

# Exploring the Role of E-Servicescape Dimensions on Customer Online Shopping: A Stimulus-Organism-Response Paradigm

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## ABSTRACT

With limited empirical evidence and an incomplete understanding of e-servicescape environment, its effects on e-commerce websites still needs to be explored. Hence, the study understands and assesses the effects of e-servicescape environment on customer purchase behavior, considering the moderating role of gender. The stimulus-organism-response framework was adapted to formulate a conceptual model, in which the e-servicescape (stimulus) features were modelled as an antecedent of customer trust (organism) on website that directs customer behaviour of purchase intention (response). To conduct an analysis, a data sample of 304 responses was collected from those who have earlier used e-commerce websites using a structural equation modelling technique. Results of the study shows that e-servicescape dimensions are a strong predictor of trust that strongly impacts customer purchase intention. Results further reveal that in an online environment, the gender gap is depleting as it impacts all three dimensions of the e-servicescape on customer behavior which remains consistent for both groups.

## KEYWORDS

E-Commerce, E-Servicescape, Gender, Online Shopping, Stimuli-Organism-Response Framework, Trust

## 1. INTRODUCTION

As e-commerce rises, the retail landscape has been revamped for customer and retailer. Customer is presented with superior shopping experience and tailored offers, whereas a retailer is given better opportunities to reach and interact with customers. Additionally, growth of e-commerce is found more rampant in budding markets as compared to developed countries due to increasing diffusion of information technology, varying customer lifestyle, and increasing customer internet experience (Narang & Trivedi, 2016). Studies demonstrate that e-commerce is growing at a fast pace because of unparalleled growth in number of online retailers and sales. As per statistics of 2018, total internet users in India accounted to 483 million (Statista, 2019). By 2019, this figure of internet users is anticipated to rise by 627 million (Kantar IMRB, 2019). Despite its untapped potential, India already stands as second largest online market worldwide, while China grasps at first position. Bearing this in mind, e-retailers attention has moved towards customers' adoption of online sales channel like e-commerce and further motivating their purchases online. In an experts discussion taken place in Third Annual E-commerce Money Africa Confex in 2017- retailers, academicians and other e-commerce stakeholders discussed on how designs of websites must be centered towards developing economies to offer gripping online experience to surge online purchase (Fastmoving, 2017).

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To increase knowledge of possible explanations towards role of e-servicescape dimensions and their holistic effect on purchase intention, a study by (Wu, Quyen, & Rivas, 2017) stated that gender plays a crucial role of moderator in online purchase experience. Furthermore, prior research suggests the assessment of gender differences in online service environments towards their purchase behavior (Cambra-Fierro, Melero-Polo, & Javier Sese, 2016; Hammedi, Kandampully, Zhang, & Bouquiaux, 2015; Ruane & Wallace, 2013). Role of gender has been examined and nested with numerous viewpoints like website design and its usefulness (Cyr & Bonanni, 2005), risk in online shopping (Garbarino & Strahilevitz, 2004; Hong, 2015) and online shopping behavior (Pascual-Miguel, Agudo-Peregrina, & Chaparro-Peláez, 2015). In e-commerce studies context, effect of e-servicescape dimensions on gender difference are at an early stage (Verbraken, Goethals, Verbeke, & Baensens, 2014; Zhang, Lu, Gupta, & Zhao, 2014). Therefore, considering the lack of understanding with respect to moderating role of gender for servicescape environment, this study analyses the influence of different gender (male and female) on the relationship between key e-servicescape dimensions and website trust towards purchase intentions.

In spite of many calls for empirical studies in the field of e-commerce development for developing economies, exploration and investigation in this region remains scarce (Ahmed & Akhlaq, 2015; Kshetri, 2007). The existing models to assess technology adoption like Technology Acceptance Model (TAM) (Venkatesh & Davis, 2000), UTAUT (Venkatesh, Morris, Davis, & Davis, 2003) etc. provides insights towards e-commerce acceptance in developing economies, but they offer restricted knowledge about formation of trust among customers by efficient website design and its final resultant i.e. purchase intentions (Yadav & Mahara, 2017). Therefore, current study puts forward a notion that the above discussed method (e-servicescape dimensions, trust, and purchase intentions) is all sequential in process and stimulus-organism-response (SOR) framework will help in better understanding of the relations. SOR framework is regarded as more inclusive in elucidation of cognitive and affective situations extracted from customers and their following behavior from interaction with online shopping environment or e-servicescape (Tran & Strutton, 2019; Buxbaum, 2016; Vieira, 2013). Yet, empirical evidence lacks on usage of SOR framework towards conception of trust through e-servicescape dimensions and following purchase intentions on e-commerce websites in developing economies. Subsequently, developing economies differ drastically from developed economies; this warrants review of concepts and customs applied on developing economies that conceptualized in developed economies (Sheth, 2011).

On the basis of aforementioned issues, the current study proposes various objectives and a model to advance purchase intentions from e-commerce websites in developing economies by exercising SOR framework. This study forwards various offerings to academicians, practitioners, government policy makers, and non-governmental organizations. First amongst them is application of SOR framework towards creation of purchase intentions from e-commerce websites in developing economies. To achieve this objective, the insertion of various constructs into SOR framework components is proposed to create a reliable and effective conceptual model. The constructs of e-servicescape or online atmospherics includes aesthetic appeal, layout and functionality and financial security (stimulus) with website trust or simply trust (organism) and purchase intention (response). Secondly, aesthetic appeal, financial security and layout and functionality can be controlled through effective website design (Flavián & Gurrea, 2007) and its effect on website trust is examined as it subsequently leads to effect on online purchase intentions (Flavián & Gurrea, 2007; Lim, Heng, Ng, & Cheah, 2016). Thirdly, next objective of the study is to assess the sequential nature of proposed model rooted within SOR framework. Different indirect relations/effects are tested through conducting mediation analyses. According to SOR framework organism mediates the effect of stimulus variable/s on response/s (Mehrabian and Russell, 1974). The core proposal to the theory is that the development of trust begins with the entry of e-servicescape stimulus, trailed by the process of trust organism, with end result of purchase response. Furthermore, the stimulus of e-servicescape can be précised using by e-servicescape attributes. With increased usage of e-commerce, it has become an integral

part of our daily lives, the scarcity of related e-servicescape research pushes us to probe further into e-servicescape, and how this mix, in combination with trust in e-commerce, affects customers' purchase intention. Lastly, this model is assessed to observe how results varies towards one key variable i.e. gender and its influence on customer purchase decisions (Fang, Wen, George, & Prybutok, 2016; Lian & Yen, 2014; Yoon & Occeña, 2015). As a resultant, this study not only provides value addition in theory to various stakeholders' knowledge towards application of SOR framework in developing economies but also makes available a parsimonious model to enable surge in online purchases from their e-commerce websites. This is achieved via persuasive online experiences and effective website design varied by gender experience.

The organization of the paper is as follows. Section 2 makes available theoretical framework for the study that helps to formulate hypotheses in Section 3. Thereafter, research methodology provides various research methods applied in this study that later helps in analysis of the results. Later, results are discussed and study concludes with its contributions, limitations and scope for future research.

## 2. THEORETICAL FRAMEWORK

This study aims to develop e-servicescape model to explore consumers' understanding of e-servicescape and its effect on consequent assessment of website trust and behavioral purchase intention with the help of Stimulus-Organism-Response (SOR) framework for Indian online shoppers as depicted in Figure 1. We will also assess gender differences as a moderating factor in relationships amongst e-servicescape dimensions and trust.

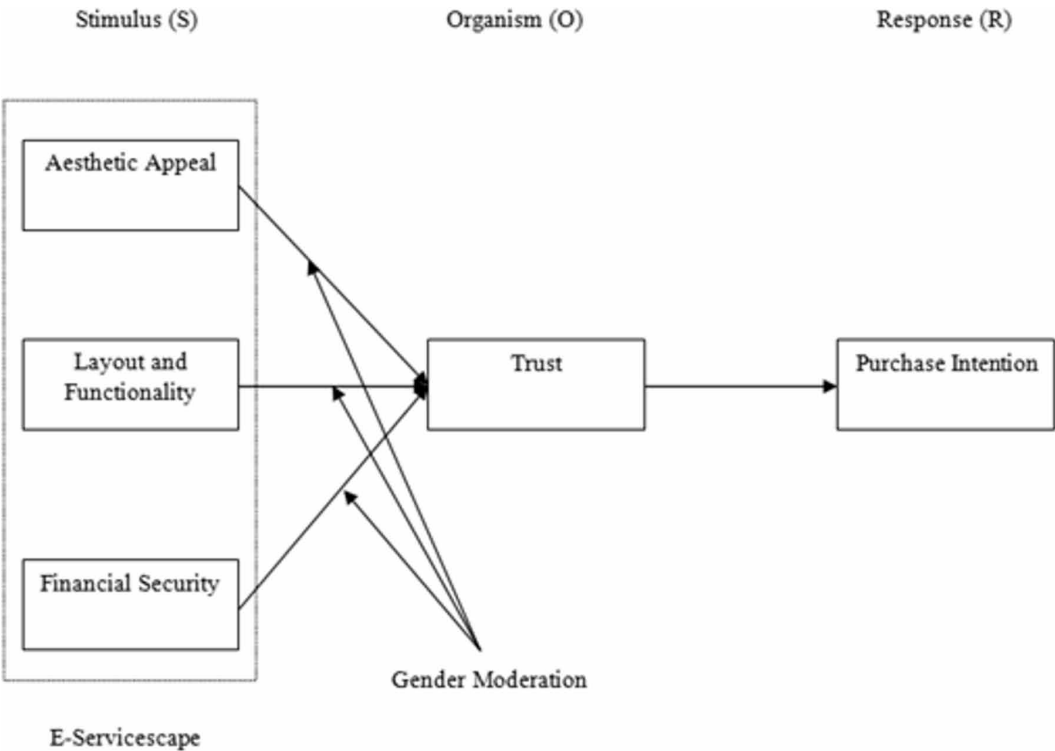
### 2.1 Stimulus-Organism-Response Framework

In Stimulus-Organism-Response model, Stimuli (S) are external to an individual and they compose of different physical atmospheric factors (Bagozzi, 1986) that influence individual's behavior (Eroglu, Machleit, & Davis, 2003). In an online environment, it provides set of website dimensions that are influential in surging customer intention (Mollen & Wilson, 2010). Hence, current study uses e-servicescape dimensions namely: Aesthetic appeal (Wang et al. 2011), Online layout & functionality (Wu et al., 2017) and Financial security (Harris & Goode, 2010); (Kim & Lennon, 2013) to be stimulus. Study argues that these dimensions creates a specific environment (Huang, Li, Mou, & Liu, 2017) that significantly effects customer purchase intention to shop on e-commerce websites.

Aesthetic appeal is website's complete visual impression and attraction. It is a tool for a website to differentiate itself from competitors and hence is considered key factor for e-retailers (Harris & Goode, 2010). Online layout and functionality are design aspects of a website that generates pleasurable interactions and user experiences. Online layout is defined as overall arrangement, adaptability, structure and organization of any website (Wu, Lee, Fu, & Wang, 2013) whereas functionality is the contents of a website (Law & Hsu, 2005). Financial security in the online domain is the degree to which a customer believes that their personal or financial information will remain safe and not be stolen or shown, saved by unwanted parties through e-commerce purchase process (Azizi & Javidani, 2010; Flavián & Guinalfú, 2006). Efficiency and effectiveness of all these features hold website usability. Consequently, website usability aids in clarification of significant information and improves communication. At the same time, it enables a consumer to seek information in an easy manner.

Organism (O) is defined as internal structures and processes that mediate amid external stimuli to individual and their final response (R) (Bagozzi, 1986). The organism is the cognitive and affective agent that mediates stimuli and responses of customers (Kim & Lennon, 2013). Here, cognitive agent represents customers' mental processes that comprise of customer thoughts towards acquisition, processes, retentions and retrieval of information (Eroglu, Machleit, & Davis, 2001; Fiore & Kim, 2007). On encounter with a stimulus, customer processes it into meaningful and useful information towards their final decision (Huang et al., 2017). Organism in current study is operationalized as trust (Lunardo & Mbengue, 2013; Rahul & Aggarwal, 2017) as consumer behavior studies advocate

Figure 1. Research model



the importance of trust on website and its services while shopping online (Agag & El-Masry, 2016). (Kim, Ferrin, & Rao, 2009) define trust as the point of reliability and credibility on new technology by people. In context of this study, trust is defined as consumer's confidence towards the website and willingness to trust the sellers' actions in situation where customers may otherwise be vulnerable.

Response refers to a customer's outcome behavior of an approach and avoidance (Donovan & John, 1982). While, approach refers to positive response shown by customer during specific settings as purchase behavior and affirmative communication, avoidance is shown through negative communication and rejection intentions (Eroglu et al., 2001). According to previous studies, response is the final customer outcome like behavioral intentions (Brunner-Sperdin, Scholl-Grissemann, & Stokburger-Sauer, 2014) and purchase (Kim & Lennon, 2013). Therefore, this study assesses response via customers' purchase intention.

### 3. HYPOTHESES DEVELOPMENT

#### 3.1 Aesthetic Appeal with Trust

According to a study by Harris & Goode (2010), online aesthetic is an online ambience form i.e. degree of attractiveness or appeal of beauty felt by consumers towards e-servicescape. In further addition, Wang, Minor, & Wei (2011) referred to web aesthetics as e-servicescape cues yielding an impression of attractiveness or beauty. This view is in concordant with various studies that suggest that the nature, size, website presentation and online images are crucial considerations (e.g. (Shobeiri, Laroche, & Mazaheri, 2013)). (Donnelly, 2001) stated that customer evaluates website on individualized information needs and therefore it must be tailored accordingly. Hence, it is obvious

that a consumer wishes to enjoy aesthetic design of the service place and hence results in higher pleasantness effect (Loureiro & Sarmento, 2014; Wang et al., 2011). Customer satisfaction rises in an online interaction environment if it occurs in a more pleasant aesthetic e-servicescape. Such insights lead Hasan (2016); Seckler, Heinz, Forde, Tuch, & Opwis (2015) to conclude that a wide range of website visual characteristics affects users behaviour and argue that marketers and retailers must consider effects of website aesthetics. Thus, study assesses aesthetic appeal on attractiveness and beauty, entertaining and exciting referred from (Harris & Goode, 2010; Loureiro & Sarmento, 2014; Wang et al., 2011). This is strongly supported by recent empirical results that strongly links aspects of website aesthetic appeal (navigation, images, links and searches) to website trust (Kim, Chung, & Lee, 2011). (Al-Debei, Akroush, & Ashouri, 2015; Michaud Trevinal & Stenger, 2014) suggested that the website visual experience exerts a strong influence on continued usage. These findings have led researchers to argue implications of trust in online shopping experience and its association with aesthetic appeal of the e-service environment like (Teng, Ni, & Chen, 2018). Thus, we propose:

H1. Aesthetic appeal has positive influence on trust.

### 3.2 Layout and Functionality with Trust

Manganari, Siomkos, Rigopoulou, & Vrechopoulos (2011) identified in his study that layout is a key factor to influence consumer decision making process. Hooper, Coughlan, & Mullen (2013) suggest that functionality and usability of a website are chief dimensions for consumer's evaluation of online environment. Manganari, Siomkos, Rigopoulou, & Vrechopoulos (2011) identified that online layout of websites are built on the basis of customer pleasure, that engages customer in further participation. Various studies have put forward suggestions and recommendations on website design, its effectiveness and also customer evaluations (e.g. Bai, Law, & Wen, 2008; Fu Tsang, Lai, & Law, 2010). Bai et al. (2008) defined functionality as consumers' usability of website interface and the navigations. Law and Hsu (2005) conducted measurement of online functionality through a verified measurement scale that consist of purchase information, product/service information, contact information, destination information and quality of information. A range of studies suggests that websites must provide effective base services and also help improve service experience (e.g. (Venkatesh, Chan, & Thong, 2012; Yeo, Goh, & Rezaei, 2017)). Recently, theorists have focussed on potential risks of erroneous website personalization (Frels & Kannan, 2001) and therefore suggested that negative usage behavior can be avoided by a cautious personalization approach (see (Kannan, 2016)), and this will yield more trust over continuous usage of website.

This study assessed online layout and functionality on content/information, navigation features and their usage easiness as referred from Montoya-weiss, Voss, & Grewal (2003); Srinivasan et al. (2002); Zeithaml, Parasuraman, & Malhotra (2002). According to Srinivasan et al. (2002) most crucial aspect of customer evaluation of a web site is its ease in usage/navigation usability. Also, various studies states that relevant information is crucial to website usage (Bauer, Grether, & Leach, 2002; Zeithaml et al., 2002). Similarly, Montoya-weiss et al. (2003) states that content information forms a key variable to consumer's assessment of a website services. Therefore, we propose that:

H2. Layout and functionality have a positive influence on trust.

### 3.3 Financial Security with Trust

Security in online shopping websites is considered a big concern as its abuse or failure can cause conditions of economic hardship through disclosure, destruction, alteration of data, service denial and/or fraud etc (Roca, García, & Vega, 2009). Tsang et al.(2010) suggests that online financial security and payment procedures are a key to ultimate purchase decision. As most consumers are unaware with usage of their personal and financial information given on e-commerce websites, therefore it is

considered as one of the biggest barriers to e-commerce adoption and its growth (Shah, Peikari, & Yasin, 2014). With rising attacks on online information of customers, frauds and system vulnerabilities, consumers are getting more hesitant providing sensitive information to shopping websites (Tsang et al., 2010; Yenisey, Ozok, & Salvendy, 2005). In this sense, focussing on the key role of trust in online trade and exchange, studies have stressed on the significance of financial security in websites (e.g. (Barkhordari, Nourollah, Mashayekhi, Mashayekhi, & Ahangar, 2017; Bonsón Ponte, Carvajal-Trujillo, & Escobar-Rodríguez, 2015; Hartono, Holsapple, Kim, Na, & Simpson, 2014; Shah et al., 2014)). Thus, we propose:

H3. Financial security has a positive influence on trust.

### **3.4 Trust with Purchase Intention**

Every individual has different trust and belief patterns over others. These characteristic shows an impact upon customers' trust in e-commerce as well (Brenngman & Karimov, 2012). (Casaló, Flavián, & Guinalú, 2010; Ruiz-Mafe, Martí-Parreño, & Sanz-Blas, 2014) held that trust can lower down uncertainties regarding the future outcomes and is essential for a continued relationship for product or service of customer needs. Trust on online environment portrays inclination of an individual towards its services and processes. Online purchase requires trust to be imbedded not only between customer and retailer, but also amongst customer and the computer system built to carry out transactions. Studies have been conducted to assess trust in e-retail stores and verified it as a vital antecedent to drive purchase behaviour (Brenngman & Karimov, 2012; Casaló et al., 2010; Ruiz-Mafe et al., 2014). Trustworthy website environment is crucial towards generating e-commerce success and surge consumer activities (Kim & Prabhakar, 2000). In short, trust on a websites includes customers beliefs and expectations about online merchants and their services (Casaló et al., 2010; Curras-perez, Ruiz-mafe, & Sanz-blas, 2014). To summarize, customer's general trusting nature plays a key role in determining their online purchase behavior. Consequently, the following hypothesis is constructed:

H4. Trust has a positive influence on purchase intention.

### **3.5 Mediating Role of Organism Component: Trust**

This study assesses purchase intentions for e-commerce websites in developing economies by application of SOR framework. Additionally, study assesses effect of organism factor from SOR framework on cognitive and affective conditions consequently due to their contact with environmental cues i.e. Stimulus factors, that subsequently has effects on response factor (Loureiro & Ribeiro, 2011). As a result, organism factor/s (i.e. trust) act as mediating link between the other two components of SOR framework i.e. stimulus and response (Vieira, 2013). Plentiful studies have approved on mediating role of trust in identifying purchase intentions of customers through e-commerce websites (Ha, John, John, & Chung, 2016; Hong & Cha, 2013; Lwin, Wirtz, & Stanaland, 2016). Hence, these hypotheses are proposed:

H5: Aesthetic appeal has a positive indirect effect on purchase intentions through mediating trust.

H6: Layout and functionality has a positive indirect effect on purchase intentions through mediating trust.

H7: Financial Security has a positive indirect effect on purchase intentions through mediating trust.

### **3.6 Gender Moderation**

Numerous studies under marketing domain have studied gender and its role, but only few have assessed relationship between gender and e-commerce (Ladhari & Leclerc, 2013; Rodgers & Harris, 2003).

Available e-commerce related studies show that there exist significant differences amongst both genders. Their choices drives them towards adoption behavior and further usage (Lin, Featherman, Brooks, & Hajli, 2018; Venkatesh, Morris, & Ackerman, 2000). Results of gender moderation in online environment are not similar across all studies. One research dimension discusses and approves of gender differences across online environment usage behavior and it moderates usage and adoption behavior (Lim & Kwon, 2010; Lin et al., 2018; Liu, Li, Zhang, & Huang, 2017; Lu & Lee, 2010). On the other hand, a different research stream suggests that gender gap amongst usage of online environment is depleting as both male and female believe that key functions are equally important (Nadeem, Andreini, Salo, & Laukkanen, 2015; Zha, Zhang, Yan, & Xiao, 2014). Similarly, many studies confirmed that both have similar taste towards online shopping preferences like Ladhari & Leclerc (2013) found no significant difference amongst both genders during examination of websites and e-tailers receptiveness. Study by Zha, Zhang, Yan, & Xiao (2014) also showed no significant differences amongst both genders in online environment contexts. Likewise, study by Liu, Li, Zhang, & Huang (2017) demonstrated no significant difference in both genders on customer perception and expectation of online environment. Even study by Nadeem, Andreini, Salo, & Laukkanen (2015) stated that online environment usage and perception gap by both genders is declining. Therefore, this study attempts to address this inconsistency by assessing gender moderation effects on online retailer websites e-servicescape dimensions towards purchase intentions. Considering past research findings and their emphasis, study proposes three hypotheses:

- H8. The effect of both the genders will remain same amongst aesthetic appeal and trust relationship.
- H9. The effect of both the genders will remain same amongst layout & functionality and trust relationship.
- H10. The effect of both the genders will remain same amongst financial security and trust relationship.

## 4. METHODOLOGY

This study utilized snowball technique (Coleman, 1958). This technique is a chain referral sampling method that uses convenience sampling of participants; the sample group grows through a network like a rolling snowball. This methodology is usually used for market research (Campbell & Wright, 2008). In this method, initially few respondents were approached and they were later asked to suggest other respondents who are willing to contribute and this process goes on subsequently. Participants voluntarily replied to questionnaire without any incentives in return. Suitable measures were utilized to ensure diverse demographic data of respondents is gathered. Furthermore, there are similar studies (Kurasaki, 2000) in the extant literature employing snowball sampling in a survey (Yadav & Rahman, 2017). To collect data, study aimed at retail customers with their previous experience of e-commerce website and its services towards browsing or purchase.

### 4.1 Sample

Questionnaire based study is adopted. Survey is designed in a structured and non-disguised manner where respondents were clearly told purpose of the survey and gained their consent with information. 5 variables (aesthetic appeal, financial security, layout and functionality, trust and purchase intention) with 21 items were included in survey apart than general demographic questions. Variables were measured on a 5-point Likert scale, except demography related questions. Each measure was drawn from earlier studies and was adapted for current research. For questionnaire refer to Table 2.

By application of snowball sampling, 1000 people were mailed the questionnaire and 306 replied back. Out of these 306 only 304 were considered usable, which comprises of 144 females and 160 males. Similar sample sizes have been taken in various studies and considered a fit (Kaushik & Rahman, 2015; Yadav & Mahara, 2018). Demography of respondents is briefed in Table 1. Sample demographics collected in this study is considered fit in similar studies like Alalwan (2018), conducted

for social media habits. This kind of research majorly includes youth sample of age group 20-30 years. Major chunk of respondents are young and students who are ready to share their information easily. Demographics details shows that snoball method works well with young people as they are more networked and it also represents national data fit.

## **4.2 Measures**

The items used to assess e-servicescape and trust items used in this study are taken from Harris & Goode (2010). Aesthetic appeal composes of four items, with sub dimensions as: visual appeal (two items), Originality of design (one item) and entertainment value (one item). Layout and functionality (four items) measured through sub-dimensions: information relevance (one item) and usability (three items). Financial security comprised of four items with sub dimensions: Ease of payment (two items) and perceived security (two items). Trust composed of 4 items taken directly from Harris & Goode (2010). Purchase intention was adapted from (Gao & Bai, 2014) with one item from (Yadav & Mahara, 2017).

As this study includes voluntary participation to fill questionnaire and further respondents' recommendation without any incentives in return, therefore questionnaire length fit was ensured to not over-exert participants. Many items were removed initially due to reliability and validity issues. Later, total length of the questionnaire from Harris & Goode (2010) was perceived too long to get proper responses from respondents and avoid unit non-response biasness, therefore it was shortened up by removing most crosscheck items and few items that were not found fit for Indian consumers. This aided in better understanding of the questions asked.

Study used Armstrong & Overton (1977) to diagnose unit non-response biasness, through a comparison of "initial" and "delayed" participants based upon their response date. Non-response bias was assessed using t-test that compared sample means of initial 30 percent of the participants with delayed 30 percent participants. Results demonstrated no significant differences exist amongst the two sets, signifying no issue of unit non-response biasness with respondents' data.

In this approach of data collection, we avoided item non-response bias by providing help to the respondents for filling the form and avoided unit non-response bias by approaching people who are willing to take part in the survey. These two approaches worked well to gain good responses.

## **5. ANALYSIS**

### **5.1 Preliminary Tests**

Table 2 depicts the results of exploratory factor analysis. Items with poor loadings (loadings < 0.50) were removed from analysis. Remaining 18 items were assessed using principal component analysis (PCA) and resulted in 5 factors (Eigen values>1) which accounted for 71% variance. Reliability scores of all factors were found acceptable from 0.77 to 0.87.

Complete latent model was created using results of exploratory factor analysis and tested with the help of SPSS AMOS to know relational as well as measurement properties of the model. Acceptable relative, comparative and absolute model fit indices were ensured using Bentler (1992). 5 factor structures were confirmed by first order confirmatory factor analysis (CFA). Indices resulted in good model fit to data. Convergent validity was confirmed by average variance extracted (AVE) (AVE  $\geq 0.50$ ) for all the factors individually. AVE varies from 0.57 to 0.61, confirms convergent validity. Further confirmation of convergent validity was given by path analysis through structural equation modelling (SEM) and all path coefficients were found statistically significant. Discriminant validity is confirmed if AVE is greater than the squared correlation coefficient between factors, which was true for all the factor pairs (Fornell & Larcker, 1981).



**Table 1. Respondents demography**

Measure	Item	Frequency	Percentage (%)
Total		304	100
Gender	Male	160	52.6
	Female	144	47.4
Age	Below 20	57	18.8
	20-30	157	51.7
	31-40	63	20.7
	Over 40	27	8.8
Occupation	Student	173	56.9
	Free Lancer	22	7.2
	Entrepreneur	33	10.8
	Employee	61	20.1
	Retired	15	5

## 5.2 Structural Model Test

SEM was used to test causal relations amongst variables for the proposed model for complete data (N=304). Joreskog and Sorbom (1993) suggests GFI and NFI acceptable values to be less than 0.9; Hu & Bentler (1999) suggests CFI value to be <0.95; Bollen & Long (1993) suggests RMSEA values to be less than 0.06. Fit indices of the model were a good fit ( $\chi^2/df = 2.14$ , RMSEA = 0.04, CFI = 0.950, NFI = 0.935 and GFI = 0.925), similarly assessed by studies (Yadav & Mahara, 2017, 2018). These results gave strong support to the proposed model (Hair, Black, Babin, & Anderson, 2010; Hair, Anderson, Tatham, & William, 1995). Table 3 summarizes path analysis results. Relationships amongst all the causal paths were tested and confirmed. Aesthetic appeal is significantly and positively influenced by trust ( $\beta = 0.523$ ,  $p < 0.001$ ). Financial security is significantly influenced by trust ( $\beta = 0.489$ ,  $p < 0.00$ ); and layout and functionality is significantly influenced by trust ( $\beta = 0.322$ ,  $p < 0.00$ ). Purchase intention is significantly affected by trust ( $\beta = 0.532$ ,  $p < 0.00$ ) and it is the strongest of all relations. These results support hypotheses H1, H2, H3 and H4.

## 5.3 Mediating Effect of Organism: Trust

The mediating effect of trust on relationship between e-servicescape dimensions and purchase intentions was tested by use of extensively acknowledged method given by Baron & Kenny (1986). According to this approach, mediating effect of a variable is established once following four conditions are fulfilled.

First, independent variable/s (e-servicescape dimensions) has to significantly affect mediating variable (trust). Second, mediating variable must significantly affect the dependent variables (purchase intention). The two conditions are already fulfilled as shown in Table 3. Third, independent variables (e-servicescape dimensions) must directly influence dependent variable/s (purchase intention). Towards third condition assessment, direct effect of e-servicescape dimensions on purchase intention was assessed. Results shows that aesthetic appeal, layout and functionality and financial security affects trust ( $\beta_1 = 0.248$ ,  $p < 0.001$ ;  $\beta_2 = 0.202$ ,  $p < 0.001$ ;  $\beta_3 = 0.255$ ,  $p < 0.001$  respectively). Fourth, path coefficients values of an independent variable/s to its dependent variable/s either reduce its value to prove partial mediation or it converts insignificant showing full mediation when any mediator/s is applied into a model. From Table 4, findings suggests that the path coefficient values for all e-servicescape dimensions to purchase intention were reduced ( $\beta_1 = 0.113$ ,  $p < 0.001$ ;  $\beta_2 =$

**Table 2. Results of reliability and convergent validity**

Items No.	Items	Factor Analysis (PCA)	Cronbach's Alpha	Standardized Factor Loadings ( $\lambda$ )	Composite Reliability	Average Variance Extracted (AVE)
Aesthetic Appeal	I like the way this website looks	0.743	0.862	0.671	0.711	0.582
2	The design of this website is adventurous	0.733		0.628		
3	I think that this website is very entertaining	0.710		0.573		
4	The way this website displays its products is attractive	0.725		0.596		
Layout and Functionality 1	This website is easy to navigate	0.614	0.878	0.605	0.724	0.508
2	There are convenient ways to go among related pages and between different sections	0.754		0.738		
3	Navigation through this website is intuitive	0.815		0.756		
4	Information about products is easily accessed on this website	0.737		0.499		
Financial Security 1	When using this web site, paying for goods does not require a lot of details	0.686	0.773	0.762	0.799	0.571
2	When buying from this website I am confident in the security procedures	0.797		0.806		
3	Overall, this website seems security conscious	0.764		0.753		
Trust 1	This website is genuinely committed to my satisfaction	0.707	0.838	0.590	0.859	0.611
2	If this website makes a claim or promise about its product, it is probably true	0.816		0.927		
3	I feel I know what to expect from this web site	0.818		0.874		
4	I feel that I can trust this web site	0.524		0.695		
Purchase Intention 1	I would like to revisit this website in near future	0.852	0.843	0.826	0.823	0.591
2	I would recommend this website to my friends and others	0.851		0.739		
3	This website will be my first choice over others	0.811		0.699		

0.109,  $p < 0.001$ ;  $\beta_2 = 0.098$ ,  $p < 0.001$  respectively) but remained statistically significant, therefore partial mediation of organism component i.e. trust was proved.

## 5.4 Moderating Effect of Gender

To conduct further analysis of hypotheses H8, H9 and H10, study requires usage of advanced multivariate analysis method (Hayes, 2009) by using AMOS 20.0 and multi-group analysis of both genders. (Byrne, 2016) recommended use of structural and measurement constraints to assess model

Table 3. Hypotheses test

Hypotheses				Path Coefficient ( $\beta$ )	Error	t-value	p-value	Test Results
H1	Aesthetic Appeal	→	Trust	0.523	0.053	9.556	***	Supported
H2	Layout and Functionality	→	Trust	0.322	0.044	6.521	***	Supported
H3	Financial Security	→	Trust	0.489	0.045	9.788	***	Supported
H4	Trust	→	Purchase Intention	0.532	0.052	9.822	***	Supported

\*\*\* means p-value = 0.000

Table 4. Mediating effect of trust

Independent		Dependent	Direct Effect	Indirect Effect	Mediating Role
H5	Aesthetic Appeal	Purchase Intention	0.248***	0.113***	Partial Mediation
H6	Layout and Functionality	Purchase Intention	0.202***	0.109***	Partial Mediation
H7	Financial Security	Purchase Intention	0.255***	0.098***	Partial Mediation

\*\*\* means p-value  $\leq$  0.001

equality and authors methods have been applied by different studies (Yadav & Rangnekar, 2015, 2016) for multiple group analysis. Two models are assessed, females (N=144) and males (N=160). Goodness-of-fit indices for both the models were found significant i.e. male ( $\chi^2/df=1.9$ , RMSEA= 0.04, CFI= 0.932, NFI = 0.925 and GFI = 0.945) and female models ( $\chi^2/df=2.1$ , RMSEA= 0.05, CFI=0.926, NFI = 0.905 and GFI = 0.901). All causal paths were found significant in structural path analysis.

Table 5 shows results of moderation for the gender groups i.e. male and females. As results clearly shows that aesthetic appeal has significant and positive relationship with trust for both the genders i.e. male:  $\beta = 0.406$ ,  $t = 4.12$ ; female:  $\beta = 0.431$ ,  $t = 4.22$ , thus accepting hypotheses H8. Similarly, layout and functionality has a significant and positive relationship with trust for both the genders i.e. male:  $\beta = 0.358$ ,  $t = 3.64$ ; female:  $\beta = 0.388$ ,  $t = 3.91$ , thus accepting hypotheses H9. And finally, financial security has significant and positive relationship with trust for both the genders i.e. male:  $\beta = 0.427$ ,  $t = 4.35$ ; female:  $\beta = 0.489$ ,  $t = 4.76$ , thus accepting hypotheses H10. Therefore, there is no moderation amongst both the genders for e-servicescape dimensions and trust on website.

## 5.5 Execution Time Summary

Table 5. Invariance test across gender

Hypotheses				Standardized beta values ( $\beta$ ) (t) (p)		Test Results
				Male	Female	
H8	Aesthetic Appeal	→	Trust	0.406(4.12) ***	0.431(4.22) ***	M=F (Supported)
H9	Layout and Functionality	→	Trust	0.358(3.64) ***	0.388(3.91) ***	M=F (Supported)
H10	Financial Security	→	Trust	0.427(4.35) ***	0.489(4.76) ***	M=F (Supported)

\*\*\* means p-value  $\leq$  0.001

## 6. DISCUSSIONS AND IMPLICATIONS

### 6.1 Theoretical Implications

Results of the study authenticate the concept that e-servicescape dimensions lay high effect on customer's website trust, bundled in SOR framework. Findings of the study confirms with past studies stating that customers' website trustworthiness is mostly influenced by e-servicescape dimensions (Tran, Strutton, & Taylor, 2012). Amongst e-servicescape dimensions aesthetic appeal was found to be most influential and significant in relationship with online website trust. Results of the study confirm that individuals are more likely to purchase when they trust a website and its ambience while searching for information online. In this sense, findings of this study support the notion that buyer and seller relationship have trust as most crucial challenge in e-retail studies. These findings related to aesthetics of a website, showcases that aesthetic appeal or visuals of a website are crucial in creation of trust towards online retail customers. Therefore, due consideration must be given to designing user's interface (feel and look) of an e-commerce website. Elements to be included must be pleasing and have appealing graphics, fonts and theme for the website with displayed information and product assortment for browsing customers.

Further results indicate that layout and functionality positively and significantly influences trust over e-commerce website. Considering website trust and relation of layout and functionality, online retailers must decide and design an optimized journey for customers' purchase experience. These findings are crucial and interesting as they recommend that online retailers must concentrate on aesthetic appeal to increase pleasing effects of website and also on its layout and functionality to ensure heightened website easiness and usability is generated towards services. Similarly, financial security is found to be a major influencing factor towards generating trust of customer. Financial security on e-commerce websites is considered a major issue amongst customers (Harris & Goode, 2010), as its abuse or failure can cause distrust for retailer and hardship for customers through disclosure, destruction, alteration of data, service denial and/or fraud etc. Therefore, all e-servicescape dimensions should be strategically culminated to keep customer pleased and comfortable while browsing through different pages and ensure website trust.

Study also assessed the role of organism component (trust) to fulfil a mediating role in determining consumers' purchase intentions from e-commerce websites (Ha et al., 2016; Hsu, Chang, Kuo, & Cheng, 2017; Lwin et al., 2016; Pelet, Ettis, & Cowart, 2017). Results indicate that trust partially mediates the relation between all e-servicescape dimensions and consumers' purchase intentions indirectly, even though differently. Therefore, it can be established that organism component of SOR model truly emphasizes on a persons' cognitive and affective conditions due to their relation with e-servicescape dimensions, that subsequently affects their response i.e. purchase intention (Loureiro & Ribeiro, 2011).

Exploring the role of gender helps retailers, marketers and other stakeholders verify need of gender-based specific strategies for both groups i.e. male and female. Results of gender moderation showed no difference towards services and features, this indicates that gap amongst taste and usability of e-commerce and its services is deteriorating. Findings from this study are in consistency with many latest studies that found no significant differences amongst both genders in the context of e-commerce websites. Like, Ladhari & Leclerc (2013) found no significant difference amongst both genders during examination of websites and e-tailers receptiveness. Therefore, when marketers and other stakeholders discussing e-servicescape dimensions they must keep in mind that all the environmental cues like aesthetics of website and security of services, etc must not be too customized as per gender. Too much emphasis on gender customized website can also result in dislike and distrust by customer leading to loss of customer.

## 6.2 Managerial Implications

This study endeavours to identify the significance of e-servicescape in the e-commerce context. Results of this study points to key significant implication i.e. e-retailers, website designers, architects of website and other stakeholders must ensure good quality of environmental cues and ensure customer of available safety and security. For consumers, willing to shop online, websites are the most crucial contact point for them to know products and services. As online consumers lack feature of touch or feel during product purchase process, effectiveness of website e-servicescape dimensions becomes more crucial as it ensures comfort required for peace of mind. A comfortable, useful and efficient website and its services do not just help create an easy checkout but they also remove customers post-purchase dissonance. To maintain long-term relationship with existing customers, retailers and managers must design website in terms of better e-servicescape features: outlook design, functionality and security which are at par with customer needs. A noteworthy discovery of this research is that aesthetic appeal shows highest significant impact on customer intentions. This implied that a good appearance appeal helps customers cherish e-commerce website and its aesthetics. Hence, website designers, architects and software engineers must emphasize on the visuals of websites and optimize their design effectiveness. Aesthetic appeal can be improved by usage of different colors, entertaining features, sounds and so on. It becomes vital that digital marketers, managers and other people involved are able to elicit positive emotion and preference towards products, their brands and organizations entirely.

Further it can be implied that financial security, layout and functionality are also crucial to customers purchase intentions. Once consumer identifies a website to be of low-quality e-servicescape or finds visually unattractive, not safe towards payment process and has complex/difficult layout and functionality, then consumer will consider website to be of low or no utility to him/her. Such alterations in judgement due to low-quality e-servicescape lead consumers' towards rival websites. Moreover, all these services and design aspects must be integrated into the development process of a website as overall environment or atmosphere experience of a website leads to customers trust and purchase behavior. For example, Alibaba the Chinese e-commerce giant has segregated its payment and financial security services to its subsidiary unit Alipay to provide ease in payments and various other features.

Another implication to this study is that too much customization can formulate a complicated interface for the users. As per (Reibstein, 1999), internet shoppers are mostly composed of males who are young and well educated. But results of the study imply that retailers, marketers and other stakeholders have no need for gender-based e-servicescape environment segmentation. As both the gender groups have similar taste towards website interface and services needed; therefore, websites must avoid gender specific customization. Reason being mediation of technology has depleted gender biased taste and usability gap for e-commerce websites. Consequently, simple and standard website interface with usable services are preferred by customers and also provides an environment of trust and comfort.

## 7. CONCLUSION

This study is aimed at identifying and assessing a model to surge customer purchase intentions on e-commerce platform in developing economies by applying SOR framework. Concurrently, the application and usefulness of SOR framework to online shopping environment is established through effective website design and other features (e-servicescape), where study proves to be of good value for identifying customer purchase intentions. Study identified that Stimulus (e-servicescape dimensions) creates response (purchase intention) via organism (trust) through a sequential and consistent flow where gender moderation does not show much difference to respondents' likability towards e-servicescape dimensions for an e-commerce website.

## **8. LIMITATIONS AND FUTURE RESEARCH DIRECTIONS**

Although this study helped identify effects of various e-servicescape dimensions for e-commerce platforms, future studies can also explore other relevant constructs of online environments like engagement, customization/personalization effect, interactivity, information effects and security to surge customers' purchase intentions in developing economies. This study used gender as a moderator to understand relations better, still future studies can gain more insights into customer behaviour by introducing other moderating variables like retailer type, type of device, occupation, internet usage, product attributes, etc. Although, study was focused towards developing country and sample was gathered from India, future studies can benefit by identifying cultural differences across different geographical boundaries. Finally, study did not take into account time series data of customer towards their experience with the websites as it has major implications. So, future studies can benefit by conducting time series study on customer behaviour towards e-commerce websites and their services.

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