

**International Journal of Innovative Research in Science,  
Engineering and Technology**

(An ISO 3297: 2007 Certified Organization)

**Vol. 3, Issue 10, October 2014**

# A Diffusion Theory Perspective on the Adoption of Online Shopping Among Youth in Central Kerala

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**ABSTRACT:** Internet shopping refers to any form of shopping that take place via the internet. The present study attempts to identify the factors that influence the adoption of online shopping drawing ideas from the diffusion theory. It was found that all the independent variables viz, Voluntariness, Relative advantage, Ease of use, Compatibility, Trial ability, Demonstrability and Image or status s have a positive relationship with the dependent variable, rate of online shopping. However, stepwise regression showed that only two variables can significantly predict the dependent variable, rate online shopping. They are Compatibility and Voluntariness.

**KEYWORDS:** Diffusion Theory, Online Shopping, Internet Shopping

## I. INTRODUCTION

Internet shopping refers to any form of shopping that take place via the internet where electronic means are used to make purchase or sales at virtual stores, i.e., shopping sites that exist on the internet (Swardt, 2008). Alternative names are: e-web-store, e-shop, e-store, Internet shop, web-shop, web-store, online store, online storefront and virtual store. Online shopping has grown in popularity over the years, mainly because people find it more convenient, easy to bargain and shop from the comfort of their home or office. The number of online shoppers in India is currently estimated at 14% of the total 74 million internet users and has been growing at 35% over the last three years, according to an American Express study. According to the study, the number of online shoppers in the country is likely to reach 38 million by 2015 ([timesofindia.indiatimes.com](http://timesofindia.indiatimes.com), 2014). One of the most enticing factor about online shopping, particularly during a holiday season, is that it alleviates the need to wait in long lines or search from store to store for a particular item. Online shopping is more evident among youth as they are more techno savvy and are less averse to security issues incidental to online shopping. As the competition in e-commerce is intensified, it becomes essential to know the prominent aspects related to online shopping to make maximum benefit out of online shopping. Therefore, a study on the extent of online shopping among youth and the factors that influence the adoption of online shopping assumes special importance.

## II. LITERATURE REVIEW

Shopping is a process, composed of a set of distinct components linked together in a particular sequence (Peterson and Robert A, 1997), and the choice of shopping mode is among them. Typical elements of the shopping process include desire, information gathering/receiving, trial/experience, evaluation, selection, transaction, delivery/possession, display/use, and return (Mokhtarian, 2004), and the choice of shopping mode can play a role in each element of the shopping process (Hsiao, 2008). Online Shopping is a new mode of shopping which use electronic means to make purchases/sales at virtual stores (Swardt, 2008; Rowley, 2000). The increased adoption of online shopping depends on many factors. Since it is a new technology, the ideas generated by the Innovation Diffusion Theory (Rogers, 1962) are likely to give a better understanding of adoption of a new technology (Medlin, 2001; Parisot, 1995; Eastin, 2002). We are applying Diffusion theory because people in the selected geographical area consider online shopping as an innovation.

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The origins of the diffusion of innovations theory are varied and span multiple disciplines. Everett Roger's (Roger, 2003) theory of the diffusion of innovations, based on over 5000 research studies, explains how and why new ideas and practices are adopted by individuals, institutions and cultures. He defines diffusion "as the process by which an innovation is communicated through certain channels, overtime among members of a social system" (p. 110). The newness of the innovation creates "uncertainty," and information communicated through diffusion reduces this uncertainty. According to Rogers (2003), the attributes of innovations explain their rate of adoption. In fact, five attributes explain 49 to 87% of the variance in the rate of adoption: relative advantage, compatibility, trial ability, observability, and complexity. Relative advantage denotes that the greater the perceived advantage, the faster the rate of adoption. Relative advantage can be measured in terms of economics, social prestige, convenience and satisfaction. Incentives and mandates to adopt an innovation serve to increase the relative advantage of an innovation. Compatibility is the degree to which the innovation is seen "as consistent with the existing values, past experiences and needs of potential adopters" (Roger, 2003). Trial ability is the degree to which an innovation can be experimented with on a limited basis. An innovation that can be tried creates less uncertainty to the potential adopter and so speeds up the adoption rate. Observability is the degree to which results of an innovation can be seen by potential adopters. If the adopters can see the results, they are motivated to communicate with others about the idea and this increases the rate of adoption. Complexity is the degree to which an innovation is viewed as difficult to understand and use. Any innovation can be viewed on a continuum from simple to complex. The more complicated the innovation, the slower the rate of adoption. Two further constructs were identified important in the decision to adopt an innovation (Moore and Benbasat, 2001), and they were Image and Voluntariness. Some researchers including Roger included Image as an aspect of Relative Advantage. But some other researchers like Tornatzky and Klein ( 1982) had found that the effect of Image is different from the Relative Advantage.

### III. OBJECTIVES

The objectives of the study may be stated as follows.

1. To examine the rate of adoption of online shopping
2. To analyse the major factors/attributes that influences the adoption of online shopping by drawing ideas from theory of diffusion.

The hypothesis of the study is stated as follows,

Ho : There is no significant relationship between the factors that influence online shopping and the rate of adoption  
Ho : The rate of adoption depends on the factors/attributes that influence the adoption of online shopping.

### IV. METHODOLOGY

The study was based on both primary and secondary data. The secondary data used in the study were collected from journals, books, magazines, websites and other publications. Primary data were collected direct interview method using structured interview schedule which is an adapted version of measurement scale developed by Moore and Benbasat (2001) based on diffusion theory. A pilot study among 10 respondents were undertaken to fine tune the interview schedule. The Alpha values relating to these aspects are presented in Table 1. The population of the study was online consumers in the age group of 15 to 35, hereafter referred to as 'Youth' belonging to Central Kerala. As the population is not finite, the researcher opted for snowballing sampling method. The 100 samples were drawn from three districts in Central Kerala, Kottayam and Ernakulam. The data collected were analyzed using appropriate statistical tools like Mean, Correlation and Regression using SPSS.

TABLE: 1

Cronbach's Alpha for Measurement Scale Used in the Study

Scale	Cronbach's Alpha
Voluntariness	.709
Relative advantages	.750
Ease of use	.790
Image or status	.831
Compatibility	.826

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Trial ability	.657
Demonstrability	.832

Table 1 shows the reliability statistics (alpha values) measurement scale adapted for the study. The calculated values greater than .7 indicating the robustness of the scale adapted for the study. The results also establishes validity of the scale developed by Moore and Benbasat (2001).

### **V. RESULTS AND DISCUSSION**

The results of analysis done on the collected data are furnished in the following paragraphs. Table 2 shows the profile of sample respondents selected for the study

**TABLE 2  
Profile of Respondents**

Profile	Classification of respondents	Frequency	Percentage
<b>Gender</b>	Male	57	57 %
	Female	43	43 %
<b>Age</b>	15-20	40	40 %
	20-25	25	25 %
	25-30	18	18 %
	30-35	17	17 %
<b>Area</b>	Rural	46	46 %
	Urban	54	54 %
<b>Education level</b>	High school	5	5 %
	Higher secondary	5	5 %
	Under graduate	60	60 %
	Post graduate	30	30 %
<b>Occupation level</b>	Student	55	55 %
	Farmer	1	1 %
	Employed	18	18 %
	Self employed	8	8 %
	Un-employed	8	8 %
	Professional	10	10 %

Source : primary data      N=100

Table 2 shows that, of the 100 respondents interviewed, 57% were males and the remaining 43% were females. 40% of respondents' belong to the age group of 15-20, 25% of respondent's belong to 20-25 age group, 18% of respondents in 25-30 age group and the remaining 17% belong to 30-35age group .This indicates that the respondents ranging between the age group of 15-20 adopt online shopping in a higher scale. 54% of the respondents of online shoppers are from urban area and the remaining 46% of the respondents are from rural area .This indicates that the people in urban area adopt online shopping more widely than the respondents in rural area. 60% of respondents are under graduate, 30% are post graduate, 5% has higher secondary (+2) and the remaining 5% has high school education. Hence it is evident that majority of respondents belongs to undergraduate category. 55% of respondents are students, 18% are employed, 10% are professional, 8% are self employed, 8% are unemployed and the remaining 1% are farmers. This indicates that majority of respondents who adopt online shopping belongs to student category.

The present study attempts to test the applicability of the diffusion theory in the context of online shopping. The important aspects identified through the survey of literature were measured using a 5 point scale, 5-Strongly agree, 4-Agree, 3-Neutral, 2-Disagree, 1-Strongly Disagree. Table 3 shows the mean score calculated from the collected data.

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TABLE 3  
**Factors influencing online shopping and descriptive statistics**

Factors	Mean	Std. Deviation
Voluntariness	3.73	.866
Relative advantage	3.69	.665
Ease of use	3.87	.658
Compatibility	3.47	.791
Trial ability	3.26	.777
Demonstrability	4.00	.826
Image or status	3.19	.760

Source : primary data      N=100

Table 3 depicts the drivers that influence the adoption on online shopping. ‘Demonstrability’ is the most prominent driver of adoption of online shopping (4.00).The second prominent driver is ‘Ease of use’ (3.87), followed by ‘Voluntariness’ (3.73), ‘Relative advantage’ (3.69), ‘Compatibility’ (3.47), ‘Trial ability’ (3.26) and ‘Image or status’ (3.19).

### **Correlation analysis**

Correlation analysis is a statically tool used to describe the degree to which one variable is linearly related to another. Therefore, to find the relationship between the dependent variable, rate of adoption, and the independent variables-voluntariness, relative advantage, ease of use, compatibility, trial ability, demonstrability and image of status, Correlation analysis was performed. The resulting correlation coefficients are shown in Table 4.

TABLE 4  
**Relationship between rate of adoption of online shopping and factors influencing online shopping**

	Rate of adoption	Voluntariness	Relative advantage	Ease of use	Compatibility	Trial ability	Demonstrability	Image or status
Rate Adoption	1							
Voluntariness	.452** .000	1						
Relative advantage	.446** .000	.498** .000	1					
Ease of use	.399** .000	.565** .000	.613** .000	1				
Compatibility	.544** .000	.576** .000	.643** .000	.702** .000	1			
Trial ability	.261** .009	.366** .000	.398** .000	.286** .004	.573** .000	1		
Demonstrability	.436** .000	.544** .000	.496** .000	.536** .000	.619** .000	.362** .000	1	
Image or status	.256* .010	.379** .000	.410** .000	.462** .000	.616** .000	.536** .000	.278** .000	1 .005

\*\*. Correlation is significant at the 0.01 level (2-tailed).

\*. Correlation is significant at the 0.05 level (2-tailed).

All the independent variables have a significant positive correlation with the dependant variable. The correlation between frequency of adoption (DV) and factors influencing adoption (IVs) of online shopping are Compatibility (.544), Voluntariness (.452), Relative advantage (.446), Demonstrability (.436), Ease of use (.399), Trialability (.261) and Image or status (.256).

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### **Regression analysis**

Regression analysis was conducted to reveal how different factors affect the rate of adoption of online shopping by youth. The main objective of regression analysis is to explain the variation in one variable based on the variation in one or more other variables. If multiple independent variables are used to explain the variation in a dependent variable, it is called multiple regression models. The output of the multiple regression analysis was used to test hypotheses. The regression model was formed using step wise method. Stepwise multiple regression models are considered as the most parsimonious model. Each predictor variable is entered in a sequence and the significance value is accessed. The insignificant variables are removed from the model. Thus stepwise multiple regression analysis help to ensure the smallest possible set of predictor variable for a model. The frequency of adoption of online shopping is taken as the dependent variable and factors influencing adoption of online shopping (7 factors) are taken as the predictor variables. Table 5 shows the model summary of the analysis done.

**TABLE 5  
Regression - Model Summary**

<b>Model</b>	<b>R</b>	<b>R Square</b>	<b>Adjusted R Square</b>	<b>S E Estimate</b>	<b>Durbin-Watson</b>
1	.544 <sup>a</sup>	.296	.289	.993	
2	.570 <sup>b</sup>	.325	.311	.977	1.624

a. Predictors: (Constant), Compatibility

b. Predictors: (Constant), Compatibility, Voluntariness

c. Dependent Variable: Rate of adoption

In model 1 R is .544 and in model 2 R is .570. R square and Adjusted R square of model 2 have higher value than the model 1. The Durbin Watson model 1 1.624 . R square is the percent of the variance in the dependent explained uniquely or jointly by the independents. Gujarati (2006) recommends that it is a good practice to find the adjusted R square value because it explicitly takes into account the number of variables included in the model hence Adjusted R square value is used for interpreting the result. Table 5 shows that 28.9 percent of the variation (model 1) in rate of adoption is explained by Compatibility alone, 31.1 percent of the variation (model 2) is explained by Compatibility and voluntariness together.

The Durbin – Watson statistic tests for autocorrelation. The value ranges from 0 to 4. Values close to 0 indicate extreme positive autocorrelation and values close to 4 indicates extreme negative autocorrelation and values close to 2 indicates no autocorrelation. As a rule of thumb, the value should be between 1.5 and 2.5 to indicate independence of observations (Garson, 2012). As shown in table 5 the value of test is 1.624 which indicates independence of observations. Table 6 shows the F values and the significant values of the two models given by the regression procedure.

**TABLE 6  
Regression Analysis ANOVA**

<b>Model</b>		<b>Sum of Squares</b>	<b>df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
1	Regression	40.661	1	40.661	41.260	.000 <sup>b</sup>
	Residual	96.579	98	.985		
	Total	137.240	99			
2	Regression	44.619	2	22.310	23.364	.000 <sup>c</sup>
	Residual	92.621	97	.955		
	Total	137.240	99			

a. Dependent Variable: Rate of adoption

b. Predictors: (Constant), Compatibility

c. Predictors: (Constant), Compatibility, Voluntariness

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Table 7 presents the Beta values, t-values and significance values of Independent variables

TABLE 7

**Regression Coefficients**

Model	Unstandardized Coefficients		Standardized Coefficients			Co linearity Statistics	
	B	Std. Error	Beta	t	Sig.	Toleran- ce	VIF
1	(Constant)	.451	.448		1.006	.317	
	Compatibility	.811	.126	.544	6.423	.000	1.000
2	(Constant)	.016	.490		.033	.974	
	Compatibility	.632	.152	.425	4.161	.000	.668
	Voluntariness	.283	.139	.208	2.036	.044	.668
							1.497

a. Dependent Variable: Rate of adoption

Of the seven independent variables, two variables viz., Compatibility ( $t=4.161$ ,  $p =.000$ ), voluntariness ( $t=2.036$ ,  $p=.044$ ) are statistically significant at 5 percent significance level. Compatibility and voluntariness have a positive effect on adoption of online shopping. The Beta Co efficient gives a measure of the contribution of each variable to the model. Higher the Beta value, the greater is the effect of independent variable on the dependent variable. Compatibility has the highest Beta co efficient (.632) and therefore it has greater effect on adoption of online shopping followed by voluntariness (.283)

### **VI. PRACTICAL IMPLICATIONS**

- 1 Mean score analysis showed that Demonstrability and ease of use are the top two major factors that influence the adoption of Online Shopping. Therefore, by providing wider choice of products and convenient Online Shopping sites can promote the adoption of Online Shopping.
- 2 Though all the factors have a significant positive correlation with the dependent variable, rate of adoption, only two factors have significant predictive power , viz, Compatibility and voluntariness. The practical consequence of this finding is that wider spread of online shopping can be achieved by bringing such online experiences which are more compatible to the mind set/conventional practice/competency level of customers.

### **VII. CONCLUSION**

This study examined the rate of adoption of online shopping and the factors influencing the adoption drawing ideas from diffusion theory. It was found that all the independent variables viz, Voluntariness, Relative advantage, Ease of use, Compatibility, Trial ability, Demonstrability and Image or status s have a positive relationship with the dependent variable, rate of online shopping. However, stepwise regression showed that only two variables can significantly predict the dependent variable, rate online shopping. They are Compatibility and Voluntariness.

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