

# The Influence of e-Service Quality Dimensions on Customer Satisfaction and Purchase Intention: An Indian e-Market Perspective

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**Abstract:** This paper developed a research model to examine the relationship among e-service quality dimensions, customer satisfaction and purchase intentions. Data from an online survey of 292 Indian online shoppers were collected using self-administered technique and analyzed with partial least squares (PLS) structural equation modelling to empirically test the model. This study suggests that to enhance customer satisfaction and purchase intentions, online shopping should develop e- marketing strategies to better address the dimensions of information, personalization, security/privacy, and responsiveness of web-based services. Online shopping should allocate more corporate resources to develop key e-service quality dimensions identified by this study. This study developed an instrument to assess of e-service quality by modifying the SERVQUAL model to consider the online shopping context.

**Keywords:** E-Service Quality, Online Shopping, Customer Satisfaction, Online Purchasing, Structural Equation Modelling.

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## 1. INTRODUCTION

The Asian region is predicted to experience an unprecedented e-commerce growth in the next few years. In 2018, the amount of online buyers in Asia Pacific was predicted to cross the one billion mark, which can be attributed to the fact that Indian has 60% of all Internet users in Asia. In par with the regional growth, India displays positive forecasts for the e-commerce industry. The present e-commerce saturation in India is merely at 28%, with plenty of areas for development. It is highly likely that between the years 2016 to 2021, India's retail e-commerce compound annual growth rate (CAGR) is expected to reach 23% (Statista, 2019).

By the year 2034, the rapidly growing Indian e-commerce industry is anticipated to exceed the US and appear as the 2nd biggest e-commerce marketplace in the world. From US\$ 38.5 billion in the year 2017, the e-commerce market is projected to touch US\$ 200 billion within 10 years. With the help of increased income and rise in the number of Internet users India's e-commerce market is expected to develop more than four times to US\$ 150 billion by 2022. Online shoppers in India are expected to surpass 120 million in 2019 and eventually 220 million by 2025. Average online retail spending in India was US\$ 224 per user in 2017 (India Brand Equity, 2019).

As the amount of income increases along with the awareness amongst Indian shoppers online, the demand for international brands and high-quality imported products is also on the rise. Numerous product types comprising of lifestyle products, consumer electronics, clothing, footwear, jewellery and accessories, health and beauty, household goods, art and collectibles as well as event tickets and online music sales are high in demand in the Indian market (Export.gov, 2019).

Shopping online is preferred over the conventional shopping in malls as it is far more convenient with the help of Internet. It is efficient in saving time as customers do not have to spend a long period looking for products in crowded malls or stand in long queue to pay. Online shops not only assist customers but sellers alike, as they get an insight of customers' thought through their reviews and demands. Online shops are virtual market places where everything is available with just a click of a button. This facility supports both major and minor purchases, from books, grocery, clothing, and footwear to furniture, electronics, cars and residential buildings (Deepali, 2013).

As e-commerce grows rapidly, more companies are trying to get a competitive upper hand by utilizing the Internet to communicate with their customers (Lee and Lin, 2005). As Santos (2003) views it, e-service quality is the customer “evaluation of e-service delivery on the online market”.

Numerous individuals around the globe like to shop on the web and purchase items from brands that are not available in the country that they reside in. These days, with the assistance of the new technology and the help of the Internet, individuals from all around the globe began to purchase things online from the comfort of their homes (Abboud, 2019). Buying products on the Internet is a fairly simple process. Currently, it is a significant part in everyone's life, particularly for older individuals, also for working individuals with a hectic lifestyle. The shopping cart feature helps shoppers to save products of their liking in the digital space and purchase it later (Medium, 2019).

This research intends to develop the aspects of online service quality by transforming the “SERVQUAL model” in the context of online shopping and build a model on how e-service quality measurements influence consumer loyalty and intention of purchase. To demonstrate the usefulness of the research model, 292 online shoppers participated in this study. “Confirmatory Factor Analysis” (CFA) was piloted to inspect the “validity and reliability” of the proposed model, and the “Structural Equation Modeling” (SEM) approach was utilized to examine the proposed model. The test outcomes give an important reference to online store managers, just as to researchers interested in the world of web based shopping (Lee and Lin, 2005).

The structure of our research from the upcoming section has been outlined as follows. The first segment displays the literature review on quality of e-service. This is followed by the research model and hypotheses. The process of data collection is then explained, which is later followed by the analysis, and testing of the model. The final section of the paper contains the implications of discoveries and conceivable future research.

## **2. REVIEW OF LITERATURE**

### ***2.1. E-Service Quality***

Currently, for projecting the present improvements in e-commerce that highlight the quality of e-service, the concerns regarding service quality has changed. E-service quality can be defined as “overall customer evaluations and judgments regarding the excellence and the quality of e-service delivery in the virtual marketplace” (Santos, 2003). The matter of online transaction is a multifaceted procedure that consists of several sub-processes such as “navigation, information searching, negotiation, online payment, delivery, and after-sales service”. Due to that, e-service quality has several components echoing “two attributes in its measurement – system attribute and service attribute”. Technical components, such as “efficiency, speed, and security” is a part of system attributes. E-service quality is not only an “evaluative outcome of a system”, but a customer’s order delivery and service provided after-sales is the core of service quality (Yen and Lu, 2008).

For attributes of the systems and services to carry the same importance, a number of researches have extended the quality of e-service from customers’ entire experience of virtual shopping. Zeithaml et al. (2002) explained “five broad sets of criteria as relevant to e-SQ perceptions”. E-TailQ scale is established by Wolfinbarger and Gilly (2003) to advocate that “e-retail’s service quality is a projection of consumers’ satisfaction, loyalty and attitude towards the webpage”. Parasuraman et al. (2005) established “E-S-QUAL” and “E-RecS-QUAL” scales to evaluate the online shopping sites’ e-service quality.

As per my observation the impact of e-service quality on e-commerce has a vital role in modern world. Nowadays high percentage of the society is engaged in e-commerce. Therefore the customer considers everything in respect of virtual marketing for example quality, design, information, technology, speed, on time delivery, accuracy, security feature, quality of service, after sales service and more importantly attractive price.

### ***2.2. Service Quality Dimensions***

Currently, e-service quality studies have been done in different contexts including online retailing, online shopping, e-service, and other online financial service. Most of the studies combine the dimensions of “traditional service quality and web interface quality as the point of departure”. Based on Dabholkar’s (1996) study on the scales of e-service quality in the context of website design, there are key dimensions in the judgment of e-service quality. A good example is Yoo and Donthu’s (2001) developed “4-dimension scale” called SITEQUAL to assess the quality of a website. Alternatively, Cox and Dale (2001) set up a “6-dimension scale” to measure online

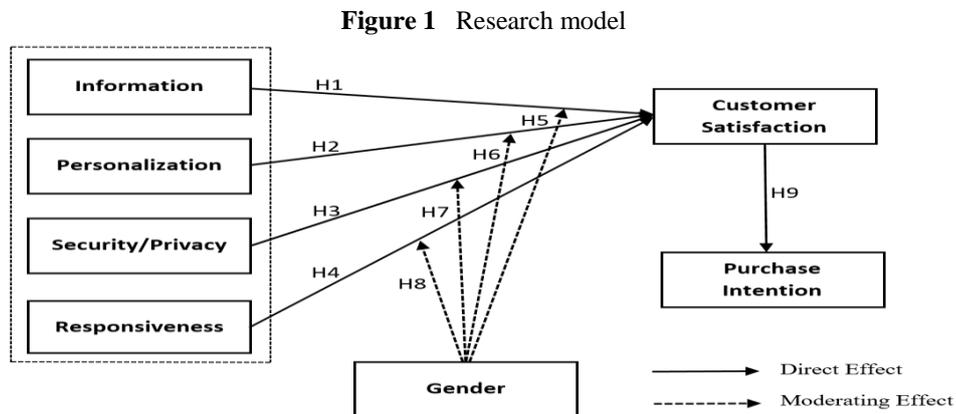
retailing service quality. On the other hand, Lociacono et al.'s (2002) scale named WEBQUAL is composed of “12 dimensions” for the same purpose of evaluating online service quality. Also, Wolfenbarger and Gilly's (2002) developed scale focuses on online shopping, which was earlier named COMQ and later changed to eTailQ.

The above discussion shows how the variables in the e-service quality studies have grown over time and become more comprehensive. More recent studies in this regard show even more different dimensions in e-service quality. For example, Madu and Madu (2002) develop a “15-dimensions scale” of e-service quality, which is built on “better understanding of customers and providing services to meet the needs and expectations of customers”. Santos (2003) argues that “both active dimensions and incubate dimensions are important in e-service quality” and both of them should be taken into account in e-service quality evaluation, and puts forward a scale consisting of 11 sub-dimensions.

As per my observation the service quality dimensions is also having an important role in respect of e-commerce. The study reveals that the service quality dimensions has grown manifold and become more comprehensive. The service quality dimensions are very helpful for the companies engaged in e-commerce to grow and expand their business.

### 3. THE RESEARCH FRAMEWORK

Due to the insufficient literature available on the e-service quality, “empirical research is required to clarify the detailed determinants of e-service quality and their influence on customer perceptions of online stores” (Yang and Jun, 2002; Santos, 2003). The current research intends to propose four dimensions of e-service quality namely, information, personalization, security/privacy and responsiveness. Furthermore, this paper aims to develop an e-service quality model for vetting the views of consumers regarding shopping experience online. Based on the proposed model, e-service quality aspects are directly connected with the customer satisfaction and indirectly related to ‘customer purchase intentions’ (Figure 1).



#### 3.1. Dimensions of E-service Quality

The present study has adopted the retooled items of the “SERVQUAL” model. The objective is to establish the new aspects of online or electronic service quality through the use of the information, personalization, security/privacy and responsiveness dimensions. The hypotheses of this study are set based on the link between e-service quality attributes and customer satisfaction as elaborated below.

##### *Information*

Several studies (Rolland and Freeman, 2010 and Cobelli, Bonfanti, Cubico, Favretto, 2019) on internet retail service quality have found that information is a key attribute influencing customer satisfaction. Carlson and O'Casey, (2010) study on online sports website found that there is a possibility that the degree of customer satisfaction by a content-centric webpage is defined by the delivery of different attributes, like- information. However, if the delivery of the expected attributes is not satisfactory according to the customer's experience of the web page, like- inappropriate content, it may negatively impact the customers' first impression or may live up to it.

Information in Zeithaml et al.'s (2002) words is understood as “information availability and content”. More precisely, information is “the opportunity to find, in the online environment, useful and reliable information that users can access quickly” (Cheung and Lee, 2005). Lee and Lin's (2005) study based on online book stores found that in order to enhance “customer satisfaction and purchase intentions”, “online stores should start improving the dimensions of providing up-to-date and accurate information. Online stores thus must try to ensure that customers receive relevant information”. So, the hypothesis one is taken as follows.

From the above it can be concluded that information is the key factor is influencing customer satisfaction and purchase intention. My observation in respect of information with reference to online shopping is that adequate information regarding product as well as company itself is one of the key feature of online shopping. The information provided by the company related to their products, their services and themselves is the only way for the customers to know about the company and its products. If the information is perfect and attractive the customer would like to have business with such company. On the other hand if the information is in adequate or less attractive the customer will never like to have business with such company.

H1 Information is positively associated with customer satisfaction.

### ***Personalization***

‘Personalization’ as the word itself suggests involves “individualized attention, personal thank you notes from online stores, and the availability of a message area for customer questions or comments” (Yang, 2001). Earlier research works in this regard have investigated the impact of the customer service rendered by internet retailers upon the customers’ satisfaction and perceptions of the said retailers’ service quality (Barrutia and Gilsanz, 2009). Several studies (Wolfenbarger and Gilly, 2003) have suggested that e-service quality dimensions such as personalization are nonchalantly connected with “the performance measures of customer satisfaction”, and “influence customer purchase intentions” in turn. The personalization (or customization) as a service quality dimension can also be interpreted as “the empathy dimension of the traditional SERVQUAL” (Zeithaml et al., 2002). It refers to “the degree to which information or service is tailored to meet the needs of the individual visitor” (Lee, 2005). The reasoning makes sense: a more satisfactory transaction ought to be made through personalization, and after a period of time, an increasingly acceptable relationship. Customized service should just be improved service rather than routine assistance that does not consider the customer's needs. Certainly, it is likely to aggravate customized services more than routine unpersonalized services. Nevertheless, “it is against the interests of the business to exhaust assets on personalization without doing it good enough to gain more customer satisfaction” (Ball, Coelho and Vilares, 2006). Based on this, the hypothesis two is decided as given below.

From the above it can be concluded that personalization is the key factor is influencing customer satisfaction and purchase intention. This is because personalization very important dimension of online shopping. Company try to make good relationship with customers by providing the offers, discounts and fulfill the customer needs to give all these facility to achieve personalization. On the other hand if the company does not provide and does not make such relationship it will get fail and will not be able to keep good relationship for future business.

H2 Personalization is positively associated with customer satisfaction.

### ***Security/Privacy***

Several studies (Barrutia and Gilsanz, 2009) on Internet retail service quality have found that security/privacy is a key attribute influencing customer satisfaction. Security or ‘Privacy protection’ is defined as “the degree to which the site is safe and protects buyer information” (Parasuraman et al., 2005). Customers’ constant concern and fear is that the online retailers may trade on their personal information with other companies without their permission or even without their knowledge at all. Therefore, Security/Privacy is considered another important criterion to be analysed. Another finding is that “time risk and performance risk strongly and negatively influenced online shopping intentions” (Ariffin, Mohan and Goh, 2018). Considering such vital importance of this criterion, the hypothesis three is decided as follows.

From the above it can be concluded that Security/Privacy is the key factor is influencing customer satisfaction and purchase intention. This is because security/privacy is so important that everyone wants that any information

related to him is not going to leak out and being shared by any other. Therefore if the company's security/privacy features are strong everybody will prefer to have business with such organization/company. On the other hand if the company's security/privacy features is weak and the customer is apprehensive of leakage of his personal information or sharing with any other, the customer will never like to have business with such company.

H3 Security/Privacy is positively associated with customer satisfaction.

#### **Responsiveness**

Several studies (Iwaarden, Wiele, Ball and Millen, 2003) on Internet retail service quality have found that 'responsiveness' is a key attribute influencing customer satisfaction. It is defined as "effective handling of problems and returns through the site". As Parasuraman et al. (1988) suggest, responsiveness "measures e-retailers' ability to provide appropriate problem-solving information to customers, having mechanisms for handling returns, and providing online guarantees". Responsiveness describes "how often an online store voluntarily provides services (e.g. customer inquiries, information retrieval and navigation speed) that are important to its customers" (Yang, 2001). In case of "the responsiveness of web-based services, the notable part is the perceived service quality and customer satisfaction" (Zeithaml et al., 1996; Yang and Jun, 2002). Therefore, the hypothesis four is derived as follows with the focus on responsiveness.

From the above it can be concluded that responsiveness is the key factor is influencing customer satisfaction and purchase intention. This is because responsiveness is also one of the important dimension of online shopping. Responsiveness gives a platform to both the customers and the company to resolve their problems or confusion. On the other hand in absence of this feature there will occur a gap between customer and company to resolve their issues.

H4 Responsiveness is positively associated with customer satisfaction.

#### **Customer satisfaction**

Several studies (Ayo, Oni, Adewoye and Eweoya, 2016; Semeijn, Riel, Birgelen, Streukens, 2005; Ma, 2017) on internet retail service quality have found that Customer satisfaction is a key attribute influencing purchase intention. Customer satisfaction is a key measure of whether retailers are fulfilling the marketing concept, (Ellis and Marino, 1992). It is the degree of meeting customer needs during purchase. A satisfying online shopping experience can induce customer loyalty (Bielen and Demoulin, 2007). Many online marketing studies suggest that satisfying customers should be the primary goal for firms, because customer's satisfaction leads to profitability, (Anderson et al., 1994). Customer satisfaction is meeting customer expectations of services by comparing with perceived performance (or outcome). Customers are satisfied if the perceived performance matches their expectations, and dissatisfied if it does not (Wilson et al., 2012). Businesses with a wide product offering might have the option to pull in vast number of clients to their websites online. Additionally, the clients who are dissatisfied with the variety of products existent in the current market, maybe attracted again by the introduction of new products and services. Thus, a vital aspect for picking up customer loyalty is "to give a wide scope of items, services and different features in the arrangement required by clients" (Yang, Jun and Peterson, 2004).

As per my observation customer satisfaction is also one of the key feature of online shopping because it is directly related to the profitability of the company. The satisfaction of the customer automatically helps the company to retain its existing customers and their loyalty. The satisfaction of the customer plays a key role for the publicity of the company without investing a penny. On the other hand if the customer is not satisfied the company may loose future business and negative impact on its business.

H9 Customer satisfaction is positively associated with purchase intentions.

#### **Purchase Intentions**

Customer's purchase intention is crucial in determining the behavior of customers. It clearly depends on the impacting factors that make the estimation troublesome under various conditions. Other than that, Ariffin, Mohan and Goh (2018) uncovered that, the presence of a robust security/protection would not prompt a higher intention of purchase. The researcher understands that clients' trust in the capability of the organization to satisfy their true needs is something more than mere "confiding in goodwill to impact consumers' purchase intentions". Consumers' purchase intention is often utilized as a measure to calculate the clients' activities of honest purchasing. This research hypothesized that, purchase intention of clients give an adequate intermediary to real

online purchase behavior. Furthermore, past researches have indicated that, consumer's impression of quality of service and consumer loyalty decidedly intention of purchase. For example, Rust and Zahorik (1993) observed that consumer loyalty altogether impact retention of clients, market shares, and profitability. Lee and Lin, (2005) measured consumer loyalty as an mediator of the connection between firm observed quality and purchase intention of consumers.

As per my observation purchase intention is also one of the key feature of online shopping because purchase intention provides a picture/information to the company in respect of customer behavior, his needs, choice, capability and more importantly his loyalty. Thus this feature (purchase intention) is very helpful for the company. On the other hand if the company does not observe it or takes this feature (purchase intention) lightly the company will not be able to differentiate between loyal and un-loyal customers.

### ***Moderating effect of Gender***

Numerous consumer behavior analysis indicates that there is a vast difference between how men and women process information (Palmer and Bejou, 1995; Holbrook, 1986); especially men and women have dissimilar response in case of consuming responsibilities and incentives (Meyers-Levy, 1989). Compared to men, women tend to react to non-verbal incentive more by suggesting more associative, image-based explanations and longer descriptions (Gilligan, 1982).

Commonly, male shoppers are thought to do shopping because of necessities while women shop for pleasure (Hu and Jasper, 2004). Studies indicate that male shoppers are different from female shoppers as they give more preference to convenience while shopping, which later results in a “stronger loyalty to a store” (Hart et al., 2007). Female shoppers, however, “think of shopping as a free time activity and tend to shop more than male shoppers” (Bakewell and Mitchell, 2004).

Be that as it may, reports of the industry propose that female shoppers act contrastingly on the web (Kattan, 2009). As females make more purchases while shopping in malls; they are not so much inclined to buy and spend less money on shopping virtually than males (Johnson and Learned, 2004). In general, a larger number of women utilize the web than men but once online men will in general invest more time on the web than women (Kim, Kim, and Lennon, 2011).

Watts et al., (1982) examined in their research paper that many gender have different issues, for example, male's online consumer behavior endorsed items that focused on the self while females endorsed items that consider both others and the self. Empirical evidence also abounds to support gender differences in individual consumption decision-making processes. For instance, Byrnes et al. (1999) found some differences in the risk-taking tendencies of males and females. Males are more assertive than females in financial decision-making (Powell and Ansic, 1997; Francis et al., 2015). Considering this moderating effect of gender upon all the four dimensions, the hypotheses five, six, seven and eight are set as follows.

As per my observation moderating effect of gender has also a major impact on online shopping. Commonly, male shoppers are thought to do shopping because of necessities while women shop for pleasure. Female customers mostly do their online shopping as a free time activity. They participate in purchasing more actively in comparison to male customers. Therefore this feature also plays a key role for the company to focus and tap the customer as per their need and purchasing behavior. On the other hand if the company engaged in online shopping does not consider this feature it will be lag behind to tap the customer.

H5 The information dimension of e-service quality has a positive impact on customer satisfaction, and the impact is stronger for female consumers than male consumers.

H6 The personalization dimension of e-service quality has a positive impact on customer satisfaction, and the impact is stronger for female consumers than male consumers.

H7 The security/privacy dimension of e-service quality has a positive impact on customer satisfaction, and there is no significant difference between female consumer and male consumer.

H8 The responsiveness dimension of e-service quality has a positive impact on customer satisfaction, and the impact is stronger for female consumers than male consumers.

### ***Qualitative Research***

A qualitative research approach was adopted in this study to get an idea of the factors which influence the online buying behavior of the Indian respondents. A qualitative research method is useful in understanding perspectives

of respondents, key phrases which sum up attitudes or experiences of the respondents and to find their motives behind a decision (Jadhav and Khanna, 2016). The data collection process, meanwhile, involved a sort of snowball sample technique, in that the references listed in the studies obtained were used to find additional studies (Barrutia and Gilsanz, 2009).

Snowball sampling technique was used to meet 15 respondents from different places to get their views about online shopping. Snowball sampling is a type of non-probability sampling design which refers to the collection of information from members of the reference respondent. The first level available respondents were requested “to forward the invitation to others, thus creating a ‘snowball sample’”. The task given to participants was simple. They were asked to evaluate a web site of their best choice, which belonged to an online shopping. Each participant evaluated the online shopping site they are most familiar with. Product-based sites were chosen because “they are transactional, while products are a prevalent object of e-commerce” (Ribbink et al., 2004).

The depth interviews were conducted one-to-one basis with each respondent. Depth interviews are an unstructured and direct way of obtaining information. The primary use of this method is for exploratory research to gain insights and can be effectively employed in special problem situations such as those requiring detailed understanding of complicated behavior towards online shopping (Jadhav and Khanna, 2016).

#### **4. RESEARCH METHODOLOGY**

##### **4.1. Measures**

The present study conformed to the measures used in other relevant studies to operationalize the constructs but with minor changes in wording to contextualize these measures for evaluating online shopping sites. For measuring “information, personalization, security/privacy and responsiveness” items were taken from the SERVQUAL model (Yang and Jun, 2002; Parasuraman et al., 1988), and for “customer satisfaction and purchase intentions” items were altered from Jeong et al. (2003) and Zhu et al. (2002). All items were evaluated using a “five-point Likert-type scale” (1-strongly disagree to 5-strongly agree). The refinement of the questionnaire was done through rigorous pretesting, with a focus on “instrument clarity, question wording and validity”. For the pre-test phase, 15 veteran online shoppers were chosen as subjects and requested to comment on each question and their wording one by one. These comments were then used as the basis for revising the construct measures. Based on the outcome, some items were taken from the instrument.

##### **4.2. Data Collection**

In total, five hundred (500) questionnaires were distributed to students in India. India, in general, and students there, in particular, were selected in this study for two reasons. Firstly, India's Internet users are “expected to register double digit growth to reach 627 million” by the end of 2019 due to the “rapid internet growth in rural areas” (Kantar Indian Market Research Bureau - IMRB). In its ICUBE 2018 report that tracks digital adoption and usage trends in India, it noted that the number of Internet users in India has registered an annual growth of 18 percent and is estimated at 566 million as of December 2018, (The Economic Times, 2019). Today the popularity of Internet is among the younger generation and students in the field of entertainment, social networking etc. around 60% of users in India, (eMarket Education, 2019). Secondly, “online customers generally are younger and better educated than conventional customers, meaning that the student subjects closely resemble the online customer population” (Mcknight et al., 2002).

The data collection process followed some stages. First, the recipients were instructed to navigate online shopping (such as flipkart. com and snapdeal.com) and search for online shopping products. Next, subjects were asked to select products they want to purchase from the online shopping. The subjects were assigned with two tasks related to online transactions: first, to register with an online shopping, search for the product choices coming from the participants, and second, to fill out certain payment and delivery data. All the 292 respondents completed the said tasks. The questionnaires were distributed in various parts of India. The response rate was 100 percent, but ten questionnaires later were removed because of missing data, and therefore the effective response rate was around 97 percent for this study.

##### **4.3. Sampling/ sample size**

###### ***Literature Review Sampling Technique***

Data collections were carried out in the aforementioned different stages between June 2019 and September 2019. For secondary data, computer databases (e.g. Emerald, Google scholar) were the prime tools used in order to identify the relevant research in the area that include the updated articles in the reputed business and management journals as ranked based on their citation and indexing data. This served a cross-checking of secondary data and a critical literature review of extensive work in this field. The data collection process, meanwhile, involved a sort of snowball sample technique, in that the references listed in the studies obtained were used to find additional studies.

**Qualitative Sampling Technique**

An “exploratory interviews” (McCracken, 1988) of a purposive sample of 15 customers was conducted with a view to get some advanced impression of “how customers actually respond to the strategies of technology-mediated personalization and how customer responses may affect their commitment to service relationships”. This is a qualitative technique “that has been found useful in services marketing literature” (Seth et al., 2005).

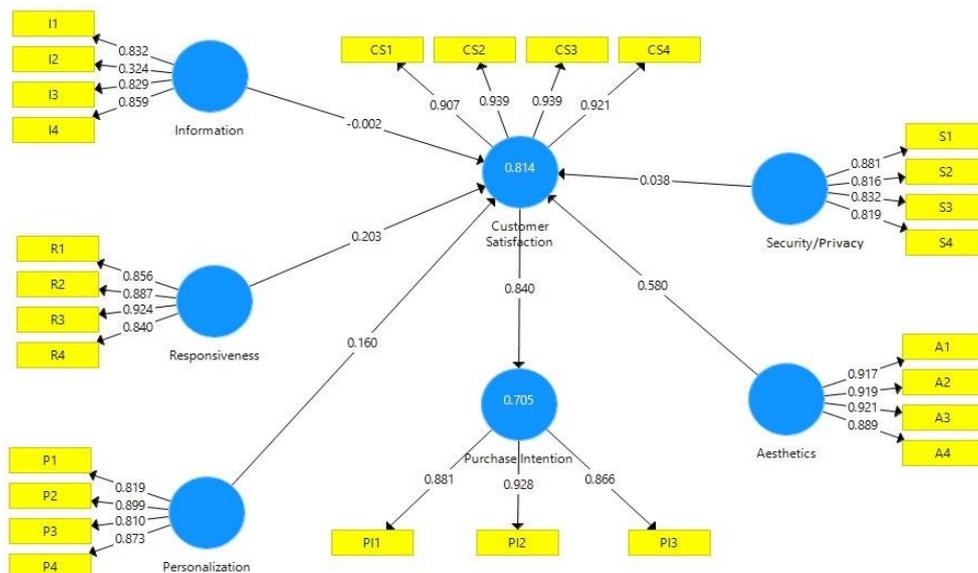
The in-depth interviews were conducted one-to-one basis with each respondent. Depth interviews are an unstructured and direct way of obtaining information. The primary use of this method is for exploratory research to gain insights and can be effectively employed in special problem situations such as those requiring detailed understanding of complicated behavior towards online shopping (Jadhav and Khanna, 2016).

A “convenience sampling method” was selected for each sample in the data collection. Previous studies on e-service quality have shown that “a convenience sampling approach is an efficient and acceptable sampling method to adopt” (Yoo and Donthu, 2001; Park and Kim, 2003; Gummerus et al., 2004;).

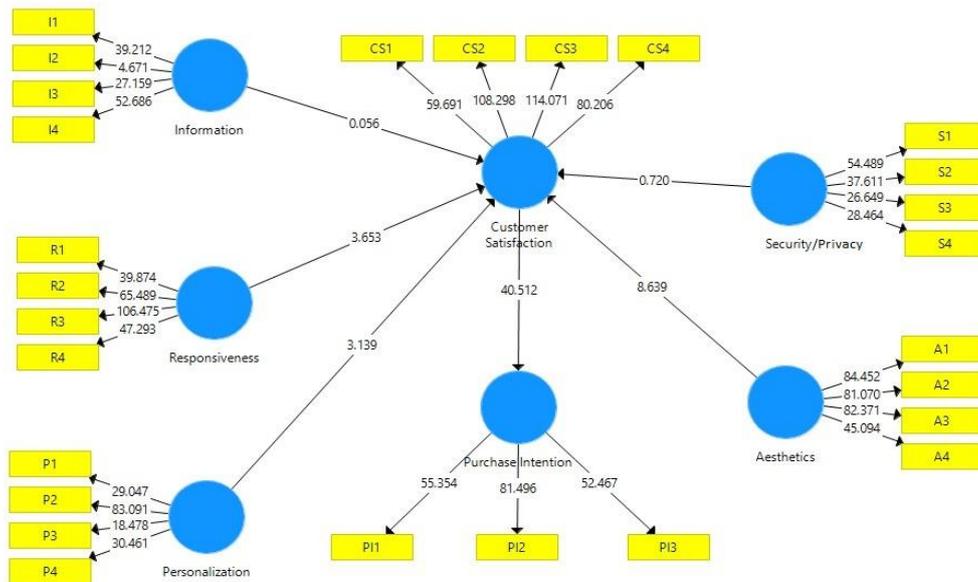
Sample size was determined based on PLS (partial least square) literature and “is recommended for predictive models rather than explanation” (Barclay et al., 1995) and “offers several advantages over other approaches to SEM”. For example, PLS does not make any presumptions regarding distributions, is capable of estimating complex models while using small sample sizes” (Barclay et al., 1995; Chin, 1998a) and “does not require interval scale measurement” (Pulos and Rogness, 1995). What is more, PLS is not troubled by “collinearity among manifest variables”. The current study’s sample size was 292 responses. O’Cass and Carlson, (2010) state that “the minimum sample size required for covariance-based techniques (e.g. AMOS and LISREL) is 200 whereas for PLS the minimum sample size ranges from 30 to 100”. Therefore, PLS suits best for the current study.

**5. DATA ANALYSIS AND RESULTS**

**5.1. Direct Model**



**Figure 2** Direct Model 2



**Figure 3** Direct Model 3

Figure 2 and Figure 3 depicts the model for this study. The good fit of the model is presented with acceptable R2 values and has good construct reliability (Gefen et al., 2000). The R2 value of this model represents the predictive capability of the model (Chin, 1998b; Komiak and Benbasat, 2004). Table 1 provides the data for the corresponding reliability, composite reliability and average variance extracted (AVE) assessments. The Composite Reliability (CR) makes an assumption that all indicators are not weighted equally (Chin, 1998b) thus attesting to the fact that composite reliability is a more acceptable assessment to evaluate the model’s reliability. The cut off value for the composite reliability is suggested to be above 0.7 (Barclay et al., 1995; Fornell and Larcker, 1981). On the other hand, the AVE values represent the amount of variance of a construct in ratio to the measurement error (Chin, 1998b). The proposed model is a first order factor model. Therefore, the minimum critical AVE value is 0.5 (Hu et al., 2004). The composite reliability and AVE values in Table 1 meet these requirements.

**Table 1** Constructs Validity & Reliability

	<i>Cronbach's Alpha</i>	<i>rho_A</i>	<i>Composite Reliability</i>	<i>Average Variance Extracted (AVE)</i>
Aesthetics	0.932	0.934	0.952	0.831
Customer Satisfaction	0.945	0.945	0.961	0.859
Information	0.704	0.805	0.82	0.556
Personalization	0.873	0.885	0.913	0.724
Purchase Intention	0.872	0.876	0.921	0.796
Responsiveness	0.9	0.903	0.93	0.77
Security/Privacy	0.86	0.881	0.904	0.701

Convergent validity assessment refers to the items in the questionnaire to load simultaneously as a sole construct. This assessment can be assessed by studying the resulting loading for each set of indicators representing a particular dimension. The values for the standardized loading are suggested to exceed 0.7. This means that the

respective indicator has more variance with their respective latent variable compared with its error variance. Chin (1998b) has a lesser stringent cut off value at 0.5. All the path coefficients in this model is statistically significant. Discriminant validity assessment refers to how each item loads on its construct compared to other constructs (Kerlinger, 1973; Swafford et al., 2006). This value is assessed via cross loadings and the correlated value among first-order constructs and the square roots of AVE (Chin, 1998b; Fornell and Larcker, 1981). These values are shown in Table 2.

**Table 2** Variable Correlation Matrix against AVR Square Root

<i>Aesthetics</i>	<i>Customer Satisfaction</i>	<i>Information</i>	<i>Personalization</i>	<i>Purchase Intention</i>	<i>Responsiveness</i>	<i>Security/Privacy</i>	
Aesthetics	<b>0.912</b>						
Customer Satisfaction	0.876	<b>0.927</b>					
Information	0.723	0.685	<b>0.745</b>				
Personalization	0.725	0.752	0.6	<b>0.851</b>			
Purchase Intention	0.768	0.84	0.613	0.688	<b>0.892</b>		
Responsiveness	0.759	0.782	0.733	0.703	0.722	<b>0.877</b>	
Security/Privacy	0.743	0.747	0.628	0.804	0.658	0.745	<b>0.837</b>

Values for the cross loadings are shown in Table 3. The values show adequate levels of discriminant validity. The bold values in Table 3 show higher loading values to its respective construct and low loading values to other constructs. A similar conclusion is observed in the link between the AVE square root values and the correlations among the first-order latent constructs. Data from Table 2 clearly shows that the square root of AVE (bold numbers in diagonal) are more than the correlations among the constructs (off-diagonal values).

**Table 3** Cross Loading

<i>Aesthetics</i>	<i>Customer Satisfaction</i>	<i>Information</i>	<i>Personalization</i>	<i>Purchase Intention</i>	<i>Responsiveness</i>	<i>Security/Privacy</i>	
A1	<b>0.917</b>	0.781	0.656	0.695	0.704	0.681	0.729
A2	<b>0.919</b>	0.827	0.651	0.639	0.711	0.681	0.677
A3	<b>0.921</b>	0.834	0.672	0.684	0.717	0.713	0.686
A4	<b>0.889</b>	0.748	0.656	0.625	0.667	0.694	0.613
CS1	0.807	<b>0.907</b>	0.554	0.689	0.782	0.702	0.68
CS2	0.803	<b>0.939</b>	0.635	0.738	0.783	0.751	0.71
CS3	0.826	<b>0.939</b>	0.673	0.692	0.789	0.724	0.687
CS4	0.812	<b>0.921</b>	0.677	0.667	0.758	0.722	0.692
I1	0.517	0.51	<b>0.832</b>	0.437	0.407	0.561	0.413
I2	0.227	0.204	<b>0.324</b>	0.177	0.142	0.211	0.193
I3	0.609	0.562	<b>0.829</b>	0.518	0.584	0.663	0.543
I4	0.682	0.647	<b>0.859</b>	0.553	0.562	0.629	0.609
P1	0.595	0.599	0.491	<b>0.819</b>	0.492	0.509	0.664

P2	0.722	0.753	0.587	<b>0.899</b>	0.656	0.639	0.724
P3	0.569	0.592	0.455	<b>0.81</b>	0.596	0.608	0.627
P4	0.56	0.591	0.496	<b>0.873</b>	0.585	0.635	0.72
PI1	0.687	0.782	0.531	0.651	<b>0.881</b>	0.669	0.585
PI2	0.723	0.771	0.521	0.597	<b>0.928</b>	0.663	0.597
PI3	0.642	0.688	0.595	0.59	<b>0.866</b>	0.595	0.578
R1	0.618	0.628	0.654	0.621	0.569	<b>0.856</b>	0.606
R2	0.648	0.709	0.64	0.634	0.694	<b>0.887</b>	0.639
R3	0.706	0.726	0.655	0.608	0.701	<b>0.924</b>	0.691
R4	0.69	0.676	0.626	0.607	0.558	<b>0.84</b>	0.677
S1	0.679	0.689	0.587	0.721	0.606	0.615	<b>0.881</b>
S2	0.78	0.742	0.62	0.694	0.624	0.797	<b>0.816</b>
S3	0.447	0.521	0.396	0.661	0.525	0.534	<b>0.832</b>
S4	0.487	0.468	0.433	0.59	0.385	0.468	<b>0.819</b>

5.2. Moderating Model

5.3. Moderating effect Information-Gender-Customer Satisfaction

From the path model analysis, it shows that gender has a positive moderating effect of the relationship between Information and Customer Satisfaction with path coefficient of -0.238 and it is not significant with T-value of 5.450 (one tail). From the result, it can be concluded that gender not significantly moderate the relationship between Information and Customer Satisfaction for this study.

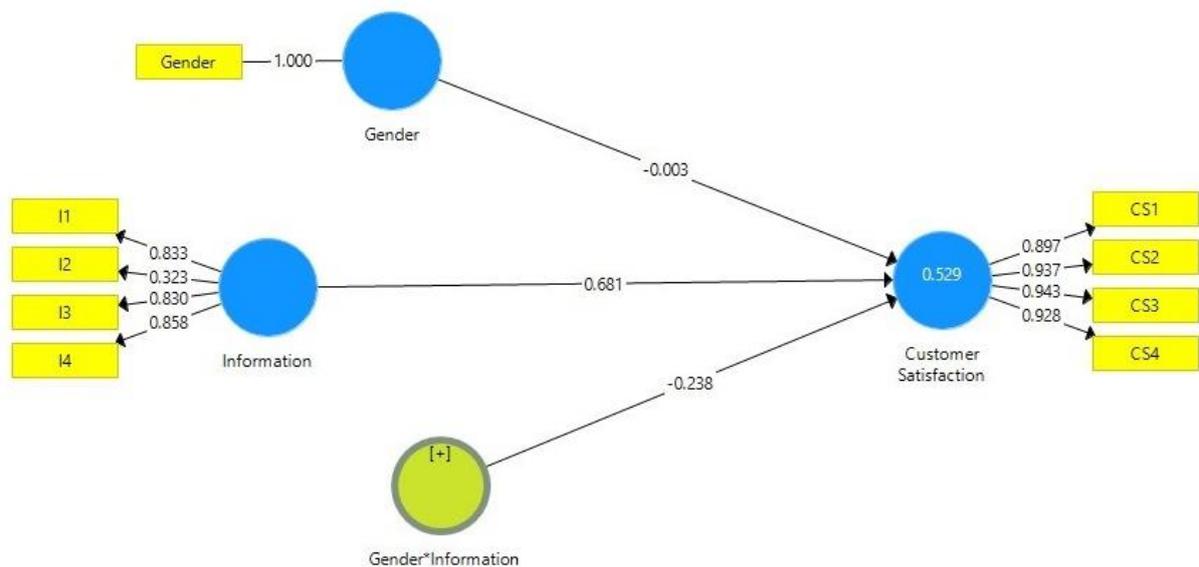
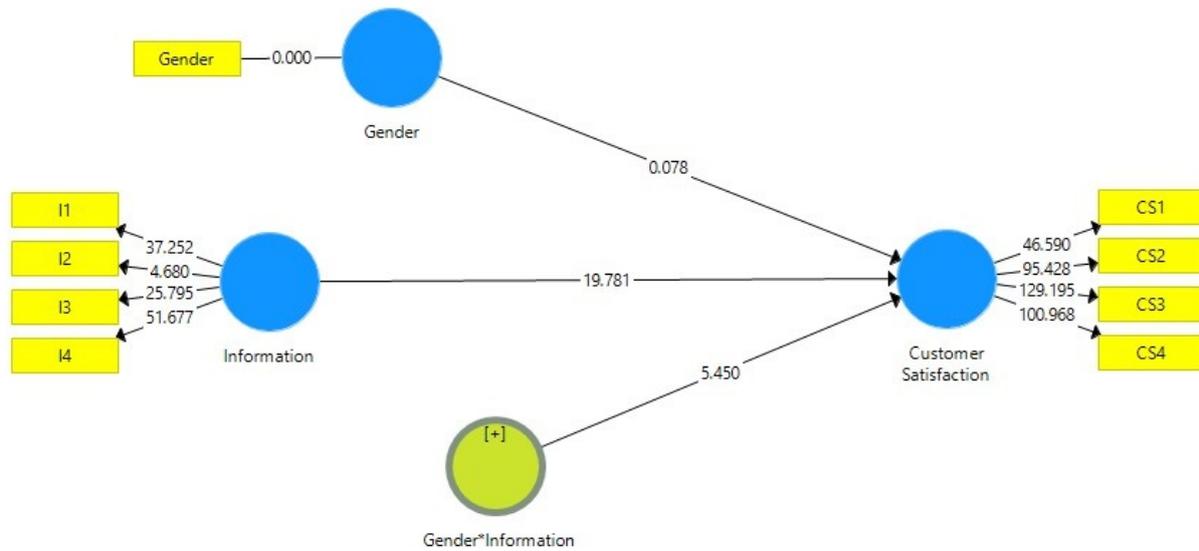


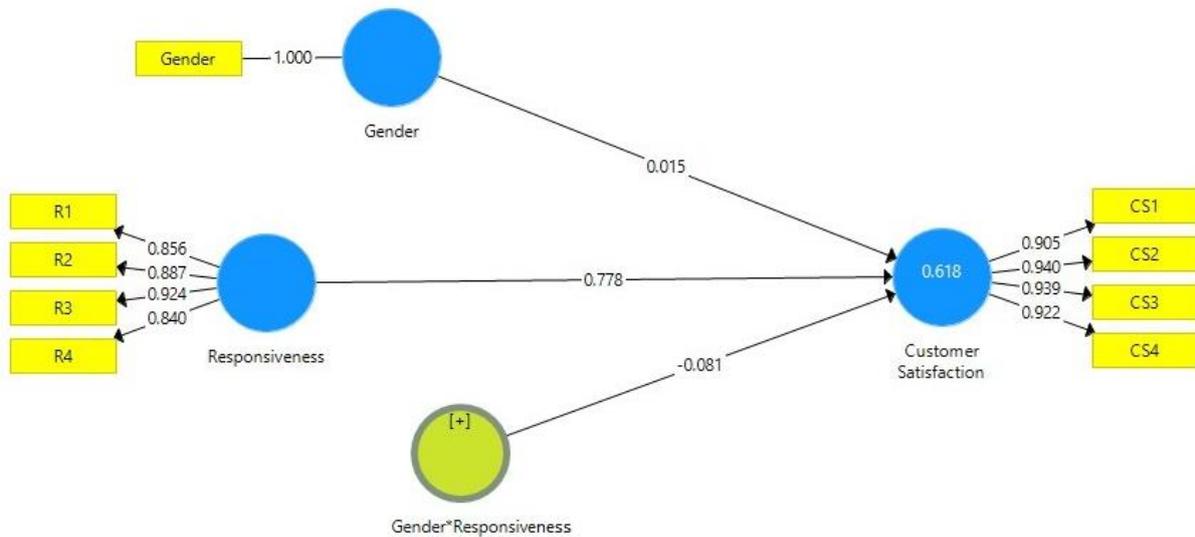
Figure 4 Moderating Model (Gender effect on Information - Customer Satisfaction)



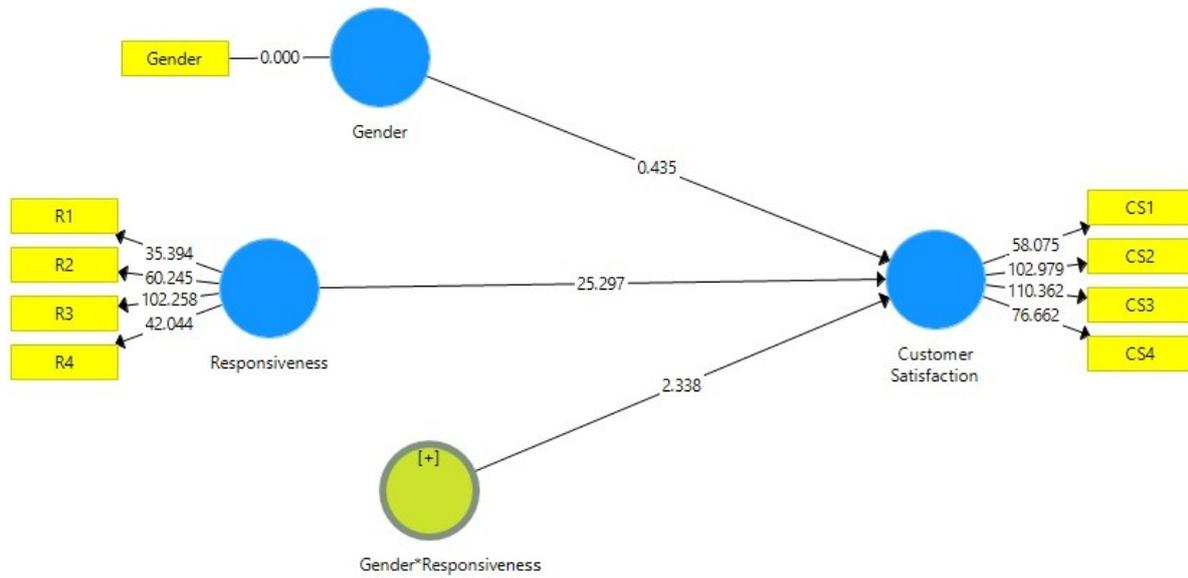
**Figure 5** Moderating Model (Gender effect on Information - Customer Satisfaction)

**5.4.** Moderating effect Responsiveness-Gender-Customer Satisfaction

From the path model analysis, it shows that gender has a positive moderating effect of the relationship between Responsiveness and Customer Satisfaction with path coefficient of -0.081 and it is not significant with T-value of 2.338 (one tail). From the result, it can be concluded that gender not significantly moderate the relationship between Responsiveness and Customer Satisfaction for this study.



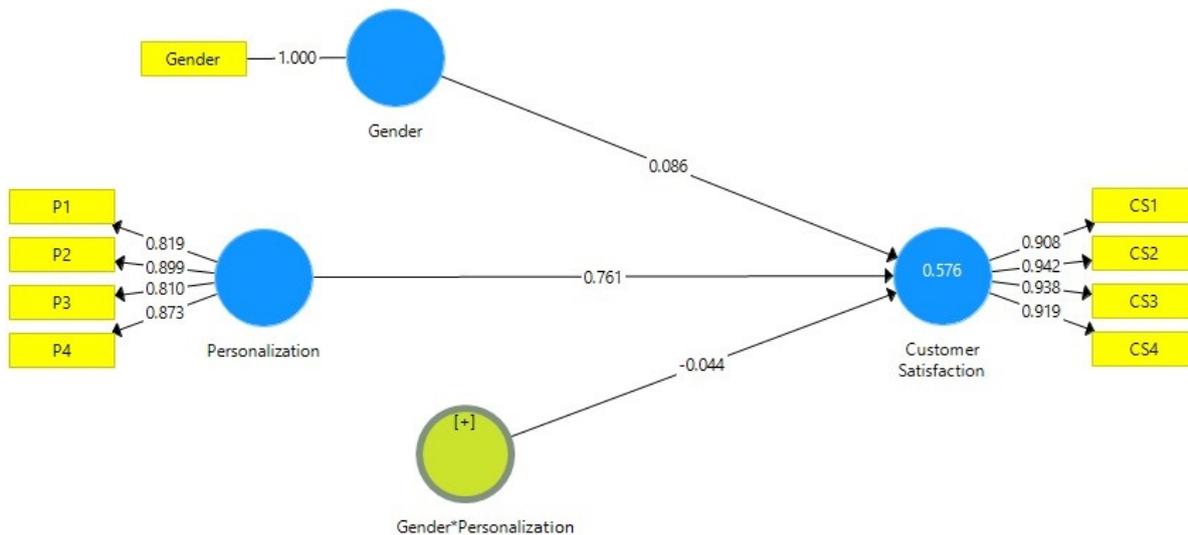
**Figure 6** Moderating Model (Gender effect on Responsiveness - Customer Satisfaction)



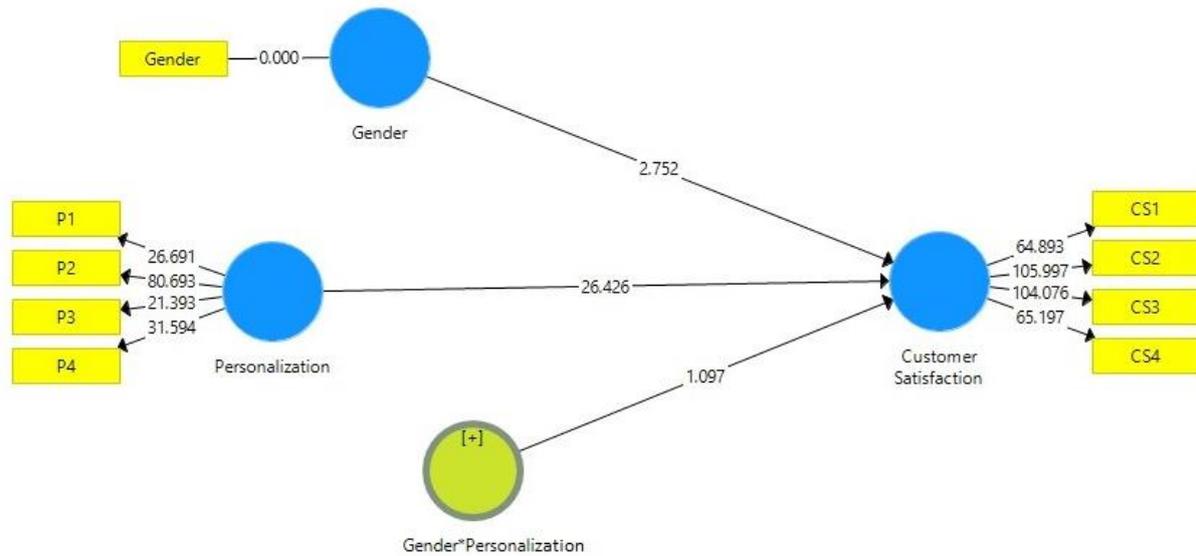
**Figure 7** Moderating Model (Gender effect on Responsiveness - Customer Satisfaction)

**5.5. Moderating effect Personalization-Gender-Customer Satisfaction**

From the path model analysis, it shows that gender has a positive moderating effect of the relationship between Personalization and Customer Satisfaction with path coefficient of -0.044 and it is not significant with T-value of 1.097 (one tail). From the result, it can be concluded that gender not significantly moderate the relationship between Personalization and Customer Satisfaction for this study.



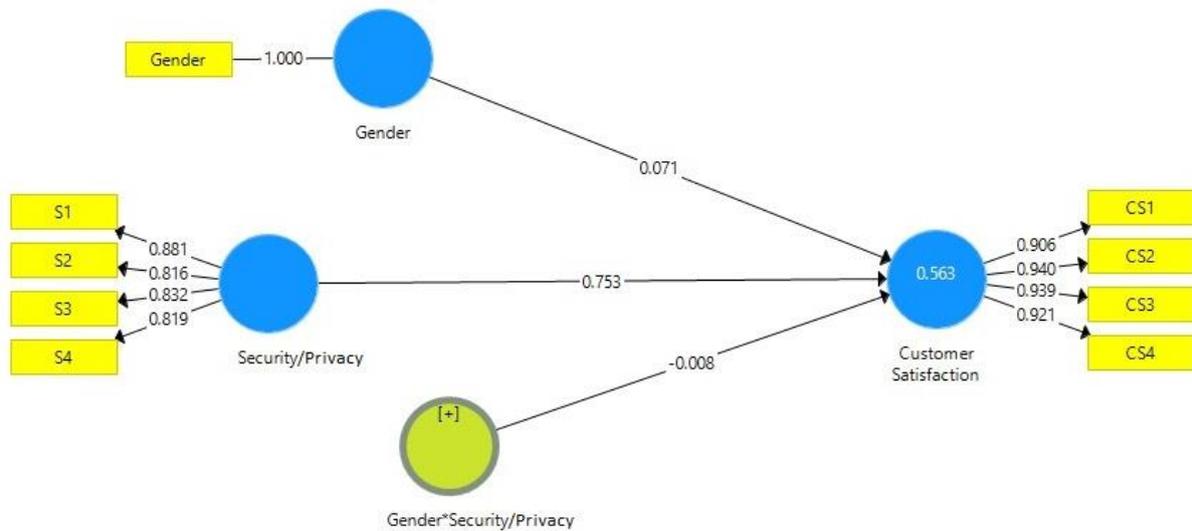
**Figure 8** Moderating Model (Gender effect on Personalization - Customer Satisfaction)



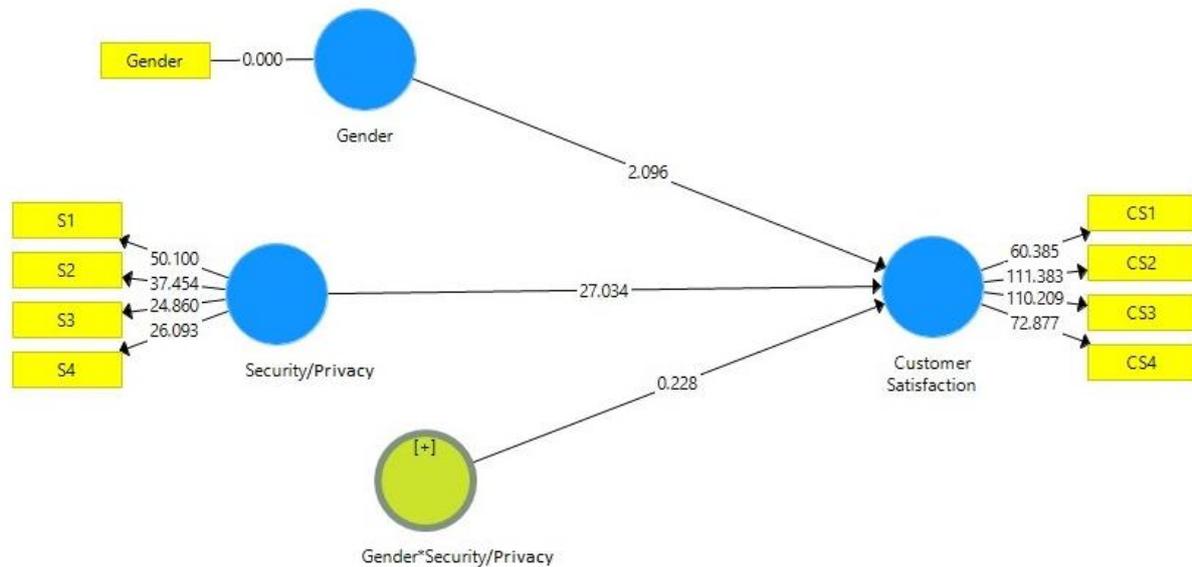
**Figure 9** Moderating Model (Gender effect on Personalization - Customer Satisfaction)

**5.6. Moderating effect Security/Privacy-Gender-Customer Satisfaction**

From the path model analysis, it shows that gender has a positive moderating effect of the relationship between Security/Privacy and Customer Satisfaction with path coefficient of -0.008 and it is not significant with T-value of 0.228 (one tail). From the result, it can be concluded that gender not significantly moderate the relationship between Security/Privacy and Customer Satisfaction for this study.



**Figure 10** Moderating Model (Gender effect on Security/Privacy - Customer Satisfaction)



**Figure 11** Moderating Model (Gender effect on Security/Privacy - Customer Satisfaction)

**5.7. Moderating effect Aesthetic-Gender-Customer Satisfaction**

From the path model analysis, it shows that gender has a positive moderating effect of the relationship between Aesthetic and Customer Satisfaction with path coefficient of -0.029 and it is significant with T-value of 0.996 (one tail). From the result, it can be concluded that gender not significantly moderate the relationship between Aesthetic and Customer Satisfaction for this study.

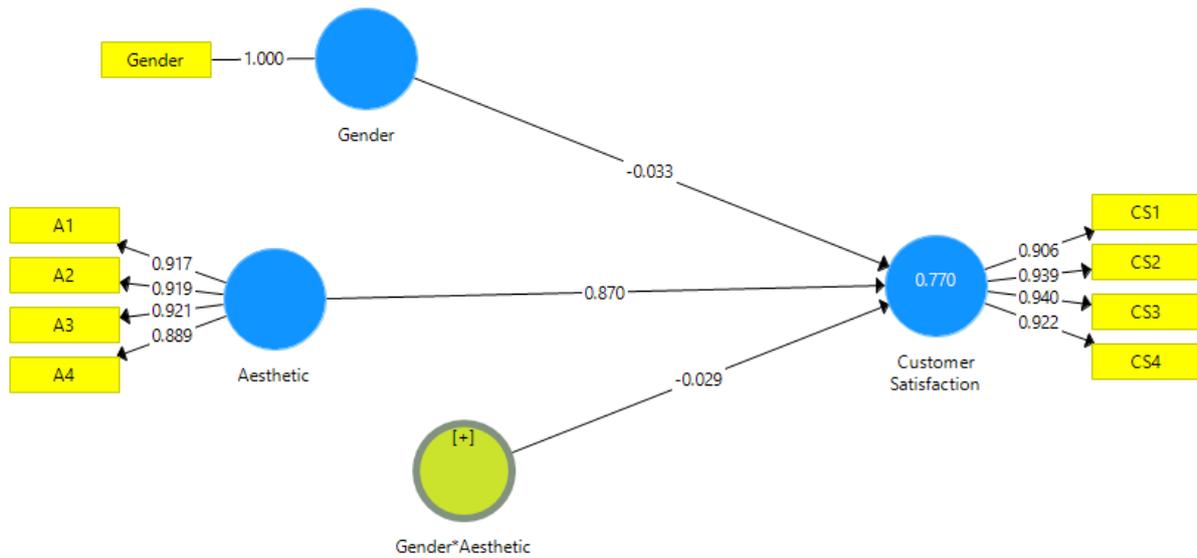


Figure 12 Moderating Model (Gender effect on Aesthetic - Customer Satisfaction)

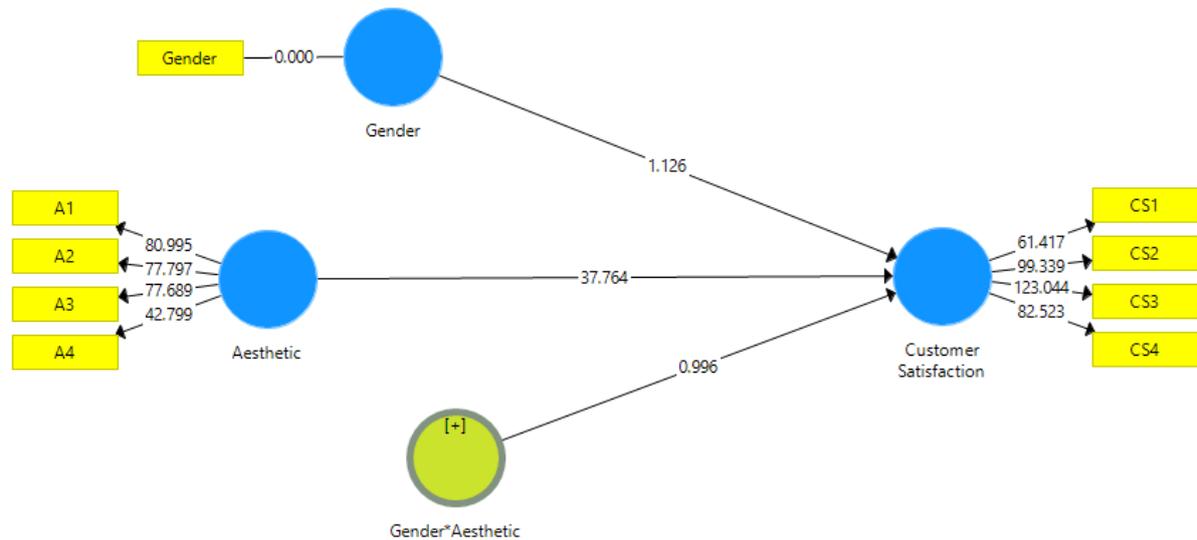


Figure 13 Moderating Model (Gender effect on Aesthetic - Customer Satisfaction)

## 6. DISCUSSION

The current study has established an instrument for e-service quality dimensions by revising the “SERVQUAL scale” appropriate for the online environment. E-service quality consisted of four dimensions. These are information, personalization, security/privacy and responsiveness. In addition, this study has examined how these factors influence “customer satisfaction, and purchase intentions”.

The first aspect of e-service is information. Useful information in a portal has a positive effect on e-service quality resulting in customer satisfaction. Web consumers and other stakeholders prefer having necessary updated information about services provided by the portal and the available online interaction option (e.g. chat box) in case of clarification needed before they start enjoying the portal’s utility. Sometimes customers also like to express their opinion, so “providing different platforms like message boards; opinion poll etc. imbibe a feeling of participation promoting the quality of e-service” (Bhattacharya, Gulla and Gupta, 2012). A study found that “online shopping should start improving the dimensions of providing up-to-date and accurate information to enhance customer satisfaction and purchase intentions” (Lee and Lin, 2005).

Personalization increases both satisfaction and trust, which also have their effects on loyalty and is more likely to endure. It adds psychological comfort to relationships and increases the psychological barriers to switching. Personalization increases “benevolence trust, which is built up over time; switching service providers therefore becomes a risk”. So, “for all these psychological dynamics, personalization of services is a substantial cause of loyalty” (Ball, Coelho and Vilares, 2006).

Third, the most interesting outcome is the security/privacy factor. Customers are usually worried that online stores “might sell their personal information to other organizations without their knowledge or permission” (Lee and Lin, 2005). Than and Grandon (2002) have highlighted the online customers’ concern regarding “potential misuses of personal information and abuses of security/privacy”. It is essential to ensure the security/privacy of online customers due to greater uncertainty and risk in making online purchases in comparison to traditional marketing (Zeithaml et al., 2002). Second, safety is also the basic premise of every deal, and customers will only shop when they feel secure (Miyazaki and Fernandez, 2001). Therefore, today, online consumers pay more attention to a website’s security/privacy policies and data security.

Fourth, the dimension of responsiveness mildly affects customer satisfaction for online shopping. This view might be caused by the fact that “customers expect high responsiveness from the prompt delivery of products but might tolerate slower financial transactions if such transactions have increased security/privacy” (van Riel et al., 2001). Responsiveness refers to “prompt response to customer requests, the speed in resolving customer problems, and prompt services” (Yang et al., 2004).

## 7. IMPLICATIONS

First, one important implication of this study relates to information. The internet has made the data accessing easier (Wang et al., 2005). Given customers rarely have a chance to touch and feel product and service online before they make decision, online sellers should provide more product information that customers can use when making a purchase. Online sellers should allow customers to review their products. By doing this, customers can also benefit from products’ reviews by other customers. They can read those reviews before they make a decision (Katawetawarak and Wang, 2011).

Second comes the question of personalization. The “demand for personalization continues to grow as internet technologies become increasingly sophisticated and web sites can deliver more targeted content” (Lee and Lin, 2005). The study on personalization suggests that the online shop should satisfy the individual customer’s unique needs, besides, it is also very meaningful for the managements to understand the customers by providing individual attention, personal acknowledgements which customers note from online stores, and availabilities of message areas for customers to make comments and suggestion (Zhang and Tang, 2006).

Thirdly, it focuses on online retailers where they could deliver intricate data about their business and their privacy and security policy to maintain a strategic dodge digital extortion. For instance, Zalora is one of the leading fashion stores online and they fully comprehend the apparent dangers of a transaction online which may stop potential clients to make a buy. They expressed in their site about the privacy and security frameworks they are utilizing, for example, PCI privacy and security Standard, cardholder assurance and encoded network as a support for their accounts used for purchase. Online retailers ought to improve the safety, security and privacy execution components that don’t reveal credit or debit card data. (Ariffin, Mohan and Goh, 2018). Then again, researches have demonstrated that numerous online clients are worried about the possible menaces to their own privacy (Graeff and Harmon, 2002). Therefore, web based shopping sites should attempt to guarantee that clients get information that is relevant while ensuring their privacy. In addition to that, they also need to cautiously think over the degree to which effectively providing shoppers with personal services they may need, while investing limited resources.

Finally, one of the aspects of the responsiveness factor is “prompt service”. There is no doubt that the amount of time it takes, for instance, to download a webpage appears to be of great importance to the Internet users. A research in 1999 found that “fewer than 10 percent of users leave a website if page response time is kept below 7 s; however, when it rises above 8 s, 30 percent of users leave. When delays exceed 12 s, a staggering 70 percent of users leave a Web site” (Cox and Dale, 2001). Thus, it is crucial for organizations to have a Web site that is quick but at the same time “visually appealing”. The problem is, with more animations, pictures and sounds that gives the webpage a smarter look, the download and browsing time also increases, which is judged negatively by

users. Hence, there is “a trade-off between the looks of a Web site and the speed of that site. Organizations will have to try to find the right balance between good looks and speed” (Iwaarden, Wiele, Ball and Millen, 2003).

## 8. LIMITATIONS AND FUTURE RESEARCH

As a limitation of this research, the many aspects of the e-service quality were not discussed. Based on existing literature, product personalization, market information, features of online shopping systems and many more were incorporated in a single concept. One more limitation of the study is not being able to explore further probable outcome variables, like- loyalty, quality of relationship, and behaviour correlated to long-standing usage. As the collected data only consisted of participants from India, the outcome might not be identical for online shopping settings in case other parts of the world. In addition to that, the number of respondents was quite low (292 respondents) and there were loss of data due to unfilled and wrongly filled questionnaires. The sample data collected within the Indian context, and generalisation of the discoveries in case of other cultures should be attempted with caution. Participants of future study can have different attributes if they are from diverse parts of the world.

Many important factors can be derived from the current study to be of use for future studies regarding this topic. The estimation instrument built in this research can be utilized to further explore how clients saw online service quality impact customer loyalty and purchasing practices, for example, client repurchase intentions and loyalty. Essentially, the experienced online client observed that the service quality may most likely be analysed by utilizing the measure. For instance, product features like- value and brand, and explicit attributes of the customers like- time direction, time constraint, and availability of technology, may essentially influence client recognitions on every online service quality dimensions inferred in this research. Recognizing these significant experienced buyers is a fundamental component for better online service quality administration.

Secondly, the development of the World Wide Web and its shopping features will keep proceeding, and researches regarding that in the future can reiterate comparative investigations exclusively for shoppers online, measuring real buyer practices rather than buyer expectations. This strategy is intended to comprehend if there are any critical distinction in the impression of e-service quality of online shoppers and other internet users.

Next, the present study concentrates on service quality dimensions observed by shoppers and consumers online. Nonetheless, a huge percentage of internet users utilize internet as a source of information and have never done business transactions online. The mentioned internet users may have a distinctive view of service quality. For example, the online shoppers may be satisfied with the existing security/privacy currently provided by the internet whereas the information searchers may have major security/privacy concerns while doing transactions online.

Lastly, field of e-commerce develops gradually; consumers will figure strong expectations for attributes of service quality. Further new standards in industry-wide service will be brought forward and be practiced. Therefore, the expectation-disconfirmation model maybe utilized for studies in the future to quantify quality of service and customer satisfaction. We studied only on India; therefore future studies can be done for other continents considering their fast growth and high demand of online shopping for the countries like China, Africa and UAE etc. China can be considered an interesting subject of study for its growing market with huge population.

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