H2). The empirical results did not find any significant positive relationship between service quality and customer satisfaction. It is notable that the indirect effect of service quality on customer satisfaction is so significant as to play down the direct effect of service quality on customer satisfaction. This is perhaps caused by data co-linearity and/or model misspecification. On the other hand, price has significant direct and indirect effect on customer satisfaction.



**p<0.01, *p<0.05
Value within the parenthesis is t-value

Figure 2. Outcome of hypothesized structural model

Conclusions and implications

Though mobile phone services is one of the fast growing service sectors in Bangladesh, researches do not provide a clear idea of measurement of customer satisfaction including special concentration on service quality, service

charge/price , and perceived value all together. This study sheds light on possible influence of service quality, price fairness, and perceived value on customer satisfaction in mobile phone services industry. This study contributes in the branch of service marketing/consumer behavior in terms of theory development and managerial implications especially in mobile phone operations industry in a developing country like Bangladesh.

Our empirical results show that both service quality and fair price positively influenced value perception of customers of mobile phone service operators. Consequently, perceived value also positively influenced customer satisfaction. Hence, perceived value performed mediating role between service quality, fair price, and customer satisfaction which is similar to the other studies (Kuo et al., 2009; Lai et al., 2009 Turel and Serenko, 2006). Furthermore, fair price has direct impact on customer satisfaction. This result is consistent with findings of other scholars (Diller, 2000; Iyer and Evanschitzky, 2006; Varki and Colgate, 2001). On the other hand, empirical results did not find any significant direct impact of service quality on customer satisfaction. It is important that most of the previous studies emphasized on service quality, and perceived values as the motivating factors of customer satisfaction, whereas, this study provide equal importance to price fairness. When service providers offer lower prices ensuring same level of quality they may get competitive advantages as the consequence of customer satisfaction (Kim and Lee, 2010). Price satisfaction is related with customer satisfaction is a psychological reaction of customer, resulting from the dealings of cognitive and emotional processes. On the other hand, perceived customer satisfaction and fairness positively influence business performance and are dependent on the customer service quality as well as the dealings concerned to generate the outcomes (Gomez et al., 2004; Ralston, 2003).

To the limited knowledge of the authors, it is the first time that price fairness is introduced separately in basic customer satisfaction model. This study shows fair price has a significant direct impact on customer satisfaction and an indirect influence on customer satisfaction through perceived value. Our empirical study confirms that price fairness is a significant determinant of customer satisfaction in the service industries. Maintaining service quality, if services providers reduce price or offer competitive price, it ensure competitive advantage.

The results of this study offer some implications for mobile phone operators or similar industry in Bangladesh. The significant effects of two exogenous variables imply that research in customer satisfaction should take into account not only factors such as service quality and perceived value but also other potentially important factors, such as price fairness as well as service charge fairness. In this study, we extend the existing customer satisfaction model by incorporating three antecedents in the proposed model, presenting a more comprehensive picture of customer satisfaction and post-purchase intentions. Therefore, theory building in this area could benefit from examining the issues from multiple perspectives to provide additional insights. From a managerial perspective, service quality, and perceived value is an important influencing factor on customer satisfaction. Firms should understand the importance of quality assurance and value of the service to customers. Perceived value is influenced by price and service quality. At the same time they have positive direct influence on customer satisfaction. Thus, the positive effect of quality, low price, and perceived value makes customers satisfied. Managers should have planning to ensure service quality,

competitive price, increased perceived value of customers to achieve competitive advantages over their rivals.

There are some limitations of the study that could be addressed in future research in this area. Due to the exploratory nature of the study, only three factors deemed the most important in influencing satisfaction of customer are included. In particular, some constructs from the social and cultural aspects could also be used to survey customer satisfaction. Another limitation is this study only focuses on one sector (mobile phone operations). Future study should utilize this methodology for several industries in mass service to confirm the model identified for customer satisfaction. Finally, further study should address the customer satisfaction issues on other typology of service such service factory, service shop, and professional service.

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