THE EFFECT OF ELECTRONIC SERVICE QUALITY ON CUSTOMER SATISFACTION IN TELECOMMUNICATION INDUSTRY IN SRI LANKA DURING CORONAVIRUS OUTBREAK PERIOD

C.A. Fernando[1]*, A.A.I. Lakmali[2]

Department of Marketing Management, The Open University of Sri Lanka

INTRODUCTION

The advancement of information and communication technology has created a paradigm shift of operating business activities in new avenues via the internet; the services over the information – communication technologies which are identified as electronic services (e-services) (Kvasnicova, Kremenova & Fabus, 2016). These services provide not only to connect and communicate with people around the world but also to carry out their day-to-day activities in a user-friendly and uninterrupted manner than ever before. Nowadays, there is a high tendency to fulfill the requirements of the people by obtaining services electronically compared to past decades due to its inherent advantages such as 24/7 service availability, quick communication, ability to make various payments and transfers by saving a considerable amount of time and so on (Borg, 2012). Hence, globally many businesses are into adoption of e-services such as travel (Li, Liu & Suomi, 2009), banking (Nuseir, Akroush & Mahadin, 2010; Shared, 2019), online retail (Rolland & Freeman, 2010) to get the advantage of reaching new market opportunities. Thus, the attention of academia and the practitioners of services marketing have shifted from investigating traditional service perspectives to e-service aspects. In such contexts, e-service quality is one of the trends that received attention from academics. The willingness to provide high-quality services plays a vital role in e-service since it is critical to the organization (Poor, Poor & Darkhaneh, 2013). The e-services quality refers to the assessment of customer for services provided through the internet (Zeithaml et al., 2002; Parasuraman et al., 2005; Liao et al., 2011; Shared, 2019). Hence, many studies investigated the antecedents, dimensions, and the consequences of e-service quality from different perspectives: customer perspective, service provider perspective in industries such as banking (Nuseir, Akroush & Mahadin, 2010; Ahmad & Al-Zu'bi, 2011; Shared, 2019), e-government (Saha, Nath & Salehi-Sangari, 2010); travel (Li, Liu & Suomi, 2009), and so on in developed and developing contexts. Though the telecommunication industry mainly offers telephone-based communication facilities and internet services, there is a lack of studies conducted so far relating to the e-service quality of the telecommunication industry.

Apart from that, telecommunication industry is one of the main activities of the economy in Sri Lanka during the first wave (March & April) and second wave (October & November) of the Covid 19 Pandemic. With mobility restrictions and health guidelines in the country, many innovations in several industries such as banking, health, education, retail, and even public administration have happened with support from the telecommunication sector. It has increased the demand for telecommunication services. As a result, telecommunication services providers needed to pay more attention to the transition of physical platforms to innovative service delivery methods (Central bank report, 2020). Moreover, Table 1 shows the increase in fixed-line access services by 13.6 and wire-line telephone services by 26.9. Further, the growth of the mobile phone was negative and recorded 12.6 percent, and internet connections were increased from 26.9 to 30.7 percent in 2020. Moreover, the Central Bank report identified these fluctuations as results of work from home practices, travel restrictions of the country, and losses of jobs during the period. These facts show a dramatic change in the telecommunication industry in Sri Lanka.

Table 1: Statistics of Telecommunication

Item	2019 (%)	2020 (%)
Fixed Access Services	-7.4	13.6
Wireline Telephone services	-16.8	29.6
Mobile Phones	1.1	-12.6
Internet Connections	26.9	30.7

Source: Sri Lanka Central Bank Report (2020)

On the other hand, the telecommunication services of Sri Lanka are moving from 4G to 5G. However, these changes have increased the concerns on the quality of the internet services provided by the telecommunication service providers in Sri Lanka. Further, it is observed that the criticized posts on the charges and the quality of services offered by the industry were circulating on social media. Regardless of the industry a company operates in or what kinds of products and services a company sells, the customer is the most vital party for a business (Mckinney, 2015). Apart from that, e-service can be a key for long-term advantage and the quality of the service would be more critical for attracting and retaining customers (Oliveria et al., 2002). The consumer's evaluation of process and outcome quality of the interaction with a service provider's electronic channels are identified as e-service quality (Zehir & Narcikara, 2016). Thus, attention paid to the link between e-service quality and customer satisfaction increased among academia and practitioners (Zeithaml, Parasuraman & Malhorta, 2002; Parasuraman, Zeithaml & Malhotra, 2005; Nuseir, Akroush & Mahadin, 2010; Shared, 2019) but undermined in the telecommunication industry. Though the Covid 19 pandemic was assumed as short-term, it's still affecting the lives of people in Sri Lanka. Hence, it is vital to investigate the effect of e-service quality on customer satisfaction of telecommunication industry in Sri Lanka during the Covid 19 pandemic in order to fill this gap.

Thus, the aims of study were two folded as

1. To investigate the effect of the quality of e-services on customer satisfaction in the telecommunication industry.

2. To identify the most influential factor/s effecting on customer satisfaction in e-service quality of the telecommunication industry during coronavirus outbreak period in Sri Lanka.

METHODOLOGY

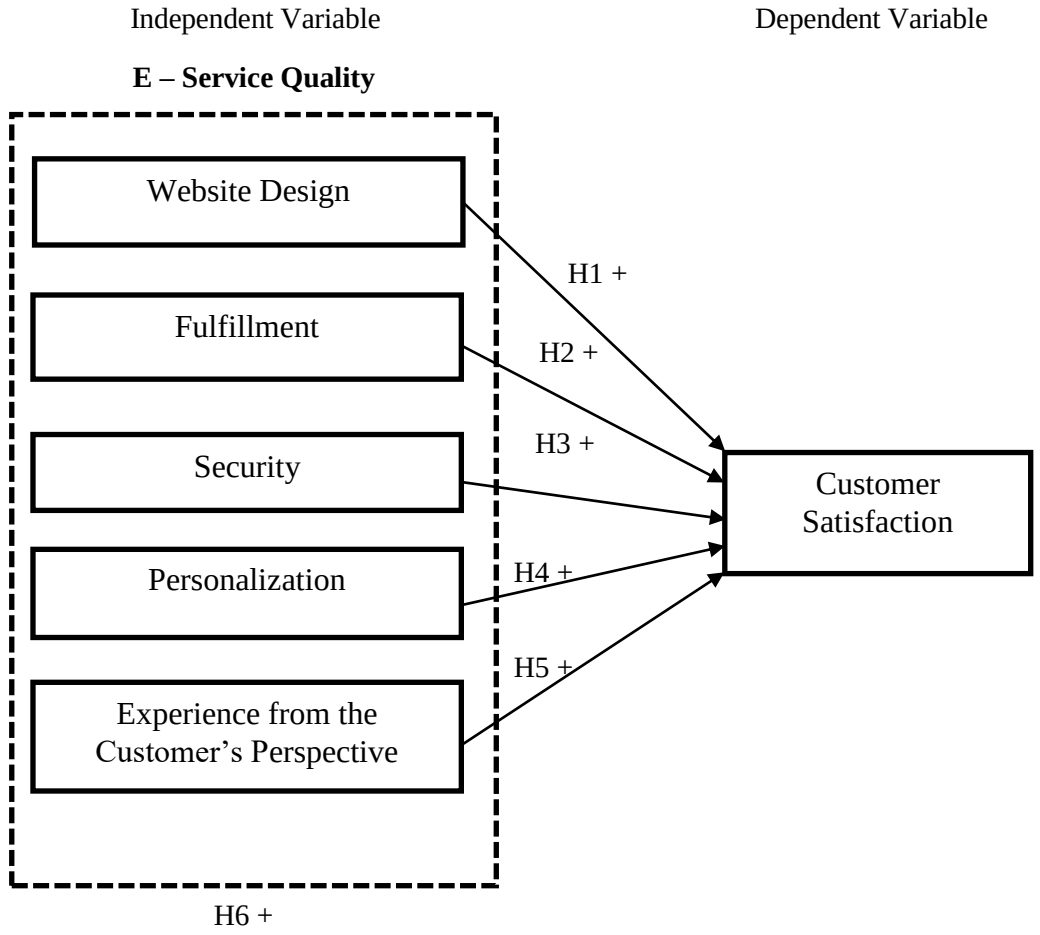

Figure 1: Conceptual Framework of the Study

This study was quantitative and accordingly adopted a causal research design. The data was collected through online survey questionnaires. Colombo district has a population of 23,24349 (Census and Statistics Report, 2012). It is the most populated district in Sri Lanka. Thus, data were collected in the month of December 2020 from 1st of December to 31st of December from Colombo using the convenient sampling technique adhering to travel restrictions and health guidelines. A sample of 200 questionnaires were received and used for the data analysis. Based on the previous literature, five dimensions of e-service quality were identified: web design, fulfillment, security, personalization, and experience from the customer's perspective (Merwe, 2010; Hossain & Hossain, 2011; Vatolkina et al., 2020). The indicators used to measure e-service quality dimensions were for web design (appearance, navigation, content, learning), for fulfillment (product browser, order processing speed, IT systems, billing), for security (confidentiality, integrity, availability, communication), for personalization (current device, online behavior, monitoring, interactivity), for experience from the customer's perspective (marketing campaign effectiveness, conversation rate, pages per visit, customer churn rate). Customer satisfaction was measured using four items. Accordingly, respondents were requested to provide their most relevant answer based on a five-point Likert scale on the statements related to independent and dependent variables of the study. Along with that, the respondents were asked to provide information on gender, age, marital status, and total monthly and income. Further, respondents were also asked to mention highly use brand names as well.

The SPSS 21.0 software was utilized to carry out reliability and hypotheses tests based on the collected data. While Skewness and Kurtosis were employed to assess the normality of data distribution and Cronbach's alpha was employed to measure the reliability, Pearson correlation analysis, and multiple regression analysis were employed to test five hypotheses developed based on the independent and dependent variables.

RESULTS AND DISCUSSION

According to Appendix I, dimensions of all the skewness and kurtosis lie between -2 and +2 (Malhotra, Nunan & Birks, 2015). Thus, the central peaks of all the variables were sharp and ensured normality. Further, mean scores and standard deviation values of e-service quality dimensions were as follows; for web design (3.65, 0.88), for fulfillment (3.64, 0.88), for security (3.78, 0.88), for personalization (3.71, 0.87) and, for experience from the customer's perspective (3.62, 0.87). This indicated that mean values of all the dimensions of the e-service quality were over 3 on the measurement scale. Furthermore, the standard deviation scores showed high variation in web design and security. Therefore, this indicates that customers had different opinions on web design and security for e-services in the telecommunication industry during the coronavirus outbreak period in Sri Lanka.

Reliability estimation (α) for all the dimensions of e-service quality and customer satisfaction construct was found higher than the threshold level ($\alpha > 0.7$) in appendix II. Accordingly, it can be concluded that adequate internal consistency exists with the dimensions of e-service quality and customer satisfaction.

Table 2: The Effect of E-service Quality Dimensions on Customer Satisfaction

Variable	**Customer Satisfaction**		**Supported / Not Supported**
	r	P	
Web Design	0.639 **	0.000	Supported
Fulfillment	0.677**	0.000	Supported
Security	0.744**	0.000	Supported
Personalization	0.728**	0.000	Supported
Experience from the Customer's Perspective	0.754**	0.000	Supported

Note: ** Correlation is significant at the 0.01 level (2-tailed)

According to the results of Table 2, Pearson correlation analysis indicated that all the dimensions of web design, fulfillment, security, personalization, and experience from the customer's perspective were significantly and positively correlated with the customer satisfaction ($P < 0.01$).

Table 3: Model Summary Table

Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**
1	0.827[a]	0.684	0.676	0.515

According to Table 3, the adjusted R square was 0.676. This shows the 67.6 percent variation of customer satisfaction is explained only by the e-service quality dimensions: web design, fulfillment, security, personalization, and experience from the customer's perspective.

Table 4: Coefficients Table

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	F	Sig.
	B	Std.	Beta				
(Constant)	-.014	0.179		-.080	0.936	84.132	.000
Web Design	0.010	0.076	0.010	0.130	0.897		
Fulfillment	0.200	0.079	0.194	2.540	0.012		
Security	0.303	0.072	0.296	4.200	0.000		
Personalization	0.036	0.085	0.035	0.419	0.676		
Experience from the Customer's Perspective	0.415	0.070	0.399	5.899	0.000		

As shown in Table 4 which represents the output of regression analysis, the significant level was 0.000 at F-statistic of 84.132 (df =4). This shows that e-service quality dimensions: web design, fulfillment, security, personalization, and experience from the customer's perspective were statistically significant to predict the customer satisfaction. Therefore, the regression model adopted in this study was fit with the data. However, table 4 shows, fulfillment, security and experience from the customer's perspective were the most influencing factors for customer satisfaction ($p < 0.05$) whereas significant values of web design ($0.897 > p$) and personalization ($0.676 > p$) were not statistically significant. Thus, the model can be developed to measure the impact of e-service quality of customer satisfaction in telecommunication industry during the coronavirus outbreak period in Sri Lanka by considering the values in Table 4.

$$\mathbf{Y_{CS} = -.014 + 0.200_F + 0.303_S + 0.415_{ECP}}$$

Accordingly, experience from the customer's perspective had the highest impact on customer satisfaction (0.415, $p < 0.05$) Therefore, it can be concluded that experience from the customer's perspective is the most influential factor effecting on customer satisfaction in telecommunication industry during coronavirus outbreak period in Sri Lanka.

According to Appendix III**,** majority of the respondents were females, which consisted of 59.5 percent of the sample size and the remaining 40.5 percent represented males. Nearly 49 percent of the sample was categorized into the age category of 25-35 years and only 5 percent was in the age category of 36-45 years. While 71.5 percent were single respondents and 28.5 percent were married respondents, majority of the respondents belonged to the category in which the total monthly income level was between LKR 20,000 and below, of which the percentage was 31.5 percent. Only 7.5 percent of the respondents were in the total monthly income level above LKR 120,000. There were 51.5 percent *Dialog* users, which represented a major part of the sample size and *Lanka Bell* users represented the lowest, only 0.5 percent. While 44.5 percent of the respondents indicated a daily e-services usage frequency more than 9 times while 10 percent of the respondents indicated a daily e-services usage frequency between 7-9 times.

CONCLUSIONS/ RECOMMENDATIONS

The main objectives of this study were to investigate the effect of e-service quality on customer satisfaction in the telecommunication industry in Sri Lanka and to identify the main factors influencing customer satisfaction of e-services offered by the telecommunication industry in Sri Lanka during the Covid 19. Six hypotheses postulated were analyzed and results revealed that all the dimensions of e-service quality: web design, fulfillment, security, personalization, and experience from the customer's perspective have a positive and significant influence on customer satisfaction. Thus, the study empirically validated the e-service quality model with five e-service quality dimensions and customer satisfaction in the context of telecommunication industry in Sri Lanka. However, the most influential factors of e-service quality in the context of the telecommunication industry were experience from the customer's perspective, security, and fulfillment. In the online shopping context, Rita, Oliveira & Farisa (2019) identify website design, security/privacy, and fulfillment as were most influential factors. Meanwhile, customer service is not a significant contributing factor to the e-service quality. However, the e-service quality factors which are influencing and contributing to customer satisfaction can be varied from a county to a country with a culture and the situation; online shopping (Pei, Guo, Wu, Zhou & Yeh, 2020; Rita, Oliveira, Farisa, 2019) banking (Ahmad & Al-Zu'bi, 2011; Shared, 2019) telecommunication (Zhou, Wang, Shi, Zang, Zang & Guo, 2019). Further, e-service quality is a predictor of customer satisfaction in the telecommunication industry in Sri Lanka. These findings provide several implications to the telecommunication industry in Sri Lanka. The e-service quality dimensions such as customer's experience perspective, security, fulfillment, web design, and personalization are essential to create and deliver a quality e-service. However, the three factors - customer experience perspective, security, and fulfillment contribute to superior service quality and competitive advantage in the Sri Lankan context during the Corona outbreak period. This study has several limitations, leading to future research directions as the study scope was bounding only to the Colombo district, so there is a limitation of generalization of the findings. Further, since this study has employed a structured questionnaire, variables such as customer behaviour, feelings and emotions were not accounted for. Moreover, this study validated only the e-service quality dimensions and did not investigate traditional service quality dimensions. Therefore, future studies need to explore more insight on the dimensions of e-services and the relationship between service quality and customer satisfaction.

Studies can be carried out by investigating both traditional and e-service quality dimensions in the context of telecommunication industry during and after the Covid 19 pandemic. Furthermore, this study can be further extended by considering wider geographical areas.

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ACKNOWLEDGMENTS

I extend my sincere gratitude to the research coordinator, Dr. Sujeevi Sapukotanage, Department of Marketing Management of the Open University of Sri Lanka and all the respondents who spent their time in completion of the questionnaire in this study.

APPENDIXES

Appendix I: Descriptive Statistic for Normality Test

Dimension	N	Min.	Max.	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Website Design	200	1.00	5.00	3.6550	.88878	-.457	.172	.200	.342
Fulfillment	200	.75	5.00	3.6413	.88204	-.573	.172	.711	.342
Security	200	1.00	5.00	3.7813	.88643	-.478	.172	.032	.342
Personalization	200	1.00	5.00	3.7163	.87815	-.497	.172	.251	.342
Experience from the Customer's Perspective	200	1.00	5.00	3.6213	.87180	-.433	.172	.349	.342
Customer Satisfaction	200	1.00	5.00	3.5288	.90614	-.406	.172	.092	.342

Appendix II: Summary of Reliability Analysis

Variable	Cronbach's Alpha	No. of Items
Website Design	0.861	4
Fulfillment	0.859	4
Security	0.855	4
Personalization	0.865	4
Experience from the Customer's Perspective	0.819	4
Customer Satisfaction	0.846	4

Appendix III: Demographic Characteristics of the Sample

Demographic Characteristics		Number of Respondents	Percentage (%)
Gender	Female	119	59.5
	Male	81	40.5
Age	16-24 years	78	39
	25-35 years	98	49
	36-45 years	10	5
	Above 45 years	14	7
Marital status	Married	57	28.5
	Single	143	71.5
Total monthly income (LKR)	20,000 and below	63	31.5
	20,001-40,000	58	29
	40,001-60,000	37	18.5
	60,001-120,000	27	13.5
	Above 120,000	15	7.5
Highly-used telecommunication brand during coronavirus outbreak period	Airtel	12	6
	Dialog	103	51.5
	HUTCH	10	5
	LANKA BELL	1	0.5
	Mobitel	51	25.5
	SLT	23	11.5
Daily e-services usage frequency with the highly-used telecommunication brand during coronavirus outbreak period	1-3 times	48	24
	4-6 times	43	21.5
	7-9 times	20	10
	More than 9 times	89	44.5