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### Service Quality Dimensions and Customer Satisfaction in online shopping: A customer's perspective

Amna Khan<sup>1</sup>, Syed Sohaib Zubair<sup>2\*</sup>, Sobia Khurram<sup>2</sup> & Mukaram Ali Khan<sup>2</sup>

<sup>1</sup> Institute of Quality & Technology Management, University of the Punjab, Lahore, Pakistan

<sup>2</sup> Institute of Administrative Sciences, University of the Punjab, Lahore, Pakistan

#### ABSTRACT

With the expansion of e-commerce, E-Service Quality is becoming increasingly important. The study aims to investigate the relationship between e-service quality dimensions and customer satisfaction in B2C online shopping in Pakistan emphasizing the customer's perspective. A total of five dimensions of e-service quality have been tested with endogenous variable i.e. customer satisfaction. Using a quantitative research strategy, data from 225 participants was collected using online questionnaires where 88% of the respondents already had the experience of online shopping that made a valid sample of 199. Smart PLS was used to conduct the data analysis. Following reliability and validity analysis, out of all five dimensions, reliability showed the strongest path coefficient of 0.323. Results also show that all the five hypotheses were supported except for responsiveness. As far as implications of the study are concerned, online shopping stores should devote valuable resource to enhance the significant e-service quality attributes that are emphasized by this study. Moreover, E-Services are becoming increasingly important in B2C e-commerce for improving customer relations and increasing sales and developing countries are of no exception to it. Lastly, as the study is conducted in Pakistani context, generalizability to other countries particularly outside South Asia may be limited due to difference in customers' shopping behaviours and attitudes.

#### Keywords

E-Service Quality, E-Commerce, Customer Satisfaction, B2C, Cash on Delivery

#### JEL

Classification  
L0, L20, L81, M10, M15

## 1. Introduction

E-commerce is the use of internet in conducting business transactions. It is widely spread in e-commerce models and applications that started a new movement called the dynamic e-business, which is the emerging technique of simplifying business transactions over the internet (Chen, Chen, & Shao, 2003; Sharma & Lijuan, 2014). Today, internet and web-based technologies have gained remarkable importance in business and organizations, especially those organizations that deal primarily in online business have increased their

\* Corresponding author: [sohaib.iqtm@pu.edu.pk](mailto:sohaib.iqtm@pu.edu.pk)

market share rapidly. The transition in marketplace is also encouraging conventional companies used to operate in old fashioned ways for carrying out their operations online. Consequently, internet serves as a crucial medium for buying and selling products by using online sites (Amin, 2016; Kamhawi & Gunasekaran, 2009; Khan & Faisal, 2015; Parthasarathy, 2012).

The digital dawn has led the e-service quality to become an important element for companies to retain old customers and to engage new ones, thus making it their utmost business strategy (Khan, 2013; Liu & Yang, 2012). Organizations not only apprehend the significance and effectiveness of online sites and their services for business ventures but also face difficulties in comprehending the perception of quality from customer's point of view (Awan, Khan, & Zhang, 2012; Hirmukhe, 2013). Lack of adequate service quality in e-business and services shows failures and demerits which are supported by wide evidences, also research of service delivery by means of online sites authenticates how service quality contributes to perception of customer towards overall service quality (Chen & Chen, 2014; Lennon & Harris, 2002).

According to Cronin and Taylor (1992), service quality is a theoretical construct which is hard to quantify. The first model of service quality developed by Parasurman *et al.* (1998) known as SERVQUAL has been extensively tested as a device for calculating customer perception towards service quality. The model of SERVQUAL has five different dimensions; "responsiveness, tangibles, assurance, reliability and empathy". Model of SERVQUAL has been widely used since past decades in measuring the e-service quality (Devaraj, Fan, & Kohli, 2002). It has full potential for measuring service quality in physical marketplace but in e-commerce setting there is a need for changing original scale items, only rewording them is not the solution. Therefore, researchers need to pay more attention in this area of research (Jeong, Oh, & Gregoire, 2003).

The rationale for this study emanates from the researcher's urge to unearth customer perspective for e-service quality in e-shopping and to emphasize the factors that have significant role in attaining customer satisfaction (CS) in e-shopping. This will help in better adoption of business-to-customer (B2C) transactions in Pakistan and help online store managers to grasp potential customers by improving the services they desire and keeping quality as their utmost priority. The e-retail business in Pakistan is still very low, being less than 1% of cumulative retail sale (Business Recorder, 2018). The significance of service quality and the challenges faced by the e-services makes it necessary to gather insights about what factors customers utilize in the evaluation of online service quality. This study provides the theoretical and academic evidence regarding what attributes significantly influence the perceived customer service quality. Therefore, this research is imperative in developing a

smooth transaction between service provider and customer which not only benefits the online service providers but also potentially benefits the society at large.

Although there have been various studies conducted on customer satisfaction and e-service quality, however, this study specifically tests each dimension of e-service quality in connection with CS unlike others including Khan *et al.* (2019). Even in the South Asian context, broadly E-SQ has been studied as a single latent construct, however, as mentioned earlier, this study informs the literature by testing each dimension of E-SQ against customer satisfaction. Moreover, unlike earlier studies in local context, this study also highlights various factors that impede the use of online shopping platforms. The online shopping or e-commerce industry is a rapidly growing industry, therefore attention should be given to issues related to this industry from the customers' perspective. Although several projects are conducted around e-service quality, but it seldom focuses on online shopping. Therefore, it is not yet evident from the literature whether or not service quality of online shopping is adapting to the challenges it is facing in the course of emerging B2C online shopping concept, consequently it is necessary to scrutinize factors contributing to the evaluation process of service quality of online shopping by consumers and it is particularly a curious topic for academics and practitioners. As far as theoretical underpinnings or contribution is concerned, several theories are linked with the idea of E-Service Quality and Customer Satisfaction from varied angles, however, utility theory here explains the "prioritization" of attributes of customer satisfaction and service quality that helps in strengthening the overall SERQUAL idea (Li *et al.*, 2002), precisely the theory aids in prioritizing those attributes of SERVQUAL that maximize expected utility of customers. This study also attempts to explore the most important dimension or attribute of service quality that aids in improving customer satisfaction.

Precisely, prime objective of the study is to analyze the dimensions of e-service quality in online shopping and to measure their effects on customer satisfaction. Along with this, an overall snapshot of customer profile of B2C online shopping sites with reference to various categorical factors such as age, gender, education, employment status and income level and the common problems faced by customers in online shopping are also being explored.

## **2. Literature review**

E-Service Quality can be defined as the "customer's assessment of the virtual marketplace by evaluating the quality of e-service". Since past decades, service quality measures have been implemented in virtual market places to evaluate the effectiveness of websites (Kuo, 2003) and to measure customer's satisfaction with these e-commerce channels and websites and also to regulate the factors necessary for the success of online

sites (Devaraj *et al.*, 2002). A complex phenomenon made up of intricate processes is known as online shopping, it can be segregated into various sub-processes: browsing, online transaction, navigation or customer interactions. Sub process will not likely be assessed by customers in much depth during their first encounter, rather services will be perceived as an overall shopping experience of the online platform (Van Riel *et al.*, 2001). Besides, online customers prefer high standards of service, therefore e-service quality is the only source which can be targeted towards the customer to build their perception regarding realization of the benefits the internet has to offer via online shopping sites (Al-Debei *et al.*, 2015; Yang, 2001).

Firstly, SQ has been conceptualized by Parasuraman as the gap between expectations of consumers & evaluations of service experienced by them. For measuring service-quality, a multi-item scale model has been developed and known as SERVQUAL (Parasuraman *et al.*, 1988). SERVQUAL consists of five dimensions namely “reliability, responsiveness tangibility, assurance and empathy”. This model has been extensively used in measuring service quality of information technology system (Dyke *et al.*, 1999; Pitt *et al.*, 1997). Keeping in view previous studies conducted for conventional in-store shopping, two prominent scholars Parasuraman and Zeithaml conducted research on online service quality which resulted in development of new measuring scales for e-services known as “e-SQ scale”, defined as “the extent to which a particular website facilitates efficient & effective business or purchase”. In the beginning, e-SQ scale consisted of eleven dimensions according to the study by Zeithamal *et al.* (2000). Later, further studies decreased this number to only seven dimensions (Parasuraman *et al.*, 2005). However, modified dimensions of E-SQ has been adapted for this study from Lee and Lin (2005) and Parasuraman *et al.* (2005).

First dimension is the *Website Service* which is related to the fundamental hub of information that helps customers to search for the product/service they are interested in and make purchase decisions (Jeon & Jeong, 2017). The design, aesthetics and characteristic of an online page have an influence on customer’s purchase (Shergill & Chen, 2005). Literature review regarding website service quality indicates that several dimensions have been proposed depending upon website properties. Virtual scale for website service quality has been put forth by Kuo (2003), where he suggested that webpage design, online quality, information safety, customer service management, and content can be used for the assessment of quality of a website (Kuo, 2003). Web portals perceived quality information has been measured by Yang *et al.* (2005) using accessibility, interaction, adequacy of information, usefulness of content and usability. Next, *Reliability* being the second dimension of SERVQUAL has been defined as “the ability to perform the service commitments consistently and accurately”. It has two facets: one includes the functions of

websites such as mode of payment and search engines. Other facet includes the product information, financial information and service commitment (if it is reliable as promised by the website) ( Yang *et al.*, 2003; Parasuraman *et al.*, 2005). The reliability consists of performing the promised services in the correct way at the very first time, and employees or organizations having sincere customer interest always provide the right services at the first instance for solving customers' problems. Therefore, as per Parasuraman *et al.* (1991), consumers not only evaluate dependability and accuracy of the services delivered but also how these services are being delivered.

The third aspect is *Responsiveness*, which is the desire of service providers to assist the customers and increase their service level swiftly. This dimension includes different items as follows: providing timely service, give right information to the customer and on time, willingness of staff in helping customers, providing prompt service to the customers (Alqeed, 2013; Huang *et al.*, 2018). Responsiveness measures firms willingness and ability in providing prompt services to the consumers during time of queries or problems (Zeithaml *et al.*, 2002). Fourth dimension is *Trust* which is defined as “*the willingness to be vulnerable to something in spite of having risks and uncertainties of the situation*” (Rousseau *et al.*, 1998, p.395). Hence in e-commerce setting e-retailers helps the consumers to overcome the perceptions of risks in online interactions. McKnight *et al.* (2002) established that trust is vital for e-commerce, and following this argument building of trust is even more critical and important in e-commerce. Yet it has been observed that trust and the antecedents of trust are indefinable and cannot be comprehended effortlessly. Lastly, *Privacy* is defined as “*the degree to which the site is safe and protects customer information*” (Khan *et al.*, 2018, p.150). It is the dimension of security that originates from dimension of assurance of SERVQUAL, and has following items: trustworthy employees, providing ease to the customers during transactions, and support to the employees from company (Zavareh *et al.*, 2012).

Moreover, customer satisfaction has been conceptualized as “the evolution of an emotion” (Hunt, 1977). It is suggested that customer satisfaction is a degree of possession of a service, leading to a customer believing that he/she has gained something good and evokes positive feeling. Another notable aspect is the conceptualization of customer satisfaction into two broad ways: one is when an emotional response is triggered because of specific performance attribute of a particular service experience, it is known as the transaction specific customer satisfaction. On contrary, when satisfaction depends on various factors that occur again and again during transactions, it conceptualizes as overall customer satisfaction or cumulative outcome (Shankar *et al.*, 2003). Hence, in an e-environment, when a customer makes a purchase for the very first time from a new service provider, then the “website satisfaction” will be transaction specific. Alternatively, when a

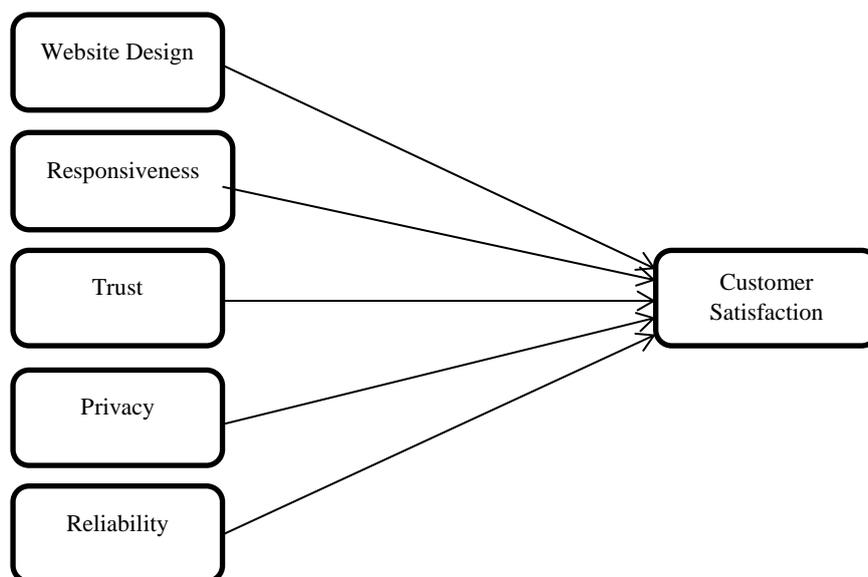
customer purchases a product repeatedly from same online retailer then it will be known as cumulative outcome (Chang, 2005). It has been established that service quality and customer satisfaction are different constructs with high disparity whereas satisfaction and service quality are the constructs with high similarity and correlation (Richard, 1997). According to Putrianti and Semuel (2018), among all predictors including E-SQ, Trust and perceived value, E-SQ was found to be the most influential predictor towards escalation of buying intention of customer. Similarly, Rico et al. (2019) found positive association between service quality and customer satisfaction. In a recent study conducted by Khan *et al.* (2019), researchers developed a model using covariance based SEM and concluded a significant positive relationship between E-SQ and E-CS.

Ali (2016) reports a positive relationship between customer satisfaction and website service. Similar finding was observed in online tourism as well (Pereira *et al.*, 2017). According to Jauhari *et al.* (2019), it is good to have better website design to enhance the customer satisfaction. As far as Reliability is concerned, a study was conducted in Kigali branches with 498 respondents using cross sectional research design. A positive relationship between customer satisfaction and reliability was reported (Felix, 2017). Similar findings were found in Malaysian banks (Kashif *et al.*, 2015). According to Al-dweeri *et al.* (2018), reliability was found to be the positive predictor contributing towards customer satisfaction. Responsiveness was found to be positively related with customer satisfaction as well (Agnihotri, 2016; Felix, 2017). Trust seems to be a significant dimension of service quality as well in terms of escalating customer satisfaction (Dimyati, 2018). Similarly, Putrianti and Semuel (2018) found a positive relationship between E-SQ and escalation of buying intention of customer. Rico *et al.* (2019) studied similar relationships using SEM and found positive relationship between trust and customer satisfaction. Lastly, privacy also has a positive relation with customer satisfaction in internet banking (Ling *et al.*, 2016). Moreover, a similar study was conducted on Jordanian students and found positive relationship between customer satisfaction and privacy (Al-dweeri *et al.*, 2018).

E-Services are very significant in B2C e-commerce for the sake of managing customer relations and boosting sales. In today's electronic world the customer and the online shopping provider do not meet face to face, and customers are more sensitive to increasing products and various options available to them. Similarly it is easy for them to switch from one website to another with a single click of mouse (Singh, 2002). A study by Nazir *et al.* (2012) was conducted to find out the factors affecting consumers in online shopping. Trust was found to be the most important factor as customer can hesitate in shopping because of insecure transaction and payment system. Another research conducted by Bashir (2013) focused on the consumer behaviors in online shopping and was found that price, convenience and time saving are the factors that influence online shopping, and their service

quality should be improved. A study by Zafar *et al.*(2011) conducted study in e-banking and findings suggested that e-servqual dimensions and customer satisfaction had a significant relation. Moreover, web service quality should be improved to gain high levels of customer satisfaction.

It is not clear from the literature whether service quality of online shopping is adopting the challenges it faced during B2C online shopping, consequently it is necessary to scrutinize factors contributing to the evaluation process of service quality of online shopping by consumers and it is particularly a curious topic for academics and practitioners. Thus, SERVQUAL model should be reformulated in context of online shopping characteristics. This study adapts e-service quality dimensions developed by Lee and Lin (2005) and Parasuraman *et al.* (2005). The conceptual framework of the study is developed on the basis of the relationships between the exogenous variables (E-SQ dimensions) and endogenous variable (customer satisfaction) as shown in Figure 1.



**Figure 1: Conceptual Framework**

On the basis of the literature reviewed and framework developed, following hypotheses are formulated;

- H<sub>1</sub>*: Privacy in B2C shopping has a positive impact on CS.
- H<sub>2</sub>*: Reliability in B2C shopping has a positive impact on CS
- H<sub>3</sub>*: Responsiveness in B2C shopping has a positive impact on CS.
- H<sub>4</sub>*: Trust in B2C shopping has a positive impact on CS.
- H<sub>5</sub>*: Website design in B2C shopping has a positive impact on CS.

### **3. Research methodology**

A quantitative strategy is followed here using a descriptive research approach. This approach is designed to determine and identify the participants accurately. Moreover, in this study, survey design is used to collect primary data from a sample of large population. The survey was conducted in Pakistan and filled by online shopping consumers. The data was collected using google forms platform. The link to the designed google survey was shared on various promotional pages of various social media sites. For that matter, convenience sampling strategy was used because the population frame is not available. Population frame could have been available if a case analysis of one website was conducted, but due to the already critical issue of data privacy, no organization was willing to share their customer profiles/data. This study consisted of a sample of 225 respondents. This is the total number of subjects who participated in the research by filling the online questionnaire. However, 26 individuals had never conducted an online transaction, therefore, the data of only 199 respondents was used for conducting hypotheses testing.

As mentioned above, the sampling strategy used in this research is homogenous convenience sampling, which is the most common type of non-probability sampling, and offers clearer generalizability as compared to conventional convenience sampling. It can be defined as the availability of a sampling to a researcher by means of its accessibility (Bryman, 2006).

The questionnaire used for the study has three sections. Section one was designed to find out the demographic and socio-economic factors of the customers. Section two was designed to collect information about shoppers and non-shoppers, their preferences, frequency and hurdles they faced during online shopping. Section three was based on modified SERVQUAL model and was developed to collect data about E-Service Quality dimensions, and was to be filled in a manner of five-point Likert scale, selecting between strongly disagree to strongly agree. The definitions and source of measures adapted for each construct are mentioned in table 1. Three items each were used to measure website design (e.g, “The online store is visually appealing”), reliability (e.g, “Transactions with the online store are error-free”), responsiveness (e.g, “I believe the online store is always willing to help customers”) and trust (e.g, “I trust the online stores”), whereas, four items each were used to measure privacy (e.g, “It protects information about my Web-shopping behavior”) and endogenous variable i.e. customer satisfaction (e.g, “Overall, I am very satisfied with my shopping”).

**Table 1: Constructs Definition**

Construct	Definition	References
Website Design	It is the degree of user friendliness of an online store as perceived by customer.	(Lee and Lin, 2005)
Reliability	It is the degree of accurate and persistent services provided by an online store as perceived by customer.	(Kim and Lin, 2002)
Responsiveness	It is the degree of willingness and helpfulness of services provided by an online store as perceived by customer.	(Lee and Lin, 2005)
Trust	It is the degree of trust and overcoming the perception of uncertainties of an online store as perceived by customer.	(Kimery and McCord, 2002)
Privacy	It is the degree of protection and safety of an online store as perceived by customer.	(Tsai and Yeh, 2010)
Customer Satisfaction	It is the degree of satisfaction of an online store as perceived by customer.	(Wen <i>et al.</i> , 2014)

To explore the objectives of the study and for testing hypotheses, Smart PLS was employed on the collected data due to its non-normal distribution. Sample characteristics were analyzed by drawing frequency tables.

#### **4. Results and discussion**

The data analysis begins with the brief demographic profile of the respondents. The study revealed that both male and female customers are inclined towards online shopping with almost equal frequencies, more than half of the respondents are between the ages of 18-25 years. Eighty three percent of the respondents have acquired bachelors or MS/MPhil degrees indicating that majority of the users are highly educated and are aware of the benefits and drawbacks of online shopping. Employment status indicated that almost half of the respondents are employed, having monthly income between the bracket of PKR 20,000-40,000.

**Table 2: Descriptive Statistics of the Demographics**

Variable		Frequency	Percentage
Gender	Female	115	51.1
	Male	110	48.9
	Total	225	100.0
Age (Years)	18 to 25	117	52.0
	26 to 35	79	35.1
	36 to 45	15	6.7
	Above 45	6	2.7
	Under 18	8	3.6
	Total	225	100.0
Education Level	Bachelors	95	42.2
	Intermediate	18	8.0
	MS/M.Phil.	92	40.9
	Other	15	6.7
	PhD	5	2.2
	Total	225	100.0
Employment Status	Employed	99	44.0
	Homemaker	13	5.8
	Others: housewife	1	.4
	Retired	2	.9
	Self-employed	18	8.0
	Student	67	29.8
	Unemployed	25	11.1
Total	225	100.0	
Monthly Income (PKR)	21,000 – 40,000	51	22.7
	41,000 – 60,000	42	18.7
	61,000 – 80,000	17	7.6
	81,000 – 100,000	17	7.6
	Above 100,000	22	9.8
	Below 20,000	76	33.8
Total	225	100.0	

In evaluating customer's profile, it is necessary to carry out the frequency analysis. Factors indicating customer's perceptions led to the conclusion that 88% of the respondents have experienced online shopping and majority of them prefer online shopping because it saves time. Most of the customers are already using the medium of online shopping for over period of 12 months. Cash on delivery was their most preferred mode of payment.

**Table 3: Descriptive Statistics of the Factors in online shopping**

Variable		Frequency	Percent
Online shopping	Yes	199	88.4
	No	26	11.6
	Total	225	100.0
Shopping Time	Never	26	11.56
	Less than 3 months	63	28.0
	3–6 months	32	14.2
	6–12 months	35	15.6
	More than 12 months	69	30.6
Shopping Frequency	Total	225	100.0
	Never	26	11.56
	Less than 3 times	106	47.1
	3–6 times	58	25.8
	More than 6 times	35	15.6
Preferred Payment Mode	Total	225	100.0
	Never	26	11.56
	Debit card	24	10.7
	Credit card	19	8.4
	Online Banking e-Payments	9	4.0
Shopping Preference	Cash on Delivery	145	64.4
	Other	2	0.9
	Total	225	100.0
	Saves time	105	46.8
	Convenient	68	30.2
Shopping Preference	Low Price/Discounts	30	13.3
	Product Variety	15	6.6
	Other	7	3.1
	Total	225	100.0

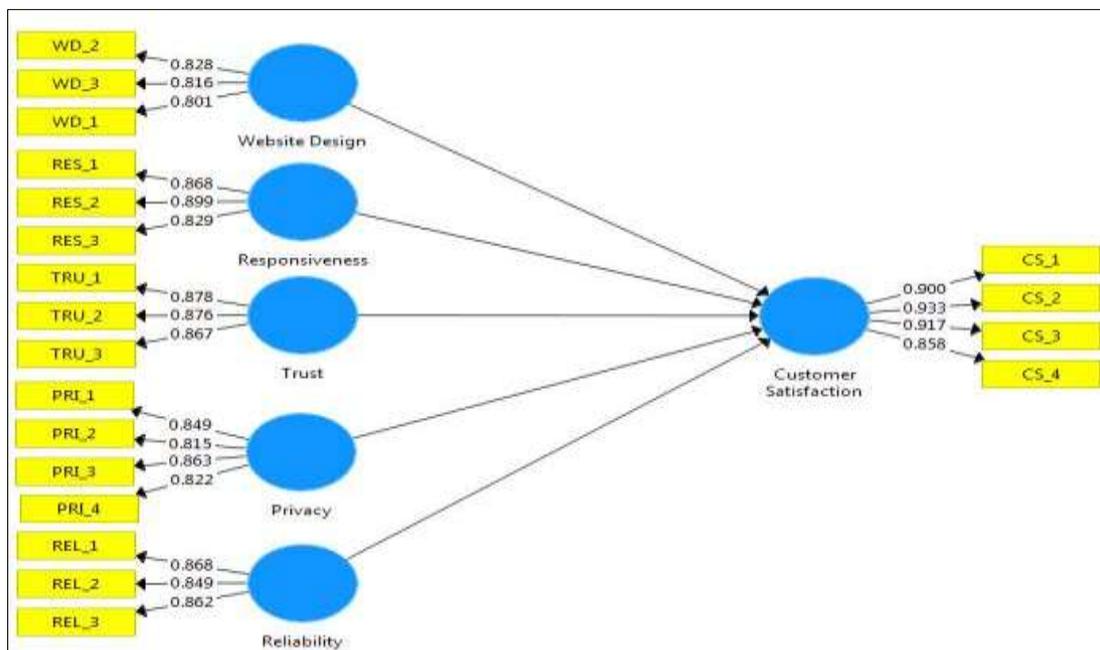
Furthermore, to highlight factors that discourage and impede a consumer’s decision to shop online, it was deemed necessary to add an open-ended question to elicit participants’ thoughts about the factors they considered as impediments to their online shopping. The most pressing factor was found to be lack of product quality reported by 37% (n=139) of the respondents, indicating that product quality was not the same as it appeared online.

Another important factor to hindrance was the return and repair of the faulty products having lengthy procedures, which overall makes online shopping an unpleasant experience as compared to conventional shopping for 20% (n=74) respondents. Other factors with more or less equal response rate focused on Additional Charges, Lack of Security and Warranty 12% (n=46), 11% (n=43) and 10% (n=36) respectively. It showed an almost equal importance in the eyes of customers. Delivery and logistics have a response rate of 8% (n=29) which is again noteworthy. Some respondents did not participate much in adding other factors for hindrance yielding a response rate of 2% (n=6) as shown in figure 2.



**Figure 1: Factors hindering online shopping**

Next, inferential hypotheses testing starts with the measurement model in order to calculate the reliability and validity. However, this study found out that all the loadings were above threshold value of 0.70 which meant that all the items were retained in the study as per the following figure 3.



**Figure 3: Measurement Model**

Construct validity is calculated by using Smart PLS. In case of construct validity, it is mandatory to have factor loadings of more than 0.60 (Chin, 1998) and in this study, all the factor loadings were way beyond the threshold i.e. more than 0.80. As it is clear from table 4, factor loadings for customer satisfaction are above 0.90 except one item that is CS-4 which is above 0.80. In case of privacy, all factor loadings are above 0.80. Similar pattern has been observed for Reliability, Responsiveness, Trust and Website Design with factor loadings between 0.80 and 0.90. Cross loadings are shown in table 4.

**Table 4: Cross loadings**

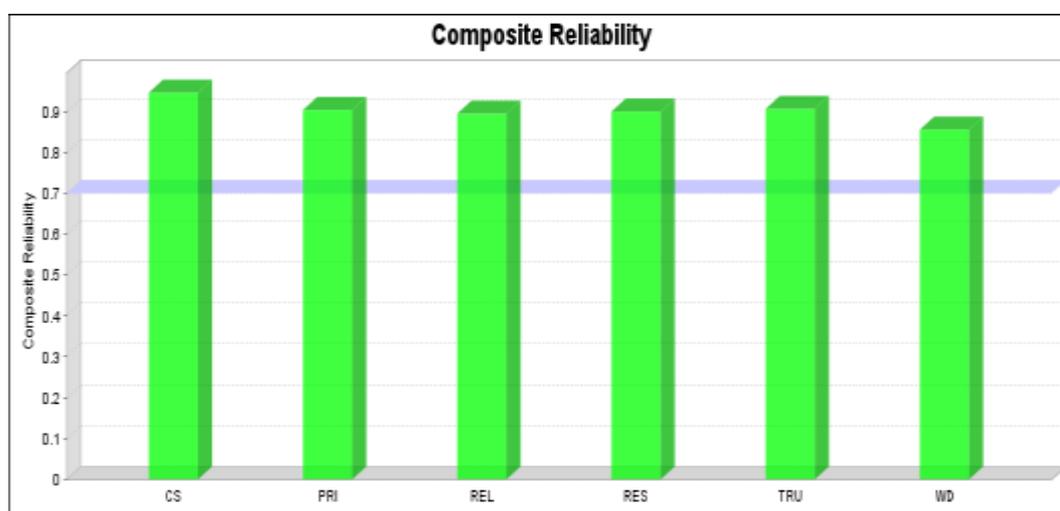
	CS	PRI	REL	RES	TRU	WD
CS_1	<b>0.900</b>	0.510	0.603	0.438	0.500	0.572
CS_2	<b>0.933</b>	0.436	0.579	0.431	0.521	0.527
CS_3	<b>0.917</b>	0.401	0.582	0.465	0.542	0.426
CS_4	<b>0.858</b>	0.357	0.536	0.462	0.508	0.447
PRI-1	0.442	<b>0.849</b>	0.414	0.239	0.473	0.299
PRI-2	0.277	<b>0.815</b>	0.249	0.104	0.245	0.185
PRI-3	0.416	<b>0.863</b>	0.297	0.185	0.354	0.288
PRI-4	0.417	<b>0.822</b>	0.337	0.236	0.342	0.244
REL_1	0.545	0.306	<b>0.868</b>	0.416	0.439	0.399
REL_2	0.557	0.298	<b>0.849</b>	0.462	0.481	0.467
REL_3	0.544	0.418	<b>0.862</b>	0.387	0.418	0.372
RES_3	0.424	0.258	0.374	<b>0.829</b>	0.452	0.462
RES_1	0.421	0.220	0.522	<b>0.868</b>	0.452	0.510
RES_2	0.444	0.144	0.383	<b>0.899</b>	0.491	0.548
TRU_1	0.435	0.365	0.448	0.431	<b>0.878</b>	0.259
TRU_2	0.472	0.397	0.462	0.468	<b>0.876</b>	0.361
TRU_3	0.574	0.376	0.450	0.499	<b>0.867</b>	0.347
WD_2	0.501	0.337	0.372	0.436	0.346	<b>0.828</b>
WD_1	0.389	0.253	0.407	0.545	0.325	<b>0.816</b>
WD_3	0.440	0.158	0.402	0.466	0.238	<b>0.801</b>

Second condition related to construct validity is composited reliability value, whose threshold value should be more than 0.70. Third condition related to construct validity is Average Variance Extracted (AVE) whose threshold value is 0.50, and any value beyond 0.50 is considered to be good for construct validity (Hair *et al.*, 2006). Following table 5 shows the values of composite reliability (between 0.856 and 0,946) and AVE (between 0.664 and 0.814). All of the values are beyond threshold values.

**Table 5: Reliability and Validity of Constructs**

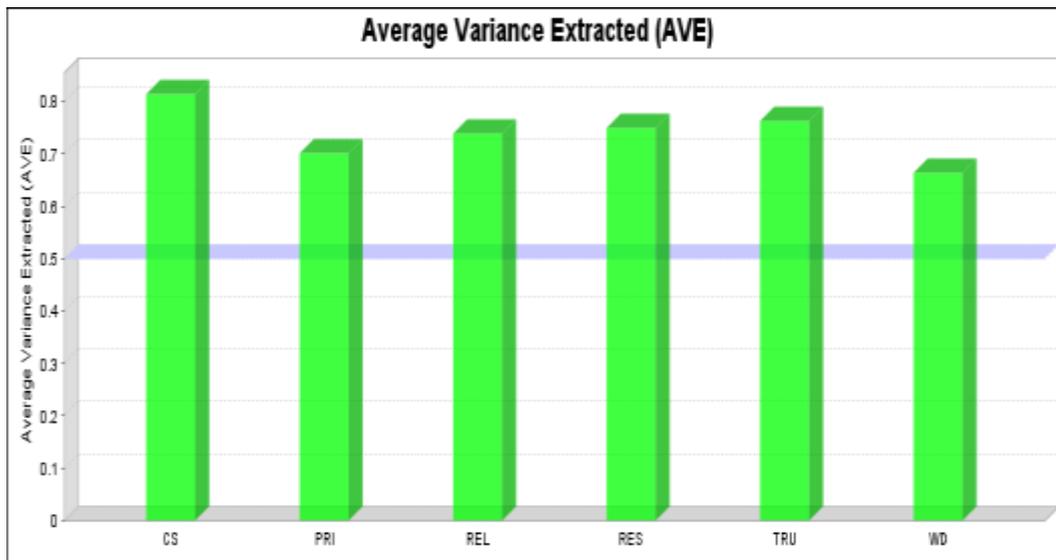
Latent Variables	Cronbach's Alpha	Composite Reliability	Average Variance Extracted
CS	0.924	0.946	0.814
PRI	0.859	0.904	0.701
REL	0.824	0.895	0.739
RES	0.832	0.900	0.750
TRU	0.847	0.906	0.763
WD	0.749	0.856	0.664

Composite reliability and AVE are also presented through graphs in the following figures 4 and 5. Composite reliability shows inter consistency among items of the scale and it can be seen in figure 4 that all the values are beyond the threshold value of 0.70.



**Figure 4: Composite Reliability**

AVE is used for construct validity and assumes that if the AVE values are higher than the threshold value of 0.70, then it is considered to have existence of construct validity as shown in figure 5.



**Figure 5: Average Variance Extracted**

For divergent validity, an old yet mostly used principle of “fornell-larcker” is used and it shows that “all of the construct items are distinct” (Hair *et al.*, 2013). As per this principle,  $\sqrt{AVE}$  should be greater than the correlations. Table 6 shows that discriminant validity is present in this study as  $\sqrt{AVE}$  ranges from 0.815 to 0.902 whereas correlation’s maximum value is 0.638 which shows that participants were able to discriminate among latent constructs.

**Table 6: Discriminant Validity**

	CS	PRI	REL	RES	TRU	WD
CS	0.902*					
PRI	0.475	0.837*				
REL	0.638	0.396	0.860*			
RES	0.497	0.238	0.491	0.866*		
TRU	0.573	0.435	0.519	0.538	0.874*	
WD	0.549	0.311	0.481	0.586	0.373	0.815*

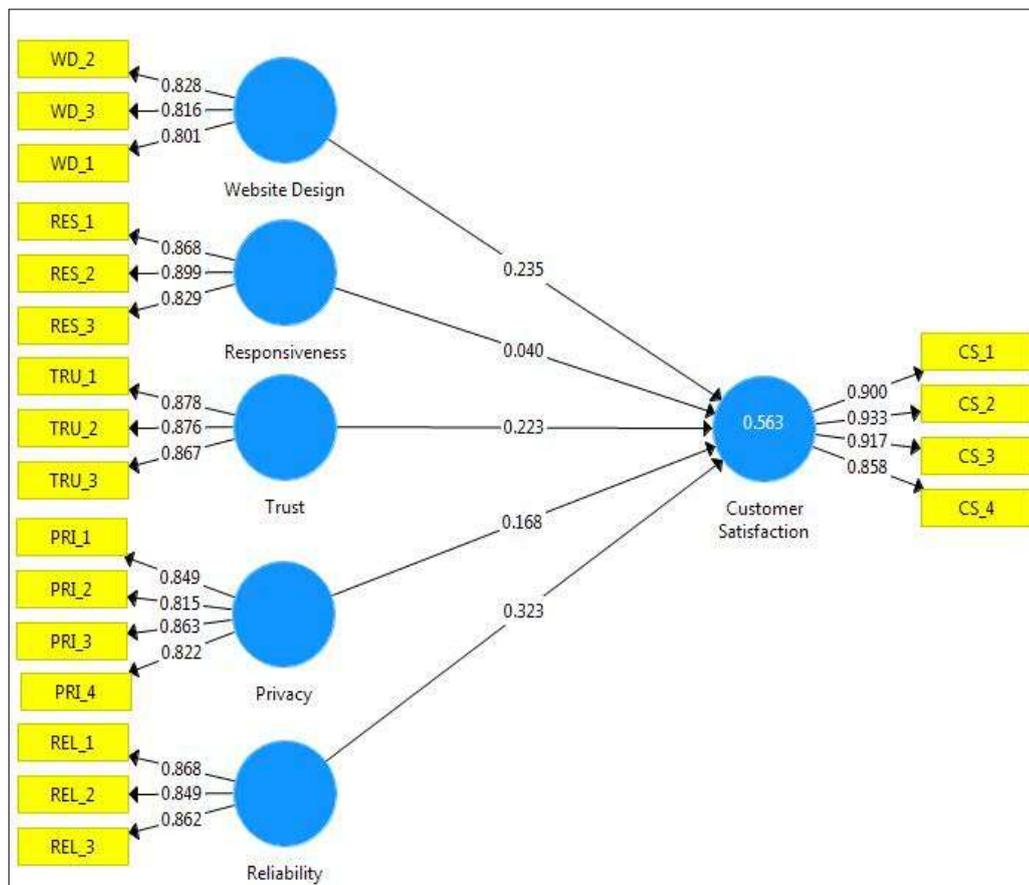
\* $\sqrt{AVE}$

There is another technique used to test the discriminant validity i.e. Heterotrait Monotrait Ratio (HTMT). As per this technique, values of all the constructs should not exceed 0.90 and if this is the case then one can say that discriminant validity is present in the data. According to table 7, it can be seen that all in-between construct values are less than the threshold value i.e. 0.90 with highest HTMT value of 0.748.

**Table 7: Heterotrait Monotrait Ratio**

	CS	PRI	REL	RES	TRU	WD
CS						
PRI	0.516					
REL	0.731	0.460				
RES	0.568	0.271	0.594			
TRU	0.639	0.493	0.621	0.635		
WD	0.650	0.372	0.613	0.748	0.461	

Moreover, structural model is developed that depicts Path coefficients, R-Square and effect size. “Path coefficient” is used to determine the significance of each hypothesis. It can be seen in table 7 that path coefficients of PRI→CS, REL→CS, RES→CS, TRU→CS, WD→CS are 0.168, 0.323, 0.040, 0.223, 0.235. All paths are having significant values i.e. p-value < 0.05 except RES→CS whose p-value is 0.710 which shows that all the hypotheses are accepted except H<sub>3</sub>. Positive Coefficient (0.168) of PRI→CS shows that privacy helps customers in increasing satisfaction while engaging in B2C online shopping. Similarly, positive coefficient (0.323) for REL→CS implies that customers give relatively high priority to platforms which have consistent and error free service. Referring to the path coefficient (0.223) of TRU→CS, it can be observed that trust plays an important role in increasing confidence of the customers. Among accepted hypotheses, path coefficient (0.235) of WD→CS implies that easy user interface and appealing outlook of the website also positively affects customer satisfaction of online customers. On the other hand, path coefficient (0.040) of RES→CS was found to be insignificant, i.e. responsiveness does not contribute towards escalating customer satisfaction. Furthermore, R<sup>2</sup> value is tested using “PLS-Algorithm”. Its value should be more than 0.10 in order to accept “model’s predictive relevance” (Falk & Miller, 1992). In this case, R<sup>2</sup> value is quite significant as it is more than the threshold value of 0.10 i.e. 0.563 or 56.3%. Moreover, as per table 8, “Variance Inflation Factor” (VIF) is accessed for the paths PRI→CS, REL→CS, RES→CS, TRU→CS, WD→CS and is concluded that all the VIF values are within the threshold value of 5 (Ringle *et al.*, 2015), which indicates that collinearity does not exist among independent variables.



**Figure 6: Structural Model**

Literature highlights that “effect sizes of 0.02, 0.15, and 0.35” are taken as “small, medium and large effects” (Cohen, 1988).  $F^2$  values are used in order to find the effect sizes. The rule of thumb in this case is that if  $F^2$  value is less than 0.10 then it is considered as ‘small’ effect and if the  $F^2$  values are between 0.10 and 0.35 then it is taken as ‘medium’ effect. However, if  $F^2$  is found to be more than 0.35 then effect is considered as ‘large’ (Hair *et al.*, 2013). In this case, the effect size of PRI→CS, TRU→CS and WD→CS is 0.048, 0.065 and 0.075 with significant p-values of less than 0.05 showing small size effects. However, the effect size of REL→CS is 0.153 which is taken as the medium level effect. Lastly, there is also insignificant effect of RES→CS found with  $F^2$  of 0.002.

Lastly, the fifth technique for model fit namely  $Q^2$  is used to predict the “predictive relevance of path model”. Fornell & Cha (1993) is of the view that threshold value for  $Q^2$  should be zero and if value of  $Q^2$  is positive it shows the predictive relevance of the model however if the value is negative; it shows that predictive relevance of model is lacking. Table 8 shows the value of  $Q^2$  of 0.418 which is quite significant to predict model’s relevance.

**Table 8: Structural Model Analysis**

Hypothesis	Paths	Path Coef.	P-Value	Results	VIF	F <sup>2</sup>	R <sup>2</sup>	Q <sup>2</sup>
H <sub>1</sub>	PRI→CS	0.168	0.047*	Supported	1.33	0.054*	0.56	0.42
H <sub>2</sub>	REL→CS	0.323	0.002*	Supported	1.67	0.153*		
H <sub>3</sub>	RES→CS	0.040	0.710	Rejected	1.93	0.002*		
H <sub>4</sub>	TRU→CS	0.223	0.026*	Supported	1.76	0.065*		
H <sub>5</sub>	WD→CS	0.235	0.043*	Supported	1.68	0.075*		

\*p&lt;0.05

## 5. Conclusions, recommendations and implications

The objective of this study is to achieve a better comprehend e-service quality dimensions affecting customer satisfaction in online shopping context. The findings of Smart PLS suggest that all e-service quality dimensions positively effect on customer satisfaction except for Responsiveness. Moreover, out of all five dimensions, REL→CS showed the strongest path coefficient of 0.323. WD→CS showed the second strong and significant path coefficient of 0.235. Moreover, TRU→CS path coefficient was 0.223 and last significant path coefficient was 0.168 for PRI→CS. The acceptance of hypotheses are supported through literature as well (Ali (2016; Dimiyati, 2018; Felix, 2017; Kashif *et al.*, 2015; Ling *et al.*, 2016; Pereira *et al.*, 2017). Moreover, it was also observed that RES→CS path coefficient was insignificant. Hence, it is concluded that all the hypotheses are supported except H<sub>3</sub>. This finding is very critical in the present study as people in Pakistan may tolerate or accept any responsiveness related issues in B2C online shopping. Similar pattern was observed in a study where responsiveness was a significant factor in banking industry of Pakistan in terms of service quality, but its significance level was lower among all dimensions of e-service quality (Ali & Raza, 2015; Raza *et al.*, 2015). This finding needs further exploration and in-depth analysis.

Lastly, cash on delivery is a very crucial component in Pakistan as identified in this study, as many as 64.4% of respondents preferred cash on delivery option as their preferred mode of payment. This finding is not something out of blue, rather many developing countries focus on cash on delivery due to the transaction security and privacy issues (Rahman *et al.*, 2018). Data also revealed that online shopping is also done for time saving as 46.8% of the respondents do online shopping merely for saving time. This finding can also be validated with the findings where researchers believe that online shopping can save a lot of time as compared to conventional shopping (Shanthi & Desti, 2015). Thirty seven percent of the respondents were of the view that product quality is the issue in online shopping as when product is delivered it is not the same as displayed on website. This

finding can also be linked with the perceived risks in purchasing online, where product quality is considered as one of the significant risks while buying online (Pappas, 2016).

The swift development of e-commerce has led to the realization that key determinant of success is the delivery of high-quality services to the customers. If the management of online businesses wish to maintain e-service quality at high levels then they must pay attention to dimensions of e-service quality as highlighted in this study. Results highlight that among E-SQ dimensions, Reliability has the highest influence on customer satisfaction; therefore, online shopping stores should regard it as their utmost priority to enhance Reliability by developing stringent marketing strategy focusing on time management, customer services and transactions based on authenticity and accuracy every time a customer uses the platform.

This study recommends that managers should also emphasize on other dimensions of e-service quality because of their positive influence on customer satisfaction. Trust is seen to be the second largest contributors towards E-SQ which managers should use as an opportunity to capitalize in their e-businesses, and this may be done by providing timely customer services, easy return and refund systems. Website Design should also be the focus of managers and these designs should be customer-friendly with ease of use ensured to increase customer satisfaction. Satisfaction through website design can be achieved by keeping it simple yet comprehensive, also the website should always be updated, and it should enable customers to navigate through various pages easily. Similarly, privacy and security of personal data has been one of the key concerns for customers in Pakistan due to increasingly reported fraudulent cases, hence, managers should focus on privacy dimension as well in order to capture the customer satisfaction, and this also reflects in why Cash on Delivery (COD) is the preferred mode for payment of majority customers in Pakistan. Due to the growing nature of this industry, the e-commerce entrepreneurs and state regulatory bodies should sit together and develop mechanisms to overcome issues associated with data privacy and online transactions. Lastly, online shopping stores should devote valuable resources to enhance the significant e-service quality attributes that are emphasized by this research. It will be helpful in attracting new customers and retaining the existing customers.

## **6. Future research directions and limitations**

The study can be replicated further by using various research methodologies. Interviews and focus groups sessions can be conducted to have an in-depth evaluation of relationship between customer satisfaction and service quality. Future studies can undergo comparisons with other countries and can be reproduced in different cultures by using the same measuring instrument; as this will provide a much needed comparison of B2C online shoppers across cultures. The research can be enriched by the expansion of the current model. Further depth can be added in future studies by focusing on differences in other markets and geographic

regions. Future studies can discover how the quality dimensions (other than e-service quality) suggested by other researchers affect the customer's perspective in online shopping. The current study is conducted from the perspective of a customer, one may explore and evaluate e-service quality in B2B dealings as well.

Although the study has provided sufficient information and relevant insights for the customer's online shopping adoption in Pakistan, but there are a few limitations which are associated with the study. The first and the foremost limitation is the sample employed, as the study is conducted by taking convenience sample through online medium in Pakistani Cities only, which may not be generalized as representative of online shopper's population. The current research is generic by nature which limits its scope to be applicable to all segments of industry. Moreover, the relationship between exogenous and endogenous variables can be further tested by taking various hurdles identified earlier as control variables. Finally, since the study is conducted in Pakistan, generalizability to other countries, outside South Asia may be limited due to major difference in customers' shopping behavior.

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