The Effect of Mobile Service Quality Dimension on Customer Satisfaction in Cameroon: A Structural Equation Model

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Abstract: *In this research endeavour, we investigate the empirical impact of service quality dimensions on satisfaction in Cameroon mobile phone companies. Structural Equation Model (SEM) is utilised. Five independent variables (Tangibles, Reliability, Responsiveness, Empathy and Network quality) are proposed to help predict the customer satisfaction. This study used a convenient sample of 1000 students (mobile phone service users) obtained through a survey that was distributed in two universities: the university of Yaoundé 1 and the university of Yaoundé 2. Results show that four dimensions of service quality (Network quality Reliability,Responsivenessand Empathy) are revealed significantly positive impact on customer satisfaction while Tangibles has no impact on customer satisfaction.*

Key words*: Service Quality, Customer Satisfaction, Telecommunication, Cameroon*

I.   Introduction

Service companies consider service quality as an important tool to maintain their competitive advantage in the marketplace, keep old customers and attract new customers. Customer satisfaction is considered as one of the most important concepts to keep the telecom mobile companies survive on the market (Al-Hashedi et al., 2017).

The telecommunications sector in Cameroon, liberalized by the law of July 1998 is occupied by four companies: MTN, Orange, Camtel and Nextel. However, MTN and Orange monopolise 93.8% of the market, with 57.04% for MTN and 36.8% for Orange.According to statistics from the Telecoms Regulatory Agency (ART), the telephone sector in Cameroon had 16.8 million subscribers (out of a population of 22 million inhabitants) as at end September 2015, against 16.6 million in 2014. This development is mainly due to the increase in the mobile telephone penetration rate, which now reaches 80% against 71% in 2014. Thus, the usage of mobile phone technologies in Cameroon has become widespread in society.

Despite this impressive number of subscribers (16.8 millions) compared to the total population (22 millions), complaints from customers about the quality of services are recurrent. Hence, the need to analyze the relationship that exists between the quality of service and consumer satisfaction in Cameroon.

The paper is organized as follows; after a brief presentation of the service quality dimensions and satisfaction, the research hypotheses are proposed and the research methodology is explained. The analysis of the collected data and testing of the hypotheses are complemented by a discussion of the main results in relation to the complaining literature.

II.   Literature Review

2.1. Service Quality and Customer Satisfaction

The study highlighting the relationship between service quality and customer satisfaction is not new. In the literature review, the authors all agree on the overall positive relationship between quality of service and customer satisfaction. Several previous researchers have proven the existence of a direct relationship between service and satisfaction, notably studies made byCronin and Taylor, 1992; 1994; Cronin and al., 2000; Keaveneyand Parthasarathy, 2001; Lim and al., 2006; Shin and Kim, 2008; Parasuramanand al, 1988. Among

the authors who attest to the positive relationship that exists between service quality and customer satisfaction, we have(Parasuramanand al., 1988; Caruana, 2002; Tureland Serenko, 2006;Nathan and Elsaghier, 2012). Leisenand Vance (2001) argue that service quality is essential to attain customer satisfaction. According to Shin and Kim (2008), when perceived quality of service is high, satisfaction will also be high, and vice versa. Indeed, customer satisfaction requires the provision of a superior service. In view of the foregoing, the nature of the relationship between service quality and satisfaction, which is essentially positive, cannot be questioned. The controversies are more in terms of the effect of different measurement dimensions of service quality. Thus, according to the contexts and the fields of application, the effect of the different dimensions of service quality on customer satisfaction vary.Arasliand et al. (2005) found that reliability had the highest impact on customer satisfaction. This Found confirm assertion of Parasuraman and Zeithaml (1988), who says that reliability is the most important factor in conventionnal service. Negi (2009) explainedthat satisfaction is influenced by the following dimensions (Reliability, Empathy, and Assurance). Mengi (2009) indicated that responsiveness and assurance are more significant. Zaimand et al. (2010) found that tangibility, reliability and empathy are significant for customer satisfaction. Anboriand et al. (2010) show that in the health sector, empathy and assurance are the dimensions of quality that have more influence on patient satisfaction.Siddiqi (2010) examined the applicability of service quality of retail banking industry in Bangladesh and found that the quality of service is positively correlated with customer satisfaction where empathy had the highest positive correlation with customer satisfaction followed by assurance and tangibility. Lo et al.(2010) found that empathy and assurance had the highest influence on customer satisfaction in the Malaysian retail banking industry.

In the mobile phone sector, many authors used SERVQUALor SERVPERF to measure service quality. But this common point did not harmonize the results of their works. So, William and al. (2002) used SERVQUAL and Found higher ratings on tangibles dimension and low ratings on empathy dimension in Thai telecommunication industry. Like them, Negi (2009) found higher ratings on empathy and reliability dimensions in Ethiopian mobile communications. Warraich et al. (2013) also used SREVQUAL model and found higher ratings on tangibles dimension and low ratings on empathy dimension in Pakistan telecom sector. Besides these researches, we have the author who used SERVPERF model to measure service quality and their results are also different. Firstly, Wang and Lo (2002) used SERVPERF scale for service quality measurement and found that network quality and empathy are the most important drivers of overall service quality in China's mobile phone market. Rahhal (2015) with the same model found that responsivenessand reliability are the most direct significant impact of service quality on customer satisfaction. In the same way, Al-Hashedi et al. (2017) found that network quality, empathy, reliability and assurance revealed a significantly positive impact on customer satisfaction in Yemen Mobile Telecommunication Companies.With these researches, we see that SERVQUAL and SERVPERF are models that are widely used to measure service quality, but their dimensions are not the only dimensions of service quality measurement.

2.2. Service quality measurement

The measurement of the quality of service is not obvious because of the characteristics of the service. The quality of service can be measured according to several approaches as presented in the marketing literature. The number of dimensions to measure quality of service varies by author. The best models known are SERVQUAL (Parasuraman et al., 1988) and SERVPERF (Croning and Taylor, 1992). They use five dimensions. Indeed, Parasuraman et al. (1988) consider that quality can be understood as the difference between the customer's service expectations and the actual service provided. And following this logic, they assign twenty two items and five dimensions to SERVQUAL (reliability, assurance, tangibility, empathy and responsiveness). But Croning and Taylor (1994) are among the authors who contradict this perception of quality of service and say that the difference between expectations and achievement is not a good way to understand the quality of service, and are developing another model of quality of service measurement: the SERVPERF. In the SERVPERF scale, service quality is operationalized through performance; only scores based on the same twenty-two items and five-dimensional structure of SERVQUAL. They suggest that the effect of customer satisfaction on purchase intentions is greater than the effect of quality of service on purchase intentions.

Wael (2015) thinks that dimensions of service quality, which could be categorized under two groups: functional and technical quality dimensions. Functional quality dimensions includes five SERVQUAL dimensions (reliability, responsiveness, assurance, empathy, and tangibles), « convenience » and « complaint handing ». Carvalho and Leite, (1999) define convenience as flexible and comfortable facilities to suit thecustomer's needs) and Negi, (2009) define « complaint handing as procedures to receive/handle customer complaints in time effective. Technical quality dimensions are WHAT the customer gets (outcome) while functional service related variable refers to HOW the customer gets (Process) (Yeni, 2016). Technical quality dimensions is related to customer perceived network quality in the context of cellular mobile communication.

Table1: Dimensions of Service Quality in cellular Mobile Communication

Dimensions	Definitions	Studies
Tangibles	Appearance of physical facilities, equipment, personnel and communication materials.	Parasuraman, Zeithaml and Berry,1988; Rosen and Karwan, 1994.
Reliability	Ability to perform the service accurately and dependably, as promised.	Parasuraman, Zeithaml and Berry,1988; Rosen and Karwan, 1994.
Responsiveness	Willingness of the firm's staff to help customers and provide prompt services.	Parasuraman, Zeithaml and Berry,1988; Rosen and Karwan, 1994.
Empathy	Ability of the service provider to provide a caring and personalized attention to each customer	Parasuraman, Zeithaml and Berry,1988; Saleh and Ryan, 1991.
Network quality	It is an indicator of network performance in terms of voice quality, call drop rate, network coverage, and network congestion.	Naghshineh and Schwartz, 1996; Markoulidakis et al., 2000; Sharma and Ojha 2004.

Source: WaelRahhal, 2015

In this study Network quality is considered as technical dimension for service quality.

Based on SERVQUAL, this table leads to following hypotheses:

H1: Tangibles is positively associated with Customer Satisfaction

H2: Reliability is positively associated with Customer Satisfaction.

H3: Responsiveness is positively associated with Customer Satisfaction.

H4: Empathy is positively associated with Customer Satisfaction.

H5: Network quality is positively associated with Customer Satisfaction.

III.   Research Methodology

A survey research was conducted to examine the relationship among independent variable (dimension of service quality) and the dependent variables (customer satisfaction). For this purpose, a descriptive study was conducted. The scope of this study was specifically limited into telecommunication industry. Based on similar studies (Wang and Po Lo, 2002, Rahhal, 2015), thisstudy is hypothesized with five hypotheses which are proposed to represent the effect of service quality dimensions on customer satisfaction from the functional and technical perspectives.

Figure 1: Conceptual framework
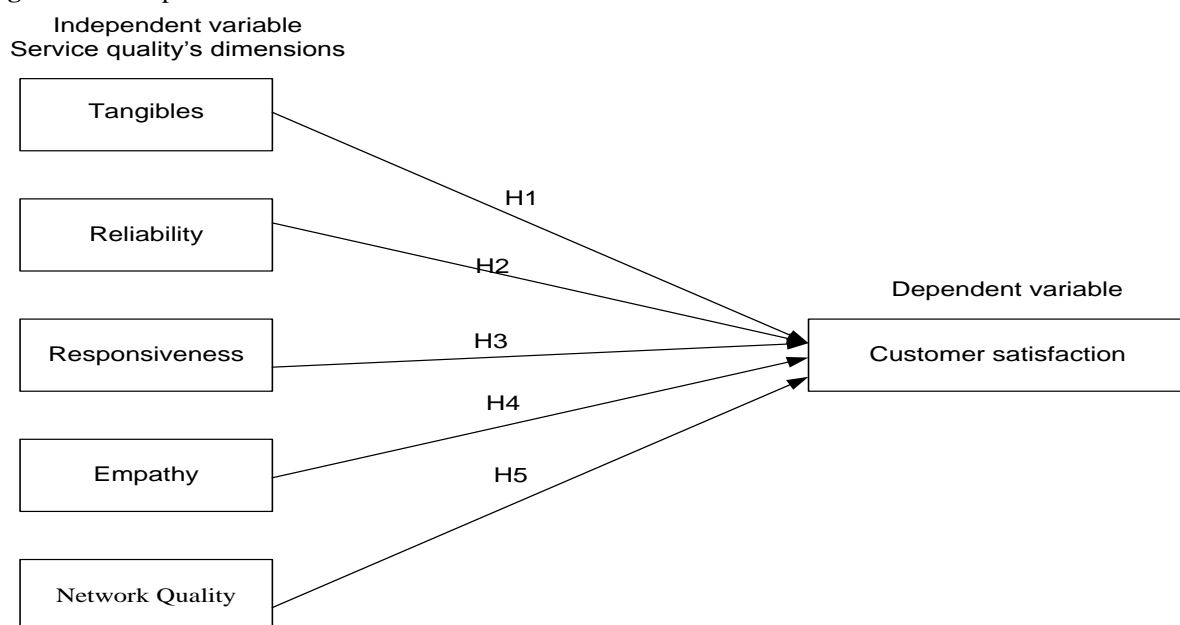
3.1. Population and Sampling

The target population of this study is students from public universities in the capital city Yaoundé. Cameroon currently has four mobile operators: MTN, Orange, Nextel and Camtel. However, MTN and Orange share 93.8% of market, with 57.04% for MTN and 36.8% for Orange. It is for this reason that our population will consist only of students subscribing to these two operators. This study was conducted to use simple random sampling because all customers of mobile telecommunication are considered and each one has an equal chance of being chosen (Sekaran and Bougie, 2010).

This study used a convenient sample of 1000 students (mobile phone service users) obtained through a survey that was distributed in two universities: the university of Yaoundé 1 and the university of Yaoundé 2.

3.2. Data Collection Method

This study used a questionnaire instrument to collect data from customer which was adapted from (Parasuraman et al., 1988; Negi, 2009, Rahhal, 2015) to fit in the context of the Cameroon settings. The questionnaireconsisted of 32 items where 27 items was for service quality and 5 items was for customer satisfaction. This questionnaires distributed through field survey. Survey was conducted and distributed in two universities (the University of Yaoundé 1 and the university of Yaoundé 2). The distribution was for 1 000 questionnaires and 847 were collected back. From collected questionnaires, 52 questionnaires were rejected and 795 questionnaires were valid and entered into STATA 14 and SPSS 20.

IV.   Analysis and Results

4.1. Demographic Profiles of Respondents

The demographic profiles of 795 respondents is presented in table 2 below

Table 2: Demographic Profiles of Respondents

		N	%
Gender	Male	350	44
	Female	446	56
	Total	795	100
Age	Less than 21	239	30
	21-25	417	52.5
	25-30	119	15
	More than 30	20	2.5
	Total	795	100
Education Level	Bachelor	517	65
	Master	181	22.8
	Ph.D	97	12.2
	Total	795	100
Service provider	MTN	386	48.5
	Orange	409	51.5
	Total	795	100

Source: author

4.2. Analysis of results

This paper employ a structural equation modeling (SEM). We have used Stata 14 to investigate the causal relationship among the variable. The questionnaire items employed to collect data were adapted from Parasuman et al. (1991), Sharma and Ojha (2004), Negi (2009) and Rahhal (2015). This analysis followed different stages:

Exploratory Factor Analysis was conducted to define possible relationships of observed variables for service quality dimensions.

A confirmatory factor analysis (CFA) was conducted to empirically test the measurement model. Multiple tests on construct validity and reliability were performed, where items with low loading were eliminated. Model fit was evaluated using the maximum likelihood (ML) method.

Construct reliabilitywas assessed using Cronbach's α and composite reliability (CR) using CFA. As the α-values (Table 3) for all the constructs are greater than the guideline of 0.70, it can be concluded that the scales can be applied for the analysis with acceptable reliability (Saunders et al., 2003). CR was calculated from model estimates using the CR formula given by Fornell and Larcker (1981). In the measurement model, all constructs had a CR greater than 1.96. Based on these assessments, measures used within this study were within the acceptable levels supporting the reliability of the constructs (Table 3).

Table 5 reports all fit statistics results. All the model-fit indices exceeded the respective common acceptance levels suggested by previous research (Kim et al.,2004), demonstrating that the measurement model exhibited a good fit with the data collected.

Table 3: Reliability Statistics

Construct	Crombach's α
Tangibles	0.768
Reliability	0.999
Responsiveness	0.785
Empathy	.0852
Network Quality	0.965

Table 4: Correlation and average variable

	Tangibles	Reliability	Responsiveness	Empathy	Network Quality	Satisfaction
Tangibles	1					
Reliability	0,658**	1				
Responsiveness	0,542**	0,654*	1			
Empathy	0,458**	0,584**	0,487*	1		
Network Quality	0,687**	0,452**	0,621**	0,72**	1	
Satisfaction	0,385**	0,586**	0,458**	0,365**	0,541**	1

Note. *, $p<0,10$; **, $p<0.05$.

Table 5: Fit Statistics Results

Fit index	Recommended value	Indices values
Chi-square/(df)	≤ 3.00	1.952
NFI	≥ 0.90	0.894
CFI	≥ 0.90	0.950
TLI	≥ 0.90	0.987
RMSEA	< 0.08	0.062

4.3. Structural model

Our structural model was estimated using Stata 14. Figure 2 shows the results of structural model with the path coefficients.
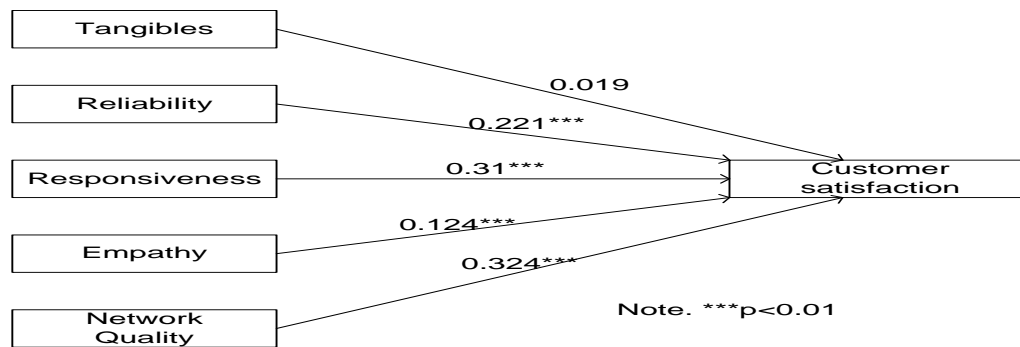
Table 6: Summary of Hypotheses Testing Results

Path	Estimate β	C.R	P	Results
Tangibles→ Satisfaction	0.019	1.140	0.324	Not Supported
Reliability→ Satisfaction	0.221***	2.785	0.009	Supported
Responsiveness→ Satisfaction	0.310***	5.214	0.000	Supported
Empathy→Satisfaction	0.124***	2.272	0.000	Supported
Network quality→ Satisfaction	0.324***	3.354	0.000	Supported

Notes. ***,p<0,01.

According to table 6 above, reliability, responsiveness, empathy and network quality showed a positive effect on consumer satisfaction in mobile service (these dimension have higher t-values than 1.96). Therefore H2, H3, H4 and H5 are confirmed.

V.   Conclusion

The main goal of this study is to investigate the effect of dimensions of service quality on customer satisfaction. Results show that there are five dimensions we can consider in mobile service quality, namely, Tangibles, Reliability, Responsiveness, Empathy and Network quality. These dimensions have positive and significant effect on customer satisfaction except tangible dimension.In fact, the findings of this study provide helpful guidelines for mobile service operators in understanding keydrivers of customer satisfaction. Looking at each dimension, network quality appeared at the first important place in predicting overall customer satisfaction. Besides, responsiveness and reliability appear as the second important place in predicting overall customer satisfaction. In addition, empathy factor also appeared as the third important place in predicting overall customer satisfaction. Our findings corroborate the studies of Rahhal, (2015); Arasliand et al.(2005); Mengi (2009); Anboriand et al. (2010) and Zaimand et al. (2010)

This impliesfirstly that mobilephone service providers need to pay attention in providing adequate network coverage, voice clarity, and focus on reducing the congestion level in their networks. However, service providers should give social occasions more importance because customers need to use mobile phones more than usual.Again,mobile phone service providers should invest in empowering the contact employees and providing them with adequate resources so that they can take promptactions to customerqueries. Furthermore, the service providers need to focus on performing the service right the first time, providing the services at the promised time. Thirdly, the mobile phone service provider needs to give personal attention to each customer and also take into consideration the fact that the appearance of physical equipment does not interestthe customers.

References

[1.]   Adelman, M. B., Aaron A. and Goodwin, C. (1994), "Beyond Smiling," in Service Quality: New Directions in Theory and Practice, Roland T. Rust and Richard L. Oliver, Eds. New York: Sage, pp.71-139.

[2.]   Al-Hashedi, A. H and Abkar, S. A. (2017),"the impact of service quality dimensions on customer satisfaction in telecom mobile companies in Yemen",*American journal of Economics*, 7(4): 186-193.

[3.]   Anbori, A.Ghani, SN. Yadav, H. Daher, AM. And Su, TT. (2010), "patient satisfaction and loyalty to the private hospitals in Sana'a, Yemen", *International Journal for Quality in Health Care*, Vol, 22, Iss: 4, pp 310-315.

[4.]   Bagozzi, R. and Yi, Y. (1988), "On the evaluation of structural equation models", *Journal of the Academy of Marketing Science*, Vol. 16 No. 1, pp. 74-94.

[5.] Caruana, A. (2002),"Service Loyalty, The Effects of Service Quality and The Mediating Role of Customer Satisfaction",*European Journal of Marketing*, 36 (7/8), 811-828.

[6.] Carvalho de, F. A. and Leite, V. A. (1999), "Attribute Importance in Service Quality: An Empirical Test of the PBZ Conjecture in Brazil", *International Journal of Service Industry Management*, Vol.10, No.5, pp.487-504.

[7.] Cronin, J. J. and Taylor, S. A. (1992), "Measuring service quality: a reexamination and extension",*Journal of Marketing*, 56(3), 55- 68.

[8.] Cronin, J. J. and Taylor, S. A. (1994), "SERVPERF versus SERVQUAL: Reconciling performance based and perceptions-minus-expectations measurement of service quality", *Journal of Marketing*, 58 (1), pp.125-131.

[9.] Cronin, J. J., Michael K. Brady, and Hult, G. T. M. (2000), "assessing the effects of quality, value, and customer satisfaction on consumer behavioral intentions in service environments", *Journal of Retailing* 76 (2), pp.193-218.

[10.] Fornell, C. and Larcker, D. (1981),"Evaluating structural equation models with unobservable variables and measurement error », *Journal of Marketing Research*, Vol. 18 No. 1, pp. 39-50

[11.] Keaveney, S. &Parthasarathy, M. (2001), "Predicting customer switching behavior in online services: an exploratory study of selected characteristics of continuers vs switchers", *Journal of the Academiy of Marketing Science*, 29 (4), pp.374-390.

[12.] Kim, M; Park, M and Jeong, D (2004), "The Effects of Customer Satisfaction and Switching Barrier on Customer Loyalty in Korean Mobile Telecommunication Services", *Telecommunications Policy*, Vol.28, No.2, pp. 145-159.

[13.] Leisen, B. and Vance C. (2001), "Cross-national Assesment of service Quality in the telecommunication Industry; evidence from the USA and Germany', *Managing Service Qualitty*, Vol 11, N0 .5, p. 307-317

[14.] Mengi, P. (2009),"Customer satisfaction with service quality: An empirical study of public and private sector banks",*Journal of Management Research*, 8 (9), 7-17.

[15.] Nathan, D. and Elsaghier, N. (2012), "Service Quality Dimensions and Customers' Satisfactions of Banks in Egypt", Proceedings of 20th International Business Research Conference 4 - 5 April 2013, Dubai, UAE, ISBN: 978-1-922069-22-1

[16.] Negi R. (2009), "Determining Customer Satisfaction Through Perceived Service Quality: A Study Of Ethiopian Mobile Users",*International Journal of Mobile Marketing*, Vol.4, No.1, P31-38.

[17.] Parasuraman, A., Zeithaml, V.A. and Berry, L. (1991), "Perceived Service Quality as a Customer-Based Performance Measure: An Empirical Examination of Organizational Barriers Using an Extended Service Quality Model",*Human Resource Management*, Vol.30, No.3, P. 335-364.

[18.] Parasuraman, A., Zeithaml, V.A. and Berry, L.L. (1988), "SERVQUAL: a multiple item scale for measuring customer perceptions of service quality", *Journal of Retailing*, Vol. 64, pp. 12-40.

[19.] Rahhal, W. (2015),"The Effects of Service Quality Dimensions on Customer Satisfaction: An Empirical Investigation in Syrian Mobile Telecommunication Services», *International Journal of Business and Management Invention*, Vol4 Issue, PP.-81-89.

[20.] Sekaran, U. &Bougie, R. (2010),"Research Methods for Business: A Skill Building Approach (5th edition). New Jersey: John Wiley and Sons.

[21.] Sharma N. and Ojha S. (2004), "Measuring Performance in Mobile Communications" ,*Service Industries Journal,* Vol.24,No.6,pp. 109-128 .

[22.] Shin, D. and Kim, W. (2008), "Forecasting customer switching intention in mobile service", *Technological Forecasting and Social Change*, 75(6), pp.854-874.

[23.] Turel, O. and Serenko, A. (2006), "Satisfaction with mobile services in Canada: an empirical investigation", *Telecommunications Policy*, 30(56), pp.314-331.

[24.] Wang Y. and Po Lo H. (2002), "Service Quality, Customer Satisfaction and behavior intentions-Evidence from China's Telecommunication Industry", *The Journal of Policy Regulation and Strategy for telecommunication Information and Media*,Vol.4, No.6, pp.50-60.

[25.] Warraich, K. M., Warraich, I. A., & Asif, M. (2013),"Achieving Sustainable Competitive Advantage through Service Quality: an Analysis of Pakistan's Telecom Sector",*Global Journal of Management and Business Research*, 13(2), 39-46.

[26.] Yeni, M. (2016), "The Impact of Service Quality Dimensions on Customer Satisfaction: Workshop Insurance Partner in Padang City,Indonesia*", International Academic Journal of Economics*, Vol. 3, No. 7, pp. 69 -79.

[27.] Zaim, H., Bayyurt, N. &Zaim, S. (2010),"Service quality and determinants of customer satisfaction in hospitals: Turkish experience",*The International Business & Economics Research Journal*, 9(5), 51-58.

[28.] Siddiqi, K.O. (2010),"Interrelations between service quality attributes, customer satisfaction and customer loyalty in the retail banking sector in Bangladesh", International Trade & Academic Research Conference (ITARC), (pp. 1-26). London.

[29.] Wael, T.(2015),"Using Servqual Model to assess service quality and students satisfaction in Pavia University – Italy",*International Journal of Research in Business Studies and Management*, 2(3): 24-31.

[30.] Lim, H., Widdows, R. and Park, J. (2006), "M-loyalty: Winning strategies for mobile carriers», *Journal of Consumer Marketing*. http://www.emeraldinsight.com