Factors Influencing the Consumers to do Online Shopping: A Study with reference to Virudhunagar Town

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Abstract

Now-a-days, technologies have developed in a rapid way. Especially internet, it provides a widest platform where the buyers and sellers meet together for sale and purchase of goods and services. The internets' have the ability to reach the customer's home. The physical delivery has changed to electronic delivery and physical products have changed to electronic products displayed on the various websites like Flipkart, and Snapdeal, the payment also made on online through debit and credit card, the transaction is purely electronic. The present paper focuses on the factors influencing the consumers to do online shopping in Virudhunagar town.

Key words: Online shopping, Factor analysis, Multiple regression analysis

Introduction

Internet shopping, also known as online shopping; is the process where consumers purchase products/services over the internet. It is a network of linked computers enabling millions of people to communicate and search for information as well as to sell and buy products. Online shopping is a recent phenomenon. Online shopping is becoming a well accepted way to purchase a wide range of products 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 is great because people are able to shop 24 hours a day without having to leave their home or work place.

Review of literature

Hoffman and Novak (1996) indicated that interactivity is the key distinguishing feature between marketing communication on the Internet and traditional mass media. Today, online consumers have more control and bargaining power than consumers of physical stores because the internet offers more interactivities between consumers and product/service providers as well as greater availability of information about products and services.

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Peterson et al. (1997) commented that it is an early stage in internet development in terms of building an appropriate dedicated model of consumer buying behavior. Decision sequences will be influenced by the starting point of the consumer, the relevant market structures and the characteristics of the product in question. Consumers' attitude towards online shopping is a prominent factor affecting actual buying behavior.

A consumer's trust in an internet store can be thought as the consumer's trust directly in the store. Nevertheless, Hoffman et al. [1999] argued that the effectiveness of third-party trust, certification bodies and the public key encryption infrastructure for ensuring financial security, are the central success factors for building consumer trust in internet shopping.

Shu (2003) in his research tried to identify the factors that affect consumers' willingness to indulge in internet shopping. For the research purpose, 296 university students were selected as research participants, securing 175 usable and meaningful responses. The survey results showed that 50.9% of the respondents were between the age group of 20-30 years. Most of the respondents (53.7%) were undergraduate students. Majority of the respondents had more than one year experience in working with the internet. The results showed that consumers' willingness to indulge in internet shopping correlated positively and significantly with trust placed in internet shopping, perceived ease of use, usefulness, playfulness, security, privacy, information quality, and service.

Filling the research gap
The earlier studies have not explored certain key variables connected with online shopping like variables influencing consumer's preference for online shopping. The present study titled the "Factors influencing the consumers to do online shopping in Virudhunagar town" fills this gap by focusing on these left out variables of online shopping.

Objectives
- To find out the factors influencing the consumers to do online shopping in Virudhunagar town.
- To perform multiple regression analysis for finding the effect of six independent variables (obtained from the factor scores of factor analysis) on the dependent variable of respondents' money saving in online purchase.

Hypothesis
H_0:   There is no difference in respondents' time saving in online shopping for different levels of factor occupation.

Data and methodology
Data Source
The present study depends upon both primary data and secondary data.

Sample frame
Concrete sampling frame did not exist for the online shoppers.

Sampling Method and Size
Due to the absence of sampling frame, non-random sampling method of snow-ball sampling was used.

Sample Size
Considering the time and resources, as well as the frame work of analysis, it is thought fit to have an adequate sample size of 260 sample online shoppers residing in Virudhunagar Town.

Statistical tools
- Percentage calculation
- ANOVA
- Factor Analysis
- Multiple regression analysis

Results and discussion
Occupation of Respondents

Table 1: Respondents' occupation

S.No	Particulars	Frequency	% to total
1.	Student	161	61.9
2.	Teacher	17	6.5
3.	Businessman	22	8.5
4.	Professional	26	10.0
5.	Employee	34	13.1
	Total	260	100.0

Source: Primary data

It is clear from the above table that the majority of 61.9% of the respondents are the students.

Hypothesis testing – Performance of ANOVA
Analysis of variance (ANOVA), is performed to find the effect of different levels of respondents' occupation on their time saving to do online shopping. For this, the following null hypothesis was formulated and tested by (one way) ANOVA.

H₀: There is no difference in respondents' time saving in online shopping for factor the different levels of their occupation.

Output

Table 2: ANOVA occupation

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	36.216	4	9.054	4.153	.003
Within Groups	555.918	255	2.180		
Total	592.135	259			

Source: Primary Data, Result Calculated

Analysis of Output
From the output table of one way ANOVA, the significance of F test is found to be 0.003. It means that at the significance level of 5 per cent, the F test proves significant, and hence the null hypothesis is rejected. So, one concludes that there is a difference in the respondents' time saving to do online shopping for the different levels of their occupation.

Factor Analysis
Application of Multi-Variate Technique
Here, factor analysis was performed in order to explore the factors that influence the respondents to do online shopping.

Eigen value is a measure of explanatory power of each factor; only the factors' Eigen value of 1 or more than 1 is considered for the selection of factors. For example as shown in Table 3, the first factor with the largest Eigen value of 2.164 explains total variance 12.023%. Eighteen variables were reduced to six orthogonal factors which account for an overall variance about 62% indicates that the variance of original variables was well captured by the six factors. All these particulars are shown in Table 3 titled total variance explained.

Rotated matrix
The first important stage in factor analysis is extraction of factors. A common method, namely, principal component analysis (PCA) is used for extraction. It is used to transform a set of correlated variables into a set of uncorrelated latent variables called factors, so that the factors are unrelated. The present researchers used varimax rotation for the rotation of factors which is meant for interpreting the factors. The following table shows rotated component matrix.

Table 3: Total variance explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.998	27.764	27.764	4.998	27.764	27.764	2.164	12.023	12.023
2	1.558	8.653	36.417	1.558	8.653	36.417	2.110	11.720	23.742
3	1.236	6.866	43.283	1.236	6.866	43.283	1.998	11.101	34.844
4	1.178	6.544	49.827	1.178	6.544	49.827	1.774	9.858	44.702
5	1.071	5.948	55.775	1.071	5.948	55.775	1.633	9.071	53.772
6	1.037	5.761	61.536	1.037	5.761	61.536	1.397	7.763	61.536
7	.890	4.945	66.481						
8	.804	4.464	70.946						
9	.758	4.212	75.158						
10	.636	3.531	78.689						
11	.629	3.493	82.182						
12	.600	3.334	85.517						
13	.560	3.111	88.628						
14	.527	2.927	91.555						
15	.462	2.569	94.124						
16	.421	2.340	96.464						
17	.334	1.854	98.317						
18	.303	1.683	100.000						
Extraction Method: Principal Component Analysis.									

The above table shows the variables with high loading on the respective factors influencing online shopping. For the factor F1, variable guarantee/warranty and customer service has the higher factor loading of 0.844; free delivery has the higher factor loading of 0.718 on F2, convenient mod of payment has the larger factor loading of 0.676 on F3, price range and product quality has the larger factor loading of 0.861 on F4, sales promotion and packaging has the higher factor loading of 0.797 on the factor F5, and status symbol has the higher factor loading of 0.727 on F6.

Table 6: Variables with high loading on the factors influencing online shopping

S.No.	Name of extracted factor	Name of variable with high loading	Factor loading
1	Product warranty and customer service	Guarantee/warranty for product	0.844
2	Product Features	Free delivery	0.718
3	Benefits of product	Convenient mode of payment	0.676
4	Price Range and Product Quality	Price range	0.861
5	Sales promotion cum. Packaging	Attractive package	0.797
6	Symbol of Status	Status symbol	0.727

Source: Primary data, Result calculated

Table 4: Rotated component matrix

Variable	Component					
	1	2	3	4	5	6
Guarantee/warranty for Product	0.844					
Customer Service	0.71					
Genuiness of Product	0.549					
Free delivery		0.718				
Brand image		0.7				
Usability of product		0.613				
Convenient mode of payment			0.676			
Availability of product			0.649			
Delivery time			0.565			
Time saving			0.449			
Price range				0.861		
Quality of product				0.619		
Reusability of product				0.506		
Attractive package					0.797	
Buy one get one offer					0.635	
Money saving					0.393	
Status symbol						0.727
Promotional method of marketer						0.493

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 9 iterations.

Table 9 shows the co-efficient of independent variables. This table is useful to find out which independent variable is stronger in making variation in the dependent variable. The independent variable that has the higher coefficient is stronger in causing variation in dependent variable. Accordingly, the independent variable in the order of sales promotion (.371), features (.371), benefits of products (.348), and product warranty (.317) are powerful in effecting variation in the dependent variable of money saving in online purchases. It may be noted one independent variable, namely, status symbol (.174) has a negative impact on money saving, i.e., an increase in status symbol would cause a fall in money saving.

Table 5: Component score coefficient matrix

	Component					
	1	2	3	4	5	6
If Yes Factors Price Range	-.158	-.143	-.048	.618	-.011	.054
Quality Of Product	.029	.026	.085	.357	-.171	-.090
Delivery Time	-.198	-.122	.316	.154	.081	.183
Promotional Method of Marketer	.045	.003	.079	.048	-.193	.344
Availability Of Product	-.055	-.019	.384	-.019	.014	-.165
Usability Of Product	-.127	.321	-.023	.104	-.042	.052
Reusability Of Product	.227	.191	-.320	.268	.013	-.218
Brand Image	-.107	.404	.048	-.129	-.101	.093
Free Delivery	-.035	.470	-.207	-.090	.006	.040
Buy One Get One Offer	-.098	-.128	-.144	.083	.437	.350
Convenient Mode Payment	.028	-.148	.475	-.146	-.152	.114
Customer Service	.394	-.257	.019	-.092	.128	.092
Guarantee Waranty for Product	.512	-.044	-.079	-.104	-.080	-.068
Time Saving	.005	.001	.172	.039	.233	-.197
Money Saving	.123	.102	.085	-.033	.186	-.264
Genuiness Of Product	.267	.047	.100	-.106	-.124	.018
Attractive Package	-.036	.007	-.043	-.144	.568	-.080
Status Symbol	-.043	.112	-.088	-.108	-.028	.562

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
Component Scores.

Multiple regression analysis

After naming the six factors, the factor scores of the factor analysis for the six factors known, namely, product warranty and customer service, product features, benefits of products, price range and product quality sales promotion cum packaging and symbol of status were used in the following multiple regression analysis where these six factors were regarded as independent variables (Xs), determining variation in the dependent variable of money saving of online shoppers (Y). The standardized variable values multiplied by the corresponding factor score coefficient as shown in Table 4 shall give factor scores.

The main objective of multiple regression analysis is to explain variation in the dependent variable of money saving based on the variation in the six independent variables. Here, the

Dependent variable

Y = money saving

The independent variables

X_1 = product warranty and customer service

X_2 = product features

X_3 = benefits of products

X_4 = price range and product quality

X_5 = sales promotion cum. packaging

X_6 = symbol of status

The following null hypothesis was formulated.

H_0:   There is no linear relationship between Y and Xs.

Input data

First, the data for 260 observations relating to the dependent and independent variable were fed into the computer. To perform multiple regression analysis, the following regression model was developed.

$Y = a + b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4 + b_5x_5 + b_6x_6$

Analysis of output

Table 7: Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.784a	.615	.606	.592

a. Predictors: (Constant), REGR factor score   6 for analysis 1, REGR factor score   5 for analysis 1, REGR factor score 4 for analysis 1, REGR factor score   3 for analysis 1, REGR factor score   2 for analysis 1, REGR factor score   1 for analysis 1

The calculated value of R approximately 0.8 (0.784) and R2 (0.615) are found to be satisfactory. The value of R2 denotes that 61% of variation in dependent variable is caused by six independent variables considered for the study. This is shown in table 7 model summary.

Table 8: ANOVAb

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	141.456	6	23.576	67.376	.000a
	Residual	88.529	253	.350		
	Total	229.985	259			

First, the regression as a whole was tested by ANOVA; it is found p-value 0.000 is far less than the assumed significance level at 5%. Hence, the regression model is statistically valid and above null hypothesis is rejected.

Table 9: Coefficientsa

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.992	.037		108.825	.000
	product warranty and customer service	.317	.037	.336	8.617	.000
	product features	.371	.037	.393	10.085	.000
	benefits of products	.348	.037	.369	9.472	.000
	price range and product quality	.139	.037	.148	3.795	.000
	sales promotion cum. Packaging	.371	.037	.393	10.086	.000
	symbol of status	-.174	.037	-.185	-4.738	.000

a. Dependent Variable: Money Saving

Suggestion and conclusion

Factor analysis was performed to explore the factors that influenced the respondents to do online shopping. In the process of data reduction, 18 variables were reduced to six factors such as product warranty and customer service, product features, benefits of products, price range and product quality, sales promotion cum packaging and symbol of status.

Based on factor scores for the six factors obtained from the factor analysis, multiple regression analysis was performed with money saving as dependent variable and product warranty, product features, benefits of products, sales promotion etc as independent variables. It is a revelation that the independent variables in the order of sales promotion (.371), product features (.371), benefits of products (.348), product warranty (.317), are powerful variables in causing variation in the dependent variable of money saving in online purchases. Marketers of online products may concern about these variables in order to enhance the satisfaction of respondents with their online purchases.

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