

A structural equation modeling on factors affecting E-retailing

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Abstract: The e-retailing (less frequently; e-Retailing, e-Tailing, etc.) is the concept of selling of retail goods using electronic media, in particular, the internet. The Internet and the World Wide Web have been the most exciting developments, in the field of information and communications technology in recent years. Internet commerce has exploded and become a normal part of day to day life of consumers. It provides organizations and consumers for endless options to choose from, for various transactions. Customer experience is conceptualized as a psychological construct, which is a holistic, subjective response resulting from customer contact with the retailer and which may involve different levels of customer involvement. This paper is an attempt to identify the factors influencing the consumer when he or she decides to purchase on the internet and to understand the interrelationship among the various variables.

Key words: Customer experience, Retailers, Consumer, Experiential State, Online.

INTRODUCTION AND LITERATURE REVIEW

Due to the rapid development of the technologies surrounding the Internet, companies are interested to sell their products through their website even though buyers and sellers are located thousands of miles apart. They belong to different parts of world, or they speak different languages. Internet is a new virtual medium with many potential consumers. It is a new virtual market which will bring significant difference to the consumers. The online retailers must understand what are the wants and needs of such consumers. An effective retail management strategy is linked to the creation of customer experience (CE), which leads to successful performance outcome. The e-retail landscape is now populated by "pure players" (online only retailers) as well as multi-channel retailers.

The multi-channel context increases e-retailer opportunities to reach customers. Presenting number of challenges in terms of the complexity of shopper behaviors Web 2.0 features (such as interactivity, customer-to-customer (C2C) online recommendations, online word of mouth, or user generated content) advance the potential for e-retailer-to-customer interactions. Complexity is further created by advances in hardware such as handheld devices that enable real time information exchange and anytime, anywhere purchase. The combination of this increases complex e-retail landscape, coupled with the importance of OCE to business performance. It means that retailers must understand how to ensure an optimum online experience for the customer both within, and across channels.

The importance of analyzing and identifying the factors influencing the consumer when he or she decides to purchase on the internet is vital. The two psychological constructs of cognition and Affect have been consistently identified as influential components of Customer behavior and Customer Experience. (Bagazzi, Gopinath; and Nyer 1999. Frow and Payne 2007; Tynan and Mckechnie 2009). The customer engages in cognitive and affective processing of incoming sensory information from the website, the result of which is the formation of an impression in memory. A number of antecedent conditions will influence the cognitive and affective state of the customer.

Perea.Y Monsuwe et al.(2004) (citing Mathwick .et.al.2001;Parausuram and Zinkhan 2002) propose that customers continuously evaluate their online experience using perceptions of a range of website features including product information, form of payment ,delivery terms ,service provided ,risk involved ,privacy, security and navigation. Cognition, in a marketing context, has been found to be influenced by the emotional state of the individual (Bagozzi, Gopinath, and Nyer 1999). Affective Experiential State (AES): This component of OCE "involves one's affective system through generation of moods, feelings and emotions." Three behavioral outcomes of OCE were identified in previous studies: ‘Online shopping satisfaction’, ‘Trust,’ and ‘Repurchase Intention ‘Ha and Perks 2005; Janda and Ybarra 2005; So, Wong and Sculli 2005; Jin, Park, and Kim 2008.

Anderson, Fornell, and Lehmann (1994) defined satisfaction as the customers feeling that resulted from the overall product and service experiences that they had received. Na, Marshall and Keller (1999) viewed satisfaction as an outcome of powerful associations or image. When a customer experiences “a pleasurable level of consumption-related fulfillment”, the customer is satisfied (Oliver, 1997). Oliver also further explains that customer satisfaction is resulted from a psychological state when current disconfirmation of expectation is coupled with prior feeling about the experience. Trust is gained through interaction overtime that develops a set of experience between one party to another (Weber, Maholtra, & Murningham, 2004). Fang, Chiu and Wang (2011) define ‘online repurchase intention’ as a probability of a person to repurchase the product from the same online store in the future.

Objectives of the Study

The main aim is to analyze the interdependent relationships between factors and the uni dimensionality of factors in one analysis algorithm. This structural equation model deals with statistical validation of an empirical model, to make a causal inference of cognitive experiential state, affective experiential state, trust in online shopping, satisfaction on repurchase intention

Research Methodology

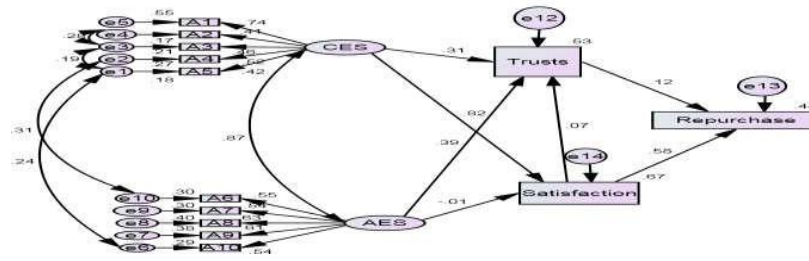
Descriptive research design is used for the study. The respondents of the study constitute e-retailing customers all over India .The data was collected from 500 respondents through the survey methodology. The sampling technique used is judgement sampling. Only those who were involved in online shopping were considered for the study. Primary data was collected through a questionnaire and the secondary data was collected through various research journals and IAMAI survey report. Coimbatore city in the state of Tamil Nadu, India is chosen for the study.

Analysis and Findings

The figure below represents the cause of cognitive experiential state, affective experiential state, and trust in online shopping and satisfaction in online shopping on the repurchase intention.

The following symbols are used to describe the variables

A1	Skill
A2	Challenges
A3	Telepresence
A4	Interactive Speed
A5	Flow
A6	Ease of Use
A7	Connectedness
A8	Perceived Benefit
A9	Perceived Control
A10	Affective state



In SEM a relatively small chi square value supports the proposed theoretical model being tested. In this model the chi square value is 203.984. It is small when compared to the value of the independence model (2237.537). Hence chi square value is good.

Though the chi square seems good, it is also appropriate to check the value of chi square divided by degree of freedom. (Wheaton, Methuen, Alwen and Summers, 1977) as the chi square statistic is particularly sensitive to sample sizes (that is, the probability of model rejection increases with increasing sample size, even if the model is minimally false). Hence chi-square is divided by degrees of freedom which is suggested as a better fit metric (Bentler and Bonnet, 1980). It is recommended that this metric does not exceed five for models with good fit. (Bentler, 1990). For the current model, as shown in table 1 it was 3.643, suggesting an acceptable model fit.

Table 1 MODELS FIT STATISTICS OF THE MODEL

Fit statistic	Recommended	Observed Values
Chi- square (X ²)	-	230.984
X ² /df	Less than 5.0	3.643
Goodness of Fit (GFI)	Greater than or equal to 0.90	0.938
Adjusted goodness of Fit index (AGFI)	Greater than or equal to 0.90	0.900
Normed Fit index (NFI)	Greater than or equal to 0.90	.909
Incremental Fit Index (IFI)	Greater than or equal to 0.90	.932
Comparative fit index (CFI)	Greater than or equal to 0.90	0.931
Tucker- Lewis Index(TLI)	Greater than or equal to 0.90	0.905
Root Mean Square Error of approximation (RMSEA)	Less than .08	.073
HOELTER	Greater than 200	205 (significant at .01)

Goodness of fit index (GFI) is equivalent to R^2 except that the GFI is a kind of matrix proportion of explained variance. The value obtained in this model is 0.938 indicating a good fit. Another index originally associated with AMOS is the adjusted goodness-of-fit index (AGFI). It corrects downward the value of the GFI based on model complexity; there is greater reduction for more complex models. The value 0.900 indicates a good fit as it is close to one.

The normed fit index (NFI) is one of the original incremental fit indices introduced by Bentler and Bonnet (1990). The normed fit index of one is indicated as a perfect fit. The value (0.909) obtained for the present model indicates a good fit. The relative fit index (RFI: Bollen, 1986) represents a derivative of the NFI; with both the NFI AND CFI, the RFI coefficient values range from zero to one with values close to one indicating superior fit (Hu and Bentler, 1991). The comparative fit index is an incremental fit index that is an improved version of the NFI. The CFI is normed so that values range between zeros to one, with higher values indicating better fit. The values obtained for the research model is 0.931 which indicates a good fit.

A model with higher values suggests a better fit than model with a lower value. For the research model the value is near to one and this indicates a good fit. For Root mean square error of approximation (RMSEA), the recommended value is less than .08. The value observed in the model is .073 which indicates a good fit.

The index states the sample size at which chi square would not be significant ($\alpha = .05$), i.e., how small one's sample size would have to be for the result to be no longer significant. The index should only be computed if the chi square is statistically significant. The Hoelter only makes sense to interpret if $N > 200$ and the chi square is statistically significant. The value obtained is 205 and is significant at .01 level of significance. Hence it can be concluded that the model is of good fit.

Testing Structural Relationships

The hypothesized research model exhibited good fit with the observed data. Greater interest for nomological validity is the path estimates in the structural model and the variance explained (R^2 value) in each dependent value. Both the estimates are discussed below.

The regression weights table displayed below explains how much each variable affects its dependent variable

Table 2 REGRESSION WEIGHTS: (GROUP NUMBER1- DEFAULT MODEL)

			Estimate	S.E	T-Value	P- Value
Satisfaction	<---	Affective experiential state	-.009	.258	-.035	.972
Satisfaction	<---	Cognitive experiential state	3.493	.844	4.141	***
Trusts in online shopping	<---	Cognitive experiential state	1.378	.298	4.624	***
Trusts in online shopping	<---	Affective experiential state	.609	.229	2.664	***
Trusts in online shopping	<---	Satisfaction	.070	.093	.750	.453
Flow	<---	Cognitive experiential state	1.000			
Interactivity	<---	Cognitive experiential state	1.540	.204	7.539	***

Telepresence	<---	Cognitive experiential state	2.511	.321	7.817	***
Challenge	<---	Cognitive experiential state	1.739	.264	6.591	***
Skills	<---	Cognitive experiential state	3.188	.368	8.660	***
Affective state	<---	Affective experiential state	1.000			
Perceived control	<---	Affective experiential state	.656	.067	9.804	***
Perceived Benefit	<---	Affective experiential state	.724	.073	9.970	***
Connectivity	<---	Affective experiential state	.711	.078	9.082	***
Ease of use	<---	Affective experiential state	.633	.069	9.170	***
Repurchase Intention	<---	Satisfaction	.756	.054	13.984	***
Repurchase Intention	<---	Trusts in online shopping	.142	.051	2.780	***

Table 2 represents the regression weights, t value and p value for all the factors. The first five rows and the last two rows indicate the main research hypothesis of the study. The three hypothesized paths Satisfaction <---Cognitive experiential state, Trusts in online shopping <---Cognitive experiential state, Trusts in online shopping <--- Affective experiential state are significant based on a two tailed tests. The t- values 4.141, 4.624 and 2.664 as well as significant p values substantiate it. Similarly the hypothesized paths Repurchase Intention <---Satisfaction, Repurchase Intention <--- Trusts in online shopping is also significant with t value as 13.984 and 2.780. But the hypothesized path Satisfaction <---Affective experiential state, Trust in online shopping <--- satisfaction is insignificant. The p value of .972 and .453 substantiate it.

TABLE 3 NULL HYPOTHESIS TEST RESULT OF THE MODEL

No.	Hypothesis	Supported/ not supported
H1	The greater the level of skill at using Internet shopping websites the greater the cognitive experiential state.	Supported
H2	The greater the challenge posed by using Internet shopping websites, the greater the cognitive experiential state.	Supported
H3	The greater the telepresence experienced by using Internet shopping websites, the greater the cognitive experiential state.	Supported

H4	The greater the speed of interactive speed when using Internet shopping websites, the greater the cognitive experiential state.	Supported
H5	The greater the credibility when using Internet shopping websites, the greater the cognitive experiential state.	Not Supported
H6	The greater the flow when using Internet shopping websites, the greater the cognitive experiential state	Supported
H7	The greater the ease of use of Internet shopping websites, the greater the level of affective experiential state	Supported
H8	The greater the level of connectedness when using Internet shopping websites, the greater the level of affective experiential state	Supported
H9	The greater the level of Perceived control when using Internet shopping websites, the greater the level of affective experiential state	Supported
H10	The greater the level of Perceived benefit when using Internet shopping websites, the greater the level of affective experiential state	Supported
H11	The greater the opportunity for customization of Internet shopping websites, the greater the level of perceived control.	Not Supported
H12	The more aesthetically pleasing Internet shopping websites are, Internet shopping websites, the greater the affective experiential state.	Not Supported
H13	The greater the level of affective state when using Internet shopping websites, the greater the level of affective experiential state	Supported
H14	The greater the level of affective experiential state, the greater the level of trust in online shopping.	Supported
H15	The greater the level of affective experiential state, the greater the level of online shopping satisfaction.	Not Supported
H16	The greater the level of Cognitive experiential state, the greater the level of online shopping satisfaction.	Supported
H17	The greater the level of Cognitive experiential state, the greater the level of trust in online shopping.	Supported
H18	The greater the level online shopping satisfaction, greater the level of trust in online shopping	Not Supported
H19	The greater the level online shopping satisfaction, greater the level of online repurchase intention.	Supported
H20	The greater the level of trust in online Shopping, the greater the level of online repurchase intention.	Supported

Table 3 indicates the hypothesis for the model and the test results. Hypothesis tests were obtained based on t value and p value. Out of the 20 hypothesis framed for testing the models, five hypotheses are not supported. H5, H11, H12, H15 and H18 are not supported in the model. Hence the hypothesis was rejected.

Table 4 SQUARED MULTIPLE CORRELATIONS: (GROUP NUMBER 1- DEFAULT MODEL)

	Estimate
Satisfaction	.67
Trusts in Online Shopping	.53
Repurchase Intention	.44
Ease of Use	.30
Connectedness	.31
Perceived Benefit	.40
Perceived control	.38
Affective Experiential State	.29
Skills	.55
Challenges	.17
Telepresence	.21
Interactivity	.27
Cognitive Experiential State	.18

The squared multiple correlation is also referred to as squared loadings, i.e., they are calculated by squaring the standardized regression weights (loadings). Table-4 interprets the estimate of R². It is estimated that the predictors of repurchase intention explains 44 percent of its variance (i.e., 54 percent of variance is unexplained). Similarly the predictors of trusts in online shopping explains 53 percent of its variance (i.e., 47 percent of variance is unexplained). The predictors of satisfaction explains 67 percent of its variance (i.e., 33 percent of variance is unexplained).

CONCLUSION

Repeat purchase from loyal customers distinguishes the most successful commercial ventures. Website developers should consider infusing social presence in their website designs. This can have a positive impact in the e-loyalty evoked within their customers. From the analysis of the customer trust in online shopping variable, it can be suggested that e-retailers should focus more on building trust in online shopping through each customer's transaction. The ease of use of the website continues to be important. Excessive complex navigation and information overload disrupts the emotional state and likelihood of a repeat purchase.

The e-retailing companies should be vigilant and take effective measures on the reviews and comments they post after purchase of a product. The dynamic nature of e-retail market has created a condition whereby traditional marketing has diminished in effectiveness. Consumers have become progressively more selective and informed. They have great expectations in the standard of e-retailing owing to the increase in the competition. It has become increasingly difficult to satisfy every customer whose expectations are high.

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