Impact of Consumer Behaviour on E-Retailing in India- Validating a Conceptual Model

¹Raja Sarkar,   ²Dr. Sabyasachi Das
¹ Ph.D. Scholar, Department of Business Administration, Utkal University, Bhubaneswar, Odisha, India
²Lecturer, IMBA, Department of Business Administration, Utkal University, Bhubaneswar, Odisha, India
Email – ¹rajasarkar71@gmail.com,   ²sdasutkaluniversity@gmail.com

Abstract: *India by virtue of having the largest youth population has managed to create a thriving market for e-retailers. The popularity of online medium of shopping has reached such a level that even offline retailers are also forced to develop digital infrastructures to provide online services to their customers. The astronomical growth which India has seen in the e-retail space in the last decade is luring new entrants to this field. The advent of 4G telecom technology along with dirt cheap internet plan and affordable smartphones has bolstered the growth of this industry. Due to the cut throat competition witnessed in this area, retailers need to be competitive enough to attract and retain customers. Hence, it is extremely vital to analyze the behavioural aspects of consumers to understand how they approach online purchasing and offer them products and services exactly as per their requirements. The present study intends to validate a conceptual model of e-retailing consumer behaviour in the Indian context to identify the role of various behavioural constructs in online purchasing and also the relationships they share with each other. A study of this magnitude has not been undertaken in India before. Hence, the authors through this study hopes to validate an e-retailing consumer behaviour model which could be useful for e-retailers carrying out their businesses in India.*

Key Words: *E-retailing, Consumer Behaviour, Measurement Model, Structural Model, Structural Equation Modeling*

1. INTRODUCTION:

Consumer behaviour being culture specific can vary significantly from country to country or region to region. One single consumer behaviour model which is valid in western context might not be applicable in the Indian scenario. Shopping on e-retailing sites is a relatively modern concept of purchase in Indian context. Hence, there is every possibility of Indian consumers behaving differently from their western counterparts when it comes to purchasing through e-retailing sites. A consumer behaviour model for e-retailing purchase in Indian context is highly essential to analyse the various behavioural aspects of consumer when it comes to purchasing from e-retailing sites. This will help Indian e-retailers immensely by allowing them to identify specific consumer behavioural constructs which they need to emphasise upon to attract and retain customers by providing them services as per the their demands. The present study intends to validate a conceptual model, developed through rigorous literature review to provide e-retailers and other stakeholders the foundation on which they can develop their policies and business activities.

2. OBJECTIVES:

i) To validate a conceptual model that was developed through rigorous literature review.
ii) To test the various hypotheses developed in relation to the conceptual model.

3. CONCEPTUAL MODEL AND HYPOTHESES:

Extensive literature review was carried out to develop the conceptual model for the present study. The said conceptual model is given in figure 1 below:
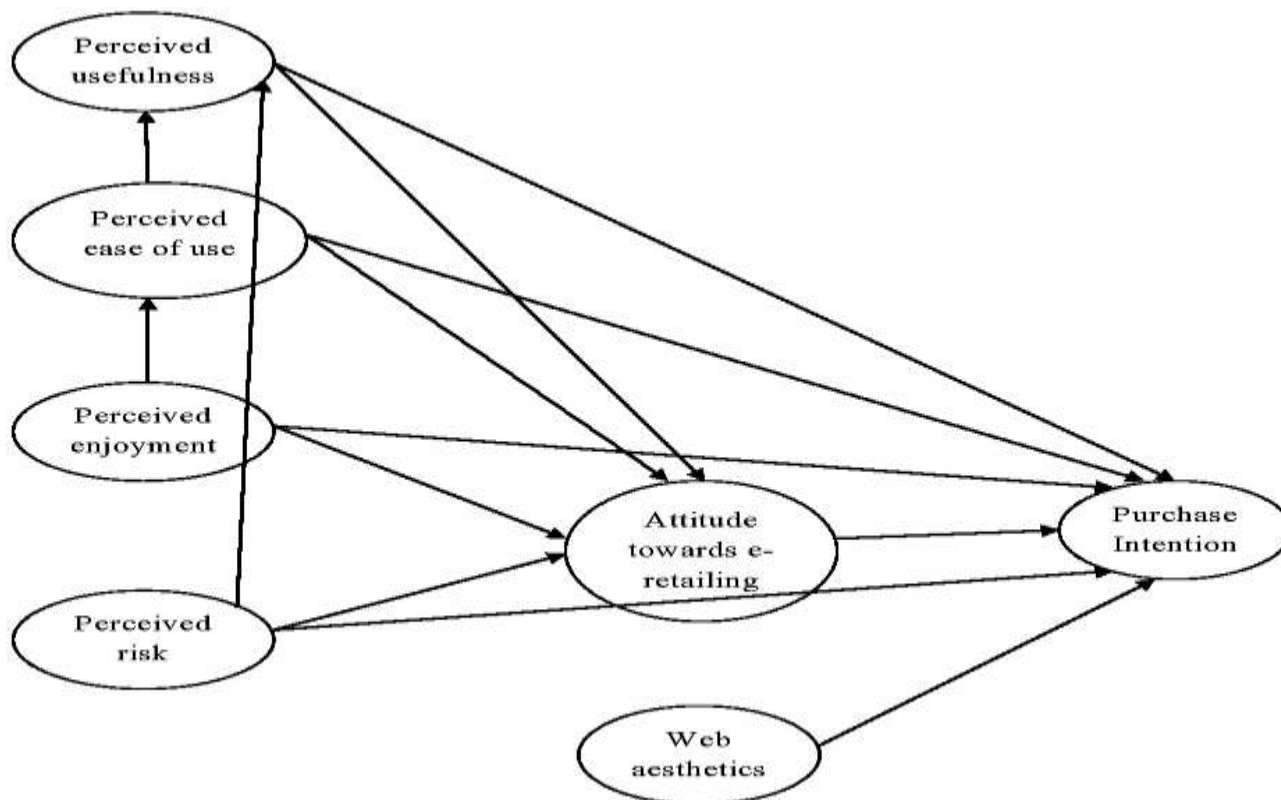
Figure 1: Conceptual Model

The hypotheses formulated for the present study in relation to the above conceptual model in figure 1 are:

H_1: There is significant positive effect of perceived usefulness on attitude towards e-retailing
H_2: There is significant positive effect of perceived usefulness on purchase intention
H_3: There is significant positive effect of perceived ease of use on attitude towards e-retailing
H_4: There is significant positive effect of perceived ease of use on purchase intention
H_5: There is significant positive effect of perceived enjoyment on attitude towards e-retailing
H_6: There is significant positive effect of perceived enjoyment on purchase intention
H_7: There is significant negative effect of perceived risk on attitude towards e-retailing
H_8: There is significant negative effect of perceived risk on purchase intention
H_9: There is significant positive effect of web aesthetics on purchase intention
H_{10}: There is significant positive effect of attitude towards e-retailing on purchase intention
H_{11}: There is significant positive effect of perceived ease of use on perceived usefulness
H_{12}: There is significant positive effect of perceived enjoyment on perceived ease of use
H_{13}: There is significant negative effect of perceived risk on perceived usefulness
H_{14}: Attitude towards e-retailing significantly mediates the effect of perceived usefulness on purchase intention
H_{15}: Attitude towards e-retailing significantly mediates the effect of perceived ease of use on purchase intention
H_{16}: Attitude towards e-retailing significantly mediates the effect of perceived enjoyment on purchase intention
H_{17}: Attitude towards e-retailing significantly mediates the effect of perceived risk on purchase intention
H_{18}: Perceived usefulness significantly mediates the effect of perceived ease of use on purchase intention
H_{19}: Perceived ease of use significantly mediates the effect of perceived enjoyment on purchase intention
H_{20}: Perceived usefulness significantly mediates the effect of perceived risk on purchase intention

4. RESEARCH METHOD:

The present study uses a descriptive research design where data was collected using a structured questionnaire and survey method was used to gather the necessary information. Also the present study is quantitative in nature which means numerical data was used to carry out the research activities. Cross-sectional method was deployed to collect data for the present study which means data was collected from individual respondents at one go. Convenience sampling which is a non-probability sampling method was used to collect the primary data for the present study. The questionnaire was developed using "Google Form" and data were collected using strict online method with the help of the platforms like E-mail, WhatsApp, and Facebook. Pretesting of the questionnaire was done among 10 respondents consisting of

both research scholars and faculties to make necessary modifications in it. The pilot study was carried out among 30 respondents and minor changes were made in the questionnaire thereafter to make the instrument more robust. Total 548 samples were collected between the period December, 2018 and August, 2019 for the present study.

5. DEVELOPMENT OF RESEARCH INSTRUMENT:
The present study used structured questionnaire with close ended questions to collect data. Items for various research constructs were adapted from various previous studies which duly validated them. Items related to perceived usefulness and perceived ease of use were adapted from the study of Davis (1989), items related to perceived enjoyment were adapted from the study of Nysveen et al. (2005), items related to perceived risk were adapted from Jacoby and Kaplan (1972), items related to visual appeal and organization of interface were adapted from Cai et al. (2008) who described these two as two dimensions of web aesthetics, items related to attitude were adapted from the study of Al-Gahtani and King (1999) whereas items related to intention were adapted from the study of Gefen (2002). Total 37 preliminary items were used for analysis purpose in the present study.

6. DATA ANALYSIS METHODS:
Various sophisticated statistical methods like exploratory factor analysis, confirmatory factor analysis and structural equation modeling were used to analyze the collected data in the present study. Software like Microsoft Excel 2007, IBM SPSS version 20 and IBM SPSS AMOS version 20 were utilized for the analysis purpose.

7. DEMOGRAPHIC CHARACTERISTICS OF COLLECTED SAMPLE:
The data collected from the 548 respondents in the present study and their various demographic characteristics are presented in the table 1 below.

Table 1: Demographic Characteristics of Sample

Variables	Category	Frequency	Percent
Location	West Bengal	169	30.8%
	Odisha	138	25.2%
	Other States	241	44.0%
Gender	Male	349	63.7%
	Female	199	36.3%
Age	Less than 25	139	25.4%
	Between 25 and 35 years	288	52.6%
	Between 35 and 50 years	106	19.3%
	More than 50 years	15	2.7%
Educational Qualification	Class 12	32	5.8%
	Diploma	97	17.7%
	Graduation	272	49.6%
	Post graduation or higher	147	26.8%
Monthly Income	Less than Rs.10000	184	33.6%
	Between Rs.10000 and Rs.30000	166	30.3%
	Between Rs.30000 and Rs.50000	113	20.6%
	More than Rs.50000	85	15.5%
Internet Usage Experience	Less than 1 year	20	3.6%
	Between 1 to 3 years	41	7.5%
	Between 3 to 5 years	81	14.8%
	More than 5 years	406	74.1%

Out of the total 548 samples collected for the present study, 62 respondents communicated that they never used e-retailing websites to make purchases. Hence, these 62 respondents were not considered for the final leg of the study and the rest 486 samples were used for the same.

8. TEST OF NORMALITY:
All the 37 items used in the present study were subjected to normality testing. Fisher's skewness coefficient and Fisher coefficient of kurtosis for all the 37 items were found to be lying between -1.96 and +1.96 which at 5% level of significance is the critical value for a two-tailed statistics. Thus it can be concluded that none of the 37 items deviate significantly from normality (Plichta & Kelvin, 2013).

9. EXPLORATORY FACTOR ANALYSIS:

Despite of using constructs which were duly validated in various previous studies, it is important to cross-verify these constructs using new samples due to the effect of cultural variations. Principal component analysis with varimax rotation was used to carry out exploratory factor analysis (EFA) using the 37 items. KMO and Barlett's test satisfied the norms for conducting EFA. The initial EFA threw up 2 items having cross loadings on two factors each. After dropping these 2 items, a second EFA was carried out using the remaining 35 items. This time 7 clean factors were extracted and they were named as- Purchase intention (3 items), Web aesthetics (7 factors), Perceived usefulness (6 items), Attitude towards e-retailing (4 items), Perceived risk (5 items), Perceived enjoyment (4 items), and Perceived ease of use (6 items).

9.1. CORRECTED ITEM TOTAL CORRELATIONS AND INTERNAL RELIABILITY:

All the 35 items were found to have corrected item total correlations of more than 0.3 which is the minimum acceptable limit (Everitt, 2002; Field, 2005). Also the internal reliability indicator Cronbach's alpha were found to be more than 0.7 for all those 35 items which is the minimum acceptable limit for the same (Nunnally, 1978). Hence, all the 35 items were retained for further analysis.

10. STRUCTURAL EQUATION MODELING:

To test the interrelationships of various constructs and also to test the various hypotheses of the present study, the data was subjected to rigorous testing using the advanced statistical method of structural equation modeling (SEM). SEM has two parts: measurement model and structural model.

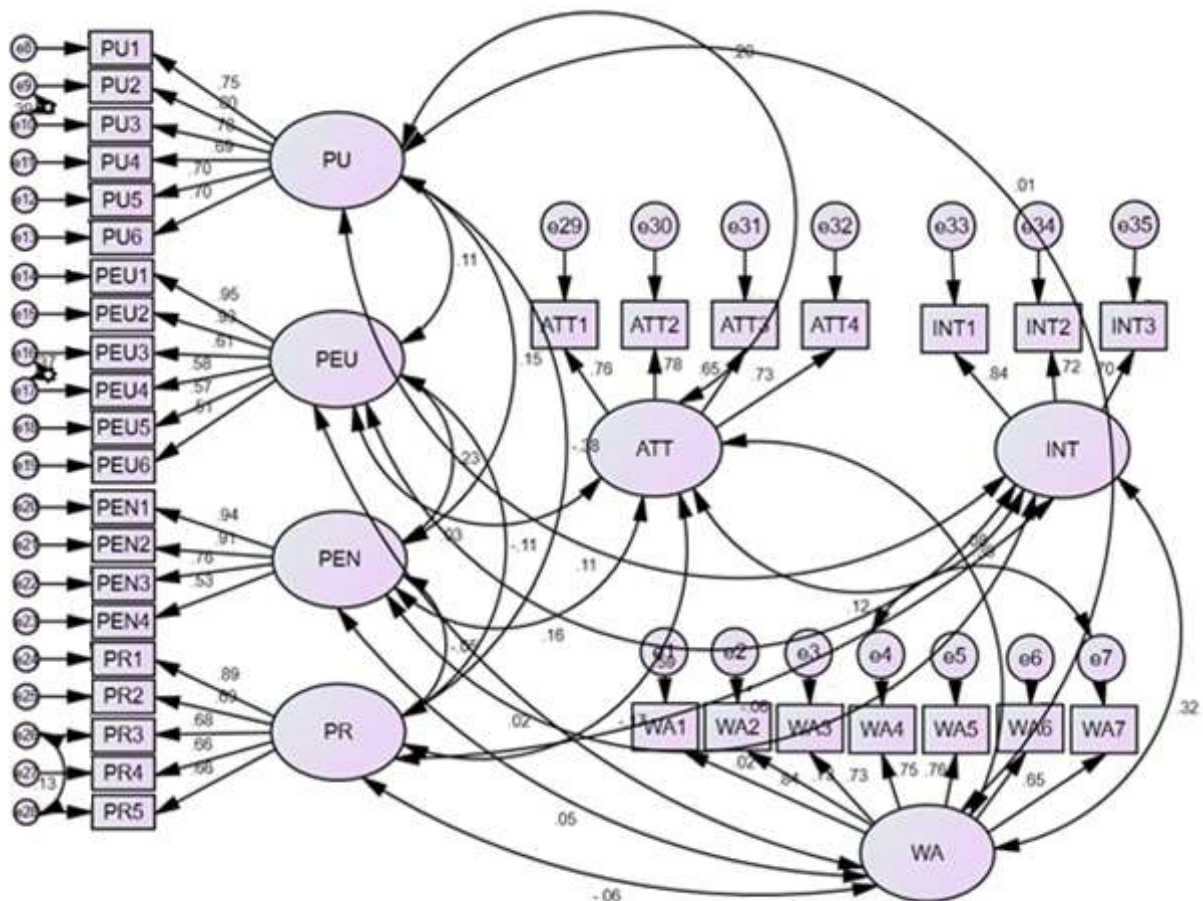## 10.1. MEASUREMENT MODEL:

Figure 2: Measurement Model

The above measurement model in figure 2 has a chi-square value of 1404.990 with 535 degrees of freedom and hence the model is over identified. Thus, the coefficients of the measurement model can be estimated.

10.1.1. STANDARDIZED REGRESSION WEIGHTS/FACTOR LOADINGS:

The factor loadings of each of the items were found to be over .40 with p-values being less than .001, which is the acceptable norm for retaining items (Cabrera-Nguyen, 2010). Hence, all the items were retained for further analysis.

10.1.2. MULTIVARIATE NORMALITY:

To inspect multivariate normality of the dataset, Mardia's coefficient of multivariate kurtosis was checked and it was found to be greater than 1.96 which at 5% level of significance indicates multivariate non-normality in the dataset. Bollen-Stine bootstrapping method (Bollen & Stine, 1992) with 2000 bootstrap samples was used to test the chi-square model fit in the presence of multivariate non-normality in the dataset. The p-value for Bollen-Stine bootstrap was found to be .126 (>.05) for the null hypothesis "the model fits". Thus, it can be concluded that the model is a good fit for the data despite of having multivariate non-normality.

10.1.3. FIT INDICES:

Various standard fit indices were inspected to determine the fitness of the measurement model. CMIN/df was found to be 2.626, GFI to be 0.937, AGFI to be 0.920, NFI to be 0.940, CFI to be 0.989, TLI to be 0.986, RMSEA to be 0.021 and SRMR to be 0.037. All these fit indices indicate a good model fit for the measurement model.

10.1.4. COMMON METHOD BIAS:

Since the data for the present cross-sectional study was collected around the same period using exactly the same questionnaire, this might have resulted in common method bias (CMB). To test the CMB for the present study, the unmeasured latent method Construct technique was used. The CMB testing model in figure 3 is given below:
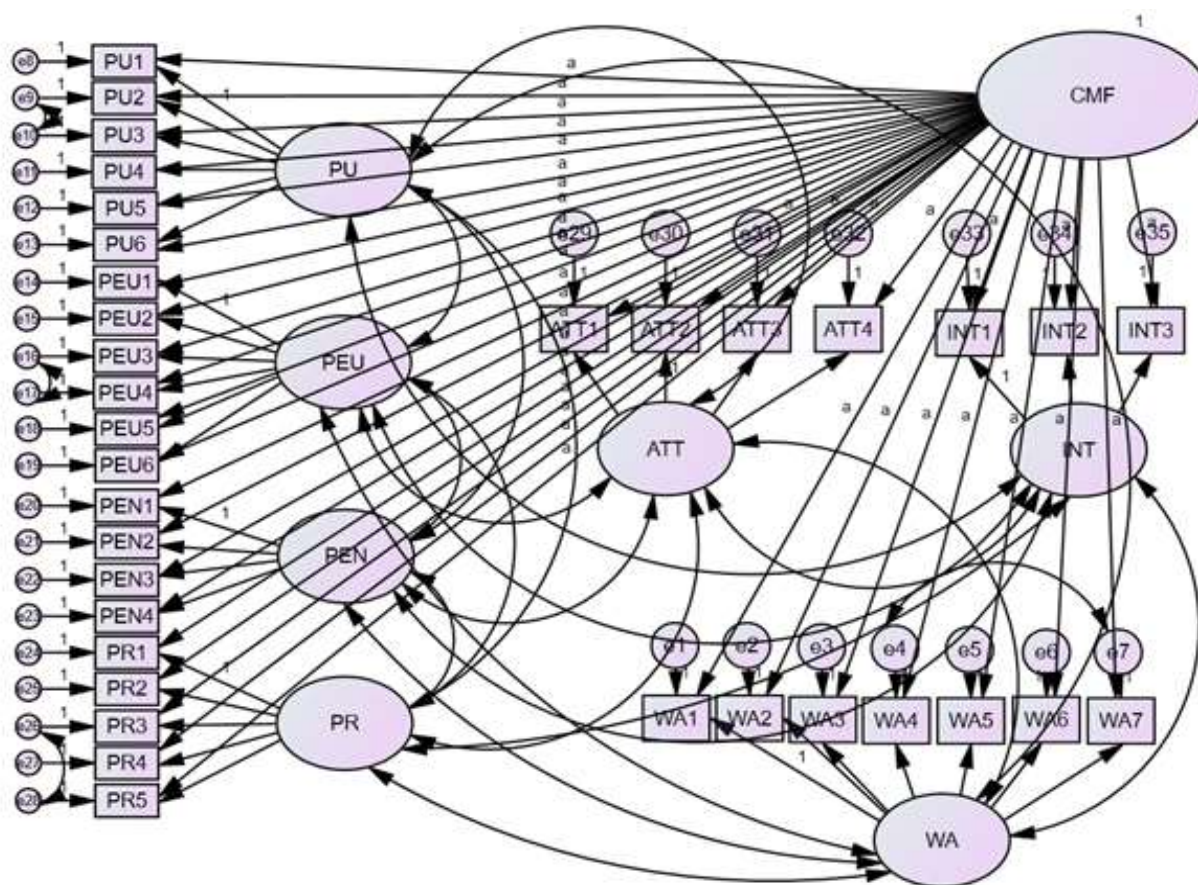

Figure 3: Common Method Bias Testing Model

The standardized estimates of all the items with and without the common method factor were compared and their differences were assessed. None of the differences exceeded 0.200 which is the acceptable limit (Gaskin, 2012). Hence the dataset doesn't contain common method bias.

10.1.5. COMPOSITE RELIABILITY:

Composite reliability of all the 7 constructs of the study were found to be in excess of 0.70 (Perceived usefulness- 0.878, Perceived ease of use- 0.854, Perceived enjoyment- 0.874, Perceived risk- 0.842, Web aesthetics- 0.898, Attitude towards e-retailing- 0.820, and Purchase intention- 0.797) which is the minimum acceptable limit for the same (Fornell & Larcker, 1981; Hair et al., 2014). Thus all the 7 constructs of the study exhibit composite reliability.

10.1.6. CONVERGENT VALIDITY:

Average variance extracted (AVE) of all the 7 constructs of the study were calculated and all of them were found to be in excess of 0.50 (Perceived usefulness- 0.547, Perceived ease of use- 0.509, Perceived enjoyment- 0.645, Perceived risk- 0.520, Web aesthetics- 0.560, Attitude towards e-retailing- 0.533, and Purchase intention- 0.797) which is the minimum acceptable limit for the same (Fornell & Larcker, 1981; Barclay et al., 1995; Hair et al., 2013). Thus all the 7 constructs exhibit convergent validity.

10.1.7. DISCRIMINANT VALIDITY:

Maximum shared variance (MSV) of all the 7 constructs of the study were calculated (Perceived usefulness- 0.041, Perceived ease of use- 0.353, Perceived enjoyment- 0.055, Perceived risk- 0.002, Web aesthetics- 0.102, Attitude towards e-retailing- 0.127, and Purchase intention- 0.353), all of which were found to be less than their respective AVEs, which is the condition for proving discriminant validity (Fornell & Larcker, 1981). Thus all the 7 constructs exhibit discriminant validity.

10.1.8. MULTICOLLINEARITY:

None of the correlations between any pair of constructs in the study were found to be in excess of 0.90 which is the upper limit for accepting absence of multicollinearity in the dataset (Kline, 2005). Thus the data is free from any multicollinearity.
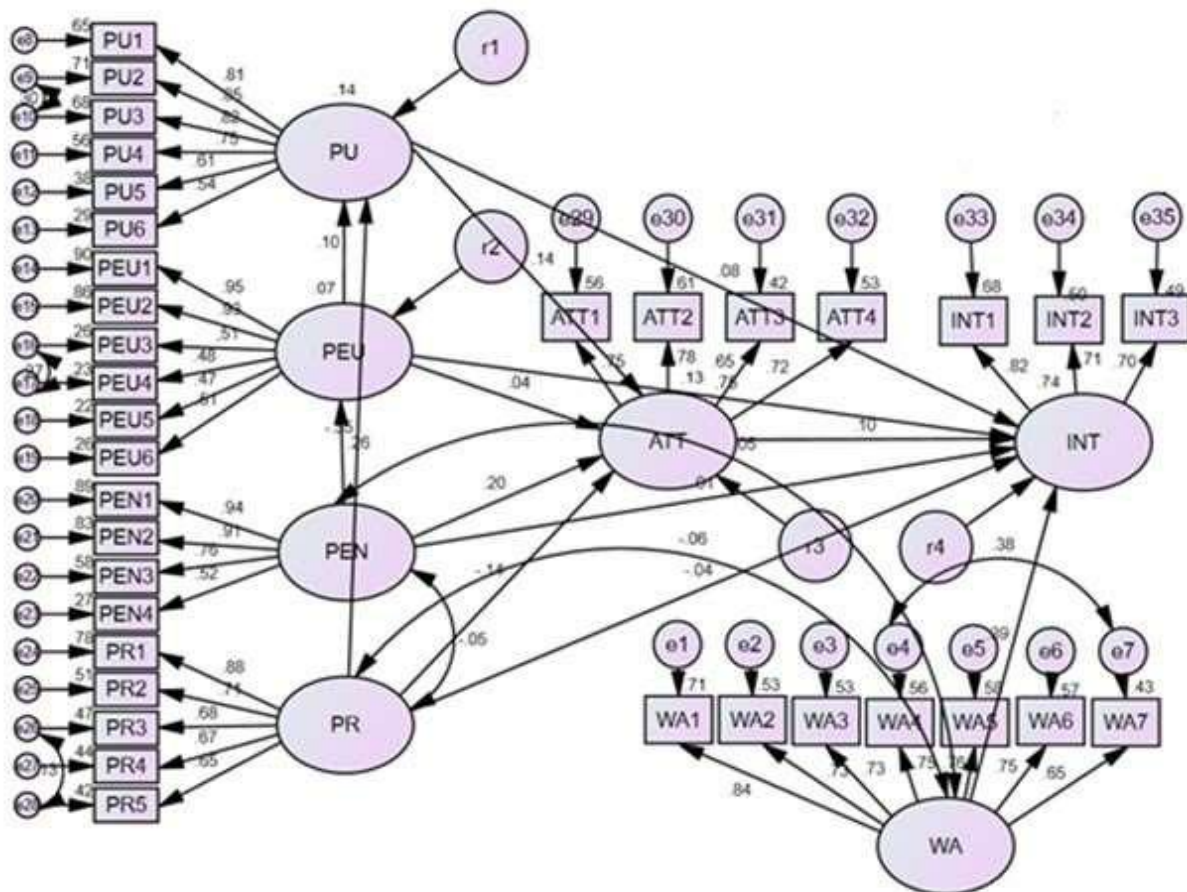
10.2. STRUCTURAL MODEL:

Figure 4: Structural Model

The above structural model in figure 4 has a chi-square value of 1460.340 with 540 degrees of freedom and hence the model is over identified. Thus, the coefficients of the measurement model can be estimated.

10.2.1. FIT INDICES:

Various standard fit indices were inspected to determine the fitness of the structural model. CMIN/df was found to be 2.704, GFI to be 0.927, AGFI to be 0.909, NFI to be 0.930, CFI to be 0.980, TLI to be 0.977, RMSEA to be 0.027 and SRMR to be 0.057. All these fit indices indicate a good model fit for the structural model.

10.2.2. SQUARED MULTIPLE CORRELATIONS:

The estimates of squared multiple correlations of each one of the endogenous construct of the present study (Perceived usefulness- 0.136, Perceived ease of use- 0.066, Attitude towards e-retailing- 0.127, and Purchase intention- 0.735) were found to be statistically significant (p<.05). Hence, it can be concluded that the model significantly explains the variance of each one of the endogenous constructs of the present study.

10.2.3. RESULTS OF PATH ANALYSIS:

As per the results of the path analysis, the hypotheses H_1, H_2, H_4, H_5, H_7, H_9, H_{10}, H_{11}, H_{12}, and H_{13} were supported at 5% level of significance whereas the hypotheses H_3, H_6, H_8 were not supported at the same level of significance.

10.2.4. RESULTS OF MEDIATION ANALYSIS:

Bootstrapping method with 2000 re-sampling and 95% bias corrected confidence interval was used to understand the effect of mediation in the present study. User defined estimand was used to get separate mediation effects for each mediator. The analysis showed that only the hypothesis H_{19} was supported at 5% level of significance. The hypotheses H_{14}, H_{15}, H_{16}, H_{17}, H_{18}, and H_{20} were not supported at the same level of significance.

11. DISCUSSION AND CONCLUSION:

The present study threw up some really interesting and important results. The research model managed to explain 73.5% variance in the outcome variable "purchase intention". That is quite significant and indicates the robustness of the model. The variables perceived ease of use, web aesthetics, attitude towards e-retailing and perceived usefulness were all found to be significantly influencing purchase intention. Attitude towards e-retailing was also found to be significantly influenced by perceived usefulness, perceived enjoyment, and perceived risk (negatively). Effects of perceived ease of use on perceived usefulness and perceived enjoyment on perceived ease of use were also found to be significant. Perceived risk was found to be negatively impacting perceived usefulness in a significant manner. Also perceived ease of use was found to be significantly mediating the effect of perceived enjoyment on purchase intention. All these results have significant managerial implications and implications for further research. E-retailers in India can use the results of the present study to improve their various consumer services to attract more number of customers and retain them. Future researchers can use the research model to validate it using diverse samples and can also do a comparison of consumer behaviour in e-retailing purchase based on cultural differences in various regions within India. A study of this magnitude in Indian context has never been undertaken before and would definitely help various stakeholders associated with e-retailing to gain maximum benefit out of it.

REFERENCES:

1. Al-Gahtani, S. S., & King, M. (1999). Attitudes, satisfaction and usage: Factors contributing to each in the acceptance of information technology. *Behaviour & Information Technology*, 18(4), 277-297. https://doi.org/10.1080/014492999119020
2. Barclay, D. W., Higgins, C., & Thompson, R. (1995). The partial least squares (PLS) approach to causal modelling: Personal computer adoption and use as an illustration. *Technology Studies*, 2(2), 285-309. https://www.researchgate.net/publication/313137896_The_partial_least_squares_approach_to_causal_modeling_Personal_computer_adoption_and_use_as_an_illustration
3. Bollen, K. A., & Stine, R. A. (1992). Bootstrapping goodness-of-fit measures in structural equation models. *Sociological Methods & Research*, 21(2), 205-229. https://doi.org/10.1177/0049124192021002004
4. Cabrera-Nguyen, P. (2010). Author guidelines for reporting scale development and validation results in the Journal of the society for social work and research. *Journal of the Society for Social Work and Research*, 1(2), 99-103. https://doi.org/10.5243/jsswr.2010.8
5. Cai, S., Xu, Y., Yu, J., & De Souza, R. (2008). *Understanding aesthetics design for e-commerce web sites: A cognitive-affective framework*. In *PACIS 2008 - 12th Pacific Asia Conference on Information Systems: Leveraging ICT for Resilient Organizations and Sustainable Growth in the Asia Pacific Region*. ScholarBank@NUS Repository. http://www.pacis-net.org/file/2008/PACIS2008_Camera-Ready_Paper_060.pdf
6. Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319-340. https://doi.org/10.2307/249008
7. Everitt, B. S. (2002). *The Cambridge dictionary of statistics* (2nd ed.). Cambridge University Press.
8. Field, A. (2005). *Discovering statistics using SPSS* (2nd ed.). SAGE.
9. Fornell, C. G., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18(1), 39-50. https://doi.org/10.2307/3151312
10. Gaskin, J. (2012, July 6). Common method bias using common latent factor [Video]. YouTube. https://www.youtube.com/watch?v=Y7Le5Vb7_jg
11. Gefen, D. (2002). Customer Loyalty in E-Commerce. *Journal of the Association for Information Systems*, 3(1), 27-51. https://doi.org/10.17705/1jais.00022
12. Hair, J. F., Hult, T., Ringle, C., & Sarstedt, N. (2014). *A primer on partial least squares structural equation modeling (PLS-SEM)* (2nd ed.). Sage Publications.

13. Hair, J. F., Ringle, C. M., & Sarstedt, M. (2013). Partial least squares structural equation modeling: Rigorous applications, better results and higher acceptance. *Long Range Planning*, 46(1-2), 1-12. https://doi.org/10.1016/j.lrp.2013.01.001

14. Jacoby, J., & Kaplan, L. B. (1972). *The components of perceived risk*. In M. Venkatesan (Ed.), *SV-Proceedings of the Third Annual Conference of the Association for Consumer Research* (pp. 382-393). The Association for Consumer Research.

15. Nunnally, J. C. (1978). *Psychometric theory* (2nd ed.). McGraw-Hill.

16. Nysveen, H., Pedersen, P.E. and Thorbjørnsen, H. (2005b). Intentions to use mobile services: Antecedents and cross-service comparisons. *Journal of the Academy of Marketing Science*, 33(3), 330–346. https://doi.org/10.1177/0092070305276149

17. Plichta, S. B., & Kelvin, E. A. (2013). *Munro's statistical methods for health care research* (6th ed.). Wolters Kluwer Health.