Interrelationship between Factors Affecting Online Shopping of Electronic Products

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Abstract

E-commerce has changed our lifestyles entirely because we don't have to spend time and money in traveling to the market. We can do our online payment with help of e-commerce. The trend of online shopping is getting a boom in today's time. Online shopping is a platform which permits consumers to directly purchase different goods or services electronically. The rate of adoption is defined as the relative speed at which individual adopt an innovation i.e. online shopping. The study aims to find out the factors that affect adoption of online shopping of consumer electronic products. The survey was conducted using selfadministered questionnaire. Google forms were used to collect data from respondents. 252 respondents participated in the survey conducted in 2019. In the present study factors affecting adoption of online shopping consumer electronic products have been explored with the help of exploratory factor analysis. Analysis of results has been conducted with the help of SPSS 21. The effect of demographic variables on adoption of online shopping has been analyzed with the help of ANOVA. The interrelationship between various variables has been established with the help of correlation and regression. The results show that there is moderate correlation between RE & PU and between PR &PEU whereas there exists high correlation between PEUand PU.

Keywords: Online shopping, Adoption, purchase intention, purchasing behavior, online shopping experience, responsiveness (RE), perceived Usefulness (PU), Perceived Risk (PR), and Perceived Ease of Use (PEU).

Introduction

Internet shopping (also known as online shopping) is the process where consumers buy products/services over the Internet. It is a network of linked computers enabling millions of people to communicate and search for the information as well as to sell and buy products. Online shopping is a recent phenomenon. The declining cost of PCs, the development of search engine, and the consumers growing interest in the Internet has enabled online shopping to gather significant attention in recent years. Online shopping is becoming most accepted medium to purchase a wide range of goods and services. It offers a new environment distinguished from the traditional ways of doing business. It allows shopping for required products without going to the store physically. Internet shopping i.e online shopping is adopted by

the people because they are able to shop 24 hours a day without having to leave their home of work place. The objective of this study is to find out the factor that affect adoption of online shopping of consumer electronic products.

Literature Review

In this chapter reviews literature related to the study have been presented. The former previous research studies are abstracted, and significant writings of authorities in the area under study have been reviewed. The research scholar has given deep thinking to those studies and has gained valuable literature from their findings which were of great help in developing the researchwork.

Many researchers have been done to understand online shopping: Evaluating the relationship among perceived value satisfaction and trust based customer perspectives. The review has led to the development of an understanding the factors affecting online shopping. A brief review of the related literature is given below:

Khurana & kaur (2017) the dynamics of consumer behavior is ever evolving with continuous technological up gradations.. In order to understand online consumer behavior, various models and frameworks have been derived by academicians & researchers. These models are composed of different factors which are variable in nature. The key objective of this exhaustive review is to analyze evolution of online consumer behavior models associated to the change in variables. This review also facilitates future researchers in understanding and selecting most advanced models based on their relevance of variables in terms factors affecting online consumer buying behavior. For this study, we reviewed textbooks and research papers published.

My Loan, Chan Yin Fah, & Behrang Samadi (2015) investigated customer Purchasing Intention over Online Store. They examined the correlation among perceived benefits, perceived risks and perceived website quality towards online purchasing intention with one of the online store in Singapore. This study used online questionnaire survey to collect 180 completed responses of male and female Singaporean aged 20 and above. The findings showed that there was asignificant correlation between perceived benefits, perceived website quality and online purchasing intention while there was no significant correlation between perceived risks and online purchasingintention.

Kumar and Maan (2014) examined scope of online shopping on the basis of literature review. This paper analyzed the different issue of online shopping. The research aims to provide theoretical contribution in understanding the present status of online shopping and explores the factors that affecting the online shopping. The study has explored the factorsaffects the consumer attitude towards online shopping such as Privacy, security, convenience, immediate possession, information seeking and social interaction.

Guoet. al. (2011)investigated factors towards online shopping in China. On the basis of study of 350 respondents, they explored factors such as; website design, security, information quality, payment method, e-service quality, product quality, product variety and delivery service. The study also emphasized that these factors are positively related to customer satisfaction towards online shopping in china.

Research Methodology

A survey was conducted in order to study the factors affecting adoption of online shopping of consumer electronic products in NCR. The survey questionnaire constituted questions related to level of adoption of online shopping of consumer electronic products. Table 1 shows 27 items related to level of adoption of online shopping. Adoption of online shopping of consumer electronic products attributes are identified and adapted through a comprehensive review of various studies on adoption of online shopping.

Objectives Of The Study

To find out the factors that affect online shopping of consumer electronics in NCR.

To study the difference in perception about factors affecting adoption on the basis of demographic variables.

To study the interrelationship between various factors affecting online shopping of consumer electronics in NCR.

Scope of the study

The present study is based on factors affecting online shopping of consumer electronic products in NCR. The study has been conducted over a period of 6 months. The data has been collected through closed ended questionnaire including 30 statements.

Data Collection

The study is based on primary data. For the purpose of study, secondary data has been retrieved from the research papers published in various journals and magazines. The questionnaire designed to collect the primary data. The questionnaire is based on 5 point Likert scale.

Sample design:

On the basis of non-probability sampling, 350 respondents from the age group between 20-30 have been selected for the purpose of the study.

Data Analysis and Interpretation:

Out of total 350 respondents distributed, total 270 have

been collected and 252 are found complete in all aspects to conduct the analysis. For the purpose of data analysis, statistical techniques such as Exploratory Factor Analysis, ANOVA have been applied. The captured responses were entered, coded and tabulated in SPSS software. The demographic profile of respondent has been depicted in table1.

Table 1 Respondent's Profile

Table 1 Respondent 8 Frome				
	Male	126		
Gender	Female	126		
	Single	178		
Marital status	Married	74		
	Undergraduate	52		
Highest level of education	Graduate	68		
	Masters	132		
	Less than 20000	118		
Family income per month	20000-40000	62		
	Above 40000	72		

Factors affecting adoption of online shopping:

Total27 items affecting adoption of online shopping of consumer electronic products as shown in table 2 has been

used for the purpose of study. EFA has been applied to explore the factors affecting adoption of online shopping.

Table 2 Items affecting adoption of online shopping

Item Code	Description
V1	Proper physical address of company selling the product is disclosed.
V2	Company is being well known to public.
V3	Company is being very well known to me.
V4	Company is recommended to me by friends or relatives.
V5	I order the products of popular brand.
V6	I trust the brand name.
V7	I order the brand which I have previously used.
V8	I order the brand which I believe gives value for money.
V9	In online shopping agreed amount of money is being charged.
V10	In online shopping, money back guarantee if product is not fully satisfactory.
V11	In online shopping, the quality of product purchased is fully guaranteed.
V12	In online shopping, the product purchased is exactly same as shown in picture.
V13	In online shopping, there is facility of returning the product anytime.
V14	In online shopping, easy and convenient online ordering layout is available.
V15	In online shopping, company homepage is clear and easily understandable.
V16	In online shopping, purchase procedure is simple.
V17	In online shopping, character font size is very easy to read.
V18	In online shopping of electronic goods, its manual is easily readable and understandable.
V19	In online shopping, display of product picture is very clear.
V20	In online shopping, goods can be delivered quickly right after the order.
V21	In online shopping too much time is not consumed in placing order.
V22	Online shopping provides wider range of Electronic goods on one website.
V23	Online shopping provides wider range of electronic goods to choose from different websites.
V24	Online shopping provides more choice of producers of electronic goods
V25	Online shopping offers lower price than conventional stores.
V26	Online shopping offers more discounts as compared to conventional stores.
V27	Online shopping provides more offers than conventional stores.
L1	I would like to purchase more electronic products online in future.
L2	I will recommend my friends to buy electronic products online.
L3	I have a plan to make online purchase in next 6 months.

To identify the factors, the factor analysis has been applied to the captured responses from 252 respondents corresponding to 27 items. Factors have been extracted considering the Eigen value of each factor to be more than one. The variables having loadings of at least 0.5 have been considered for the purpose of further analysis. As a result, one variable (V9 i.e. In online shopping agreed amount of money is being charged) has been deleted due to its loading value of < 0.5. The remaining 26 variables yielded six

factors structure. The Varimax rotation method has been applied on the extracted factors. The variable constituents of all extracted factors along with their factor loadings have been presented in table 3. On the basis of study of literature, these factors have been named as Perceived usefulness, Responsiveness, Perceived ease of use, Brand value, Companyattributes, Perceived risk and Loyalty.

Table 3 Factor Loading based on Rotational Matrix

Factor Name	Item Code	Items	Factor Loading	Cronbach' s Alpha
Perceived Usefulness (PU)				
	V23	Online shopping provides wider range of electronic goods to choose from different websites.	0.589	
	V24	Online shopping provides more choice of producers of electronic goods.	0.605	
	V25	Online shopping offers lower price than conventional stores.	0.687	
	V26	Online shopping offers more discounts as compared to conventional stores.	0.768	
	V27	Online shopping provides more offers than conventional stores.	0.64	
Perceived ease of use (PEU)	V13	In online shopping, there is facility of returning the product anytime.	0.655	0.847
	V14	In online shopping, easy and convenient online ordering layout is available.	0.687	
	V15	In online shopping, company homepage is clear and easily understandable.	0.669	
	V16	In online shopping, purchase procedure is simple.	0.631	
	V17	In online shopping, character font size is very easy to read.	0.7	

Responsiveness (RE)	V18	In online shopping of electronic goods, its manual is easily readable and understandable.	0.625	0.768
	V19	In online shopping, display of product picture is very clear.	0.77	
	V20 In online shopping, goods can be delivered quickly right after the order.			
	V21	In online shopping too much time is not consumed in placing order.	0.67	
Brand Value (BV)	V5	I order the products of popular brand.	0.613	0.800
	V6	I trust the brand name.	0.748	
	V7	I order the brand which I have previously used.	0.75	
	V8	I order the brand which I believe gives value for money.	0.525	
Company Attributes (CA)	V1	Proper physical address of company selling the product is disclosed.	0.752	0.864
	V2	Company is being well known to public.	0.505	
	V3	Company is being very well known to me.	0.697	
	V4	Company is recommended to me by friends or relatives.	0.73	
Perceived Risk (PR)	V10	In online shopping, money back guarantee if product is not fully satisfactory.	0.685	0.741
	V11	In online shopping, the quality of product purchased is fully guaranteed.	0.704	
	V12	In online shopping, the product purchased is exactly same as shown in picture.	0.62	
Loyalty (L)	L1	I would like to purchase more electronic products online in future.	0.879	0.751
	L2	I will recommend my friends to buy electronic products online.	0.847	
	L3	I have a plan to make online purchase in next 6 months.	0.833	

Perceived usefulness:

Perceived usefulness is the degree to which a person believes that his or her personal growth will be accelerated by using a particular system which will further enhance his or her job performance (Davis 1989). This construct is taken from the original Technology Acceptance Model. Perceived usefulness is considered to have a high impact on the behavioral intention to adopt technological products (Davis, Bagozzi&Warshaw1989). It is the most important factor influencing behavioral intention especially when making an adoption decision. Total six items loaded on this factor. The factor included following items: online shopping provides wider range of Electronic goods on one website, online shopping provides wider range of electronic goods to choose from different websites, online shopping provides more choice of producers of electronic goods, online shopping offers lower price than conventional stores, online shopping offers more discounts as compared to conventional stores, online shopping provides more offers than conventional stores.

Perceived ease of use:

Perceived ease of use is the degree to which a person believes he or she can use a particular system very easily (Davis 1989). According to the previous research on the Technology Acceptance Model, though perceived ease of use has little direct effect on behavioral intention yet its effect is largely an indirect mediating factor of perceived usefulness (Chau 1996; Igbaria, Guimaraes, & Davis 1995; Davis, Bagozzi, & Warshaw 1989. Total five items loaded on this factor. The factor included following items: in online shopping, there is facility of returning the product anytime, In online shopping, easy and convenient online ordering layout is available, in online shopping, company homepage is clear and easily understandable, in online shopping, purchase procedure is simple, in online shopping, character font size is very easy to read.

Responsiveness:

Responsiveness is related to quick response and the ability to get help if there is a problem or question related to online shopping Total four items loaded on this factor. The factor included following items: In online shopping of electronic goods, its manual is easily readable and understandable, In online shopping, display of product picture is very clear, In online shopping, goods can be delivered quickly right after the order, In online shopping too much time is not consumed in placing order.

Brand value:

Brand is one of the most important intangible assets in today's enterprises and in many cases; an enterprise is

mostly valued mainly based on its brand. During the past few two decades, there have been numerous efforts to find out the impact of brand on customer's purchasing intention. Total four items loaded on this factor. The factor included following items: I order the products of popular brand. I trust the brand name, I order the brand which I have previously used, I order the brand which I believe gives value for money.

Company Attributes:

The literature review in theprevious section also indicates that product and company related factors were foundin past empirical studies to be related to the purchase intention of consumer whenbuying products online (Phau & Poon 2000; Nowlis & McCabe 2000; Novak, Hoffman & Yung 2000)

Total four items loaded on this factor. The factor included following items:Properphysical address of company selling the product is disclosed, Company is being well known to public, Company is being very well known to me, Company is recommended to me by friends or relatives.

Perceived risk:

Consumers generally perceive a risk in almost all storepurchase decisions (Cox 1967). A recent survey of 9,500 online shoppers revealedthat 55 percent of online shoppers stopped the buying process prior to check out and 32 percent stopped at the point of sale mainly due to the fact that they did not want togive personal information and their credit card number (Shop.org. 2001). Liang andHuang (1998) found that online shopping intention depends on the degree ofperceived risk. Consumers generally associate a higher level of risk with nonstorepurchase rather than store purchase (Akaah &Korgaonkar 1988). Total four items loaded on this factor. The factor included following items: In online shopping, money back guarantee if product is not fully satisfactory, In online shopping, the quality of product purchased is fully guaranteed, In online shopping, the product purchased is exactly same as shown in picture.

Loyalty: arises despite different clues and

loyalty is a conscious customer behavior and/or attitude (Jacoby and Chestnut, 1978; Huang and Yu, 1999; Solomon et al., 2006; Kotler and Keller, 2006) comments on the issue. According to the approach based on behavior, loyalty is the behavioral reaction based on prejudice as the function of psychological processes by the decision maker in the existence of one or more alternative in time (Jacoby and Keyner, 1973).

Comparison between perceptions of different customers:

To study the difference in the perception of different customers towards factors affecting adoption of online shopping of consumer electronic products, the following hypothesis have been formulated.

H1: There is significant difference in perception of respondents from different educational background about factors affecting level of adoption of online shopping.

Table 4. Difference in perception about factors affecting Level of adoption of online shopping based on education

ANOVA					
Dependent Variable	F	Sig.			
Perceived Usefulness	5.644	.004			
Perceived Ease of Use	2.463	.087			
Responsiveness	.224	.799			
Trust on Brand	.035	.966			
Company Attributes	3.251	.040			
Perceived Risk	.597	.551			
Loyalty	3.591	.029			

As per results of the study depicted in table 4, there is significant difference in perception of respondents from different educational background about perceived usefulness and loyalty since the p value is less than 0.05 whereas in all other cases, the level of difference is not so significant as the p value is more than 0.05.

H2: There is significant difference in perception of respondents having different level of income about factors affecting level of adoption of online shopping.

Table 5. Difference in perception about factors affecting Level of adoption of online shopping based on level of income

ANOVA					
Dependent Variable	F	Sig.			
Perceived Usefulness	2.230	.110			
Perceived Ease of Use	3.695	.026			
Responsiveness	.272	.762			
Brand Value	1.024	.361			
Company Attributes	.471	.625			
Perceived Risk	.277	.758			
Loyalty	.129	.879			

As per results of the study depicted in table 5, there is significant difference in perception of respondents from different educational background about perceived ease of use since the p value is less than 0.05. Whereas in case of perception of respondents from different educational background about perceived usefulness, responsiveness, brand value, company attributes, perceived risk and

loyalty, there is no significant difference as the p value is more than 0.05.

H3: There is significant difference in perception of married and unmarried about factors affecting level of adoption of online shopping.

Table 6. Perception of married and unmarried about factors
Affecting level of adoption of online shopping

Independent Samples Test						
	Levene's Test for Equality of Variances		t-test for Equality of Means			
Dependent Variable	F	Sig.	Sig. (2-tailed)			
Perceived Usefulness	.275	.600	.518			
Perceived Ease of Use	.247	.619	.315			
Responsiveness	.007	.932	.654			
Trust on Brand	.172	.678	.437			
Company Attributes	1.192	.276	.552			
Perceived Risk	1.813	.179	.104			
Loyalty	1.493	.223	.624			

As per the results of t-test for Equality of Means depicted in table 6, there is no significant difference in perception of married and unmarried about all the factors affecting level of adoption of online shopping as the value is more than 0.05.

H4: There is significant difference in perception of male and female about factors affecting level of adoption of online shopping.

Table 7. Perception of male and female about factors
Affecting level of adoption of online shopping

Independent Samples Test						
	Levene's Test for Equality of Variances		t-test for Equality of Means			
Dependent Variable	F	Sig.	Sig. (2-tailed)			
Perceived Usefulness	1.076	0.301	0.072			
Perceived Ease of Use	0.021	0.886	0.773			
Responsiveness	1.473	0.226	0.118			
Brand Value	6.559	0.011	0.028			
Company Attributes	3.655	0.057	0.930			
Perceived Risk	0.623	0.431	0.012			
Loyalty	1.727	0.190	0.112			

As per the results of t-test for Equality of Means depicted in table 7, there is significant difference in perception of male and female about brand value and perceived risk as the value is less than 0.05 whereas there is no significant difference in perception of male and female about perceived usefulness, perceived ease of use, responsiveness, company attributes and loyalty as the value is more than 0.05.

Hypothesis: 5 Perceived riskwill directly affects perceived ease of use

In order to study the effect of PR on PEU, regression has been applied in SPSS. The results have been depicted as below;

Table 8 Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.538 ^a	.289	.286	.5885	1.876

- a. Predictors: (Constant), PerceivedRisk
- b. Dependent Variable: Perceivedeaseofuse

Table 9 ANOVA^a

Model		Sum of Squares	DF	Mean Square	F	Sig.
	Regression	35.189	1	35.189	101.606	.000 ^b
1	Residual	86.583	250	.346		
	Total	121.773	251			

- a. Dependent Variable: Perceivedeaseofuse
- b. Predictors: (Constant), PerceivedRisk

Table 10 Coefficients^a

_	14.5.5 15 555							
Мо	odel	Unstandardize	d Coefficients	Standardized Coefficients	t	Sig.		
		В	Std. Error	Beta				
1	(Constant)	2.245	.166		13.492	.000		
Ľ	PerceivedRisk	.448	.044	.538	10.080	.000		

a. Dependent Variable: Perceivedeaseofuse

The results of the Karl Pearson correlation shows that value of R is 0.538 which reflects moderate correlation between PR and PEU. The value of R square shows that PR explains only 28.9 percent variations in PEU. Since the value as per Durbin Watson statistics is 1.876 that liesbetween 0to2, indicates the existence of positive autocorrelation between

Hypothesis 6: Perceived ease of use will directly affect perceived usefulness

In order to study the effect of PEU on PU, regression has been applied in SPSS. The results have been depicted as below;

PR a Table 11 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.619ª	.383	.380	.56004658623128 2	1.920

- a. Predictors: (Constant), Perceivedeaseofuse
- b. Dependent Variable: PerceivedUsefulness

Table 12 ANOVA^a

Model		Sum of Squares	DF	Mean Square	F	Sig.
	Regression	48.626	1	48.626	155.032	.000 ^b
1	Residual	78.413	250	.314		
	Total	127.039	251			

- a. Dependent Variable: PerceivedUsefulness
- b. Predictors: (Constant), Perceivedeaseofuse

Table 13 Coefficients^a

Model		Unstandardize	d Coefficients	Standardized Coefficients	t	Sig.
		В	Std. Error	Beta		
1	(Constant)	1.404	.200		7.021	.000
	Perceivedeaseofuse	.632	.051	.619	12.451	.000

a. Dependent Variable: PerceivedUsefulness

The results of the Karl Pearson correlation show that value of R is 0.619 which reflects high correlation between PEU and PU. The value of R square shows that PEU explains only 38.3 percent variations in PU. Since the value as per Durbin Watson statistics is 1.920that lies between 0to2, indicates the existence of positive autocorrelation between PEU and PU.

Hypothesis 7: Responsiveness will directly affect perceived usefulness

In order to study the effect of RE on PU, regression has been applied in SPSS. The results have been depicted as below;

Table 14 Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson	
1	.520 ^a	.271	.268	.6086783341963 13	2.101	

- a. Predictors: (Constant), Responsiveness
- b. Dependent Variable: PerceivedUsefulness

Table 15 ANOVA^a

Мо	del	Sum of Squares	DF	Mean Square	F	Sig.
	Regression	34.417	1	34.417	92.896	.000 ^b
1	Residual	92.622	250	.370		
	Total	127.039	251			

- a. Dependent Variable: PerceivedUsefulness
- b. Predictors: (Constant), Responsiveness

Table 16 Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		В	Std. Error	Beta		
1	(Constant)	1.904	.206		9.239	.000
	Responsiveness	.526	.055	.520	9.638	.000

a. Dependent Variable: PerceivedUsefulness

The results of the Karl Pearson correlation shows that value of R is 0.520 which reflects moderate correlation between RE and PU. The value of R square shows that RE explains only 27.1 percent variations in PU. Since the value as per Durbin Watson statistics is 2.101that lies between 2 to 4, indicates the existence of negative autocorrelation between RE and PU.

Conclusion

In this article, it has been pointed that various factors perceived ease of use, responsiveness, perceived usefulness, brand image, loyalty, company attributes, and perceived risk affecting online shopping. Perceived ease of use and perceived usefulness provides good factor loading that influence online shopping. Online shopping attracts huge people on one platform. The results shows that there moderate correlation between RE and PU,PR and PEUand high correlation between PEU and PU. The value of R square shows that RE explains only 27.1 percent variations in PU, PR explains only 28.9 percent variations in PEU, PEU explains only 38.3 percent variations in PU. As per the Durbin Watson, there is existence of negative autocorrelation between RE and PU, Positive autocorrelation between PEU and PU, positive autocorrelation between PR and PEU. As per the results of t-test for Equality of Means, there is significant difference in perceptions of male and female about brand value and perceived risk, whereas there is no significant difference in perceptions of male and female about perceived ease of use, perceived usefulness, responsiveness, company attributes and loyalty.

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