
Cyber Space Shopping Behavior: A Factor Analysis Approach

- **Dr.Shiney Chib**, Director & Research Head, Datta Meghe Institute of Management Studies,Nagpur,
- **Aniket Potphode**, MBA Final Semester Student, Datta Meghe Institute of Management Studies,Nagpur,

ABSTRACT

The rapid growth of Internet has brought many changes in the shopping perception. It has brought promised change, challenges and even bright future, not only to consumers but also to companies, suppliers and middlemen. But still there are still many “ifs” and “buts”, that we find people whispering relating to its potentiality, impact and implications on business and social lives. This paper is an empirical study to know the factors that influence the cyber space purchase behavior. A sample of 189 respondents was drawn from Nagpur city. The major objective of the study was to find out respondents’ preferences and overall opinion on cyber space Buying. The research tool used was a structured questionnaire. The results of the study revealed that online shopping experience, its features and benefits significantly affect online shopping and at the same time the perceived risk in terms of quality of products, privacy, security, money and product guarantee/warrantee discourages the people to shop online.

Keywords: Internet, E-commerce, Online Shopping, Consumer Behaviour

• INTRODUCTION

Today the rapid growth of Internet and E-commerce has triggered off many changes in our life. This has brought promised change, challenges and even bright future, not only to consumers but also to companies, suppliers and middlemen. There are still many “ifs” and “buts” that we find people are whispering relating to its potentiality, impact and implications on business and social lives of all. That online buying behavior is affected by various factors like, economic factors, demographic factors, technical factors, social factors, cultural factors, psychological factors, marketing factors and legislative factors. Customers choose an online-shop mainly based on references, clarity and menu navigation, terms of delivery, graphic design and additional services.

• LITERATURE REVIEW

(Aioa et.al,2005) predicted the impact of information technology on marketing. We can add the impact on business in general because the growth of new technologies results in the growth of business faster than before. Electronic commerce is the use of advanced electronic technology for business. Both parties of business information, product information, sales information, service information and electronic payment and other activities are achieved with mutually agreed trading standards through the network, the advanced information processing tools, and the computer. Online shopping or online retailing is a form of electronic commerce whereby consumers directly buy goods or services from a seller over the Internet without an intermediary service. (Tao, Li, Dingjun, 2011). Ramanathan et al. (2012) describes previous interpretation of e-commerce simply as transactions over the Internet. However, over the years, e-commerce has been interpreted to include a variety of organizational activities including selling, buying, logistics, and/or other organization-management activities via the Web or doing business over information networks. (Ramanathan et al., 2012). The emergence of e-

commerce as a way of doing business has created an environment in which the needs and expectations of business customers and consumers are rapidly changing and evolving. (Clarke, Flaherty, 2005). In the last decade, the growth and generalization of Internet use has made it possible to increase sales through e-commerce websites. (Corbitt, B. J., (2003) .All marketers try to identify consumers' buying behaviour. But they are in opposite to sophisticated customers who are able to use and analyze more information sources than before and to make the best buying decision. They are more comfortable than in previous years because they are used to having better services now. The effectiveness of advertising is decreasing and it is more difficult to persuade customers to buy company's products. The combination of these factors can influence the final price. The analysis of consumer behaviour is a key aspect for the success of an e-business. However, the behaviour of consumers in the Internet market, changes as they acquire e-purchasing experience.(Hernández et al., 2010) Customer behaviour does not necessarily remain stable over time since the experience acquired from past purchases means that perceptions change. Consumer decision process is so generic that it can be applied to consumer behaviour in any channel, including the Internet. (Roberts, 2008)

- **OBJECTIVES**

1. To identify the impact of Demographic factors impacting on-line shopping behavior of consumers
2. To study the factors affecting online shopping behavior of customers.
3. To identify the effects of perceived risk on buyer attitude towards on online shopping.

- **HYPOTHESIS**

1. Demographic factors influences on online cyberspace consumer behavior.
2. Perceived risk has an influence on online cyberspace consumer behavior.

- **UNIVERSE OF STUDY**

The Universe of study is Nagpur Region. Nagpur is the second capital of Maharashtra and is very popular for oranges. It is fast developing with connectivity and rich infrastructural faculties. It has already achieved the status of upcoming Metro.

- **SAMPLE SIZE:** 189. Random sampling was carried out.

- **METHOD OF DATA COLLECTION**

Primary Source : Questionnaire

The questionnaire was having 44 questions, and was classified into two parts.

Part 1:Demographic Questions :Part 1 was having 11 demographic questions namely, Name, Age , Gender, Education, occupation, Monthly family income, online shopping awareness , online shopping experience, online shopping willingness, product preferences and area of residence.

Part 2:Research Questions: Part 2 had 33 questions related to online shopping. The data was collected with the help of 5 point Likert Scale.

Secondary Source : Websites, Business magazines & journals.

- **DEVELOPMENT OF INSTRUMENT**

The questionnaire included questions/variable extracted from the literature review. The questionnaire was divided into two; first part was the questions related to demographic details of the respondents and the second part included 33 items, and the responses was measured with 5 point Likert Scale. Reliability test was conducted thereafter. Cronbach's alpha was .815, representing a reasonable level of reliability.

Table :1: Reliability Statistics

Cronbach's Alpha	N of Items
.815	33

- **RESPONSE RATE**

No. of questionnaire Distributed	200
Received Back	191
Response Rate	95.5 %
Questionnaire Rejected	2
Questionnaire Accepted	189
Questionnaire Acceptance Percentage	98.95 %

DATA ANALYSIS

Data Analysis was carried out with SPSS PACKAGE. The survey results are organized as follows. In the first section, the demographic profile of the respondent was presented. The second part concluded with the data analysis of the responses with respect to the perception of the respondents.

RESULT AND ANALYSIS**A Demographic Characteristics:**

Table :2: Demographic characteristics of the Respondents		
Variables and categories	N=189	%
Age		
Less than 25	104	55
26-30	42	22.2
31-35	13	6.9
36-40	14	7.4
41-45	6	3.2
46-50	8	4.2
Above 50	2	1.1
Gender		
Male	116	61.4
female	73	38.6
Education		
PhD	5	2.6
Post Graduate	65	34.4
Graduate	86	45.5
Under Graduate	33	17.5
Occupation		
Business	23	12.2
Professional	15	7.9
Service	47	24.9
Unemployed	15	7.9
student	89	47.1
Income		

Below 50000	97	51.3
50000-1 lakh	47	24.9
Above 1 lakh	45	23.8
Awareness		
Yes	183	96.8
No	6	3.2
Experience		
Yes	171	90.5
No	18	9.5
Willingness		
Yes	183	96.8
No	6	3.2
Locality		
Rural	5	2.6
Semi-urban	41	21.7
Urban	143	75.7
<i>Source: Primary Data</i>		

Above Table exhibits the demographic traits associated with the respondents considered for the purpose of the study. It was observed that 61.4% were male and 38.6% were female. Maximum respondents were from below 25 years category and the percentage was 55 % and least from above 50 years, and the percentage was 1.1 %. 45.5 % were PhD and least was under graduate and the percentage Maximum respondents were students category and the percentage was 47.1 %. Maximum monthly family income was below 50000 category and the percentage was 51.3 %. 17.5 % were from the age category of 20-22, 64.6% from 22-24 category and 2.8 % were from 24-26 category. There were no respondents from above 26 yrs category. 92 % respondents belonged to urban area, 5% from semi urban area and 3% from rural locality. Maximum respondents were aware of online shopping and the percentage was 90.5 %. Maximum were having experience and the percentage was 90.5%. Maximum showed the willingness for online shopping and the percentage was 96.8%. Maximum people belonged to urban area and the percentage was 75.7 %.

The product preference analysis showed that the most preferred product is electronic goods and out of 189 respondents, 113 purchased electronic goods through online shopping. 71 preferred apparels, 57 preferred accessories, and 23 preferred cosmetics. 65 preferred other items which does not come under this category. Respondents were having the combo combinations of product preference, viz. set 1: cosmetics, apparels, set 2: cosmetics, apparels, electronic goods, set 3 : cosmetics, apparels, electronic goods, set 4 : cosmetics, apparels, electronic goods, Accessories , set 5 : cosmetics, apparels, electronic goods, Accessories, set 6 : cosmetics, apparels, electronic goods, Accessories, others, and other combinations.

- **HYPOTHESIS TESTING**

Hypothesis 1 :Demographic factors influences on online cyberspace consumer behavior.

Cross tab analysis and Chi Square Analysis was used.

▪ **GENDER**

Table :3: **Crosstab**

		EXPERIENCE		Total
		Yes	No	
GENDER	Male	105	11	116
	Female	67	6	73
Total		172	17	189

Table :4: **Chi-Square Tests**

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.192 ^a	2	.909
Likelihood Ratio	.190	2	.910
Linear-by-Linear Association	.002	1	.962
N of Valid Cases	189		

a. 2 cells (33.3%) have expected count less than 5. The minimum expected count is .77.

▪ **EDUCATION**

Table :5: **Crosstab**

		EXPERIENCE		Total
		Yes	No	
EDUCATION	PhD	5	0	5
	PG	59	6	65
	G	82	4	86
	UG	26	7	33
Total		172	17	189

Table :6: **Chi-Square Tests**

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	8.498 ^a	3	.037
Likelihood Ratio	7.832	3	.050
Linear-by-Linear Association	2.553	1	.110
N of Valid Cases	189		

a. 3 cells (37.5%) have expected count less than 5. The minimum expected count is .45.

▪ **OCCUPATION**

Table :7: **Crosstab**

		EXPERIENCE		Total
		Yes	No	
OCCUPATION	Business	22	1	23
	Professional	14	1	15
	Service	42	5	47
	Unemployed	13	2	15
	Student	81	8	89
Total		172	17	189

Table :8: **Chi-Square Tests**

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.206 ^a	4	.877
Likelihood Ratio	1.297	4	.862
Linear-by-Linear Association	.308	1	.579
N of Valid Cases	189		

a. 4 cells (40.0%) have expected count less than 5. The minimum expected count is 1.35.

▪ **INCOME**

Table :9: **Crosstab**

		EXPERIENCE		Total
		Yes	No	
INCOME	Below 50000	84	13	97
	50000-1 lakh	46	2	48
	Above 1 lakh	42	2	44
Total		172	17	189

Table :10: **Chi-Square Tests**

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	4.733 ^a	2	.094
Likelihood Ratio	4.985	2	.083
Linear-by-Linear Association	3.743	1	.053
N of Valid Cases	189		

a. 2 cells (33.3%) have expected count less than 5. The minimum expected count is 3.96.

- **AGE**

Table :11: **Crosstab**

	EXPERIENCE		Total	
	Yes	No		
Age				
	Below 25	97	7	104
	25-30	41	1	42
	31-35	11	2	13
	36-40	11	3	14
	41-45	2	4	6
	46-50	8	0	8
	Above 50	2	0	2
	Total	172	17	189

- **AREA**

Table :12: **Crosstab**
Count

	EXPERIENCE		Total	
	Yes	No		
AREA				
	urban	132	13	145
	Semi urban	35	4	39
	Rural	5	0	5
	Total	172	17	189

Table :13: **Chi-Square Tests**

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.570 ^a	2	.752
Likelihood Ratio	1.016	2	.602
Linear-by-Linear Association	.044	1	.835
N of Valid Cases	189		

a. 3 cells (50.0%) have expected count less than 5. The minimum expected count is .45.

Cross Tab Analysis and chi square test shows that out the demographic variables 'Age ' and 'Education' has the influence on consumer behavior with respect to Online shopping.

Hypothesis 2 :Perceived risk has an influence on online cyberspace consumer behavior.

Table :14: t- Test

Test Value = 0					
t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
				Lower	Upper
53.676	188	.000	2.92910	2.8215	3.0367

The table shows the t –test results. It shows that there was no sufficient evidence to accept null hypothesis, hence null hypothesis was rejected and alternate hypothesis was accepted. **Perceived risk has an influence on online cyberspace consumer behavior.**

Factor Analysis for identifying the factors influencing Online Shopping.

Table :15: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.786
Bartlett's Test of Sphericity	Approx. Chi-Square	4061.983
	df	351
	Sig.	.000

Source: Primary Data

KMO score is 0.786. It is above the recommended value of 0.5. Further Bartlett's Test of Sphericity exhibits significance value of less than 0.05 (.000). Thereby ensuring the appropriateness of factor analysis.

Consumer expectations and perceptions towards online shopping were examined with respect to the perceived usefulness and risk. Factor analysis was conducted in order to identify the factors that affect online shopping behavior. Factors were identified using the Eigen value criteria that suggests extracting factors with Eigen value greater than 1.0 Principal Component Analysis and Varimax Rotation were considered for obtaining a component matrix. For confirming the adequacy and sphericity of the data set, Kaiser-Meyer-Olkin(KMO) and Bartlett's Test values were also obtained.

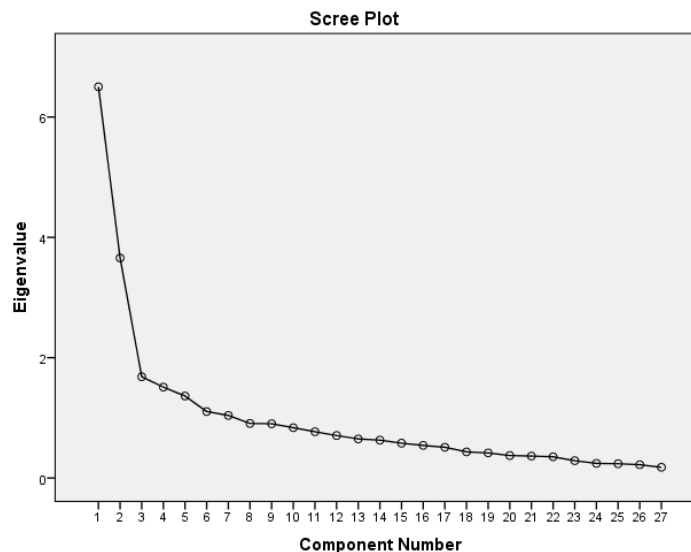


Table :16: **Total Variance Explained**

Component	Initial Eigen values			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.502	24.082	24.082	6.502	24.082	24.082	4.164	17.422	17.422
2	3.658	13.547	37.628	3.658	13.547	37.628	2.950	15.927	33.349
3	1.683	6.233	43.861	1.683	6.233	43.861	2.847	13.543	46.892
4	1.511	5.596	49.458	1.511	5.596	49.458	2.226	10.243	57.135
5	1.363	5.048	54.505	1.363	5.048	54.505	2.107	8.805	65.941
6	1.105	4.092	58.598	1.105	4.092	58.598	1.527	7.657	73.597
7	1.040	3.851	62.449						
8	.907	3.358	65.807						
9	.902	3.341	69.148						
10	.836	3.095	72.243						
11	.770	2.851	75.094						
12	.705	2.613	77.707						
13	.649	2.405	80.111						
14	.629	2.331	82.442						
15	.579	2.145	84.587						
16	.541	2.005	86.592						
17	.511	1.893	88.485						
18	.435	1.610	90.096						
19	.417	1.544	91.639						
20	.373	1.382	93.022						
21	.364	1.350	94.371						
22	.353	1.308	95.679						
23	.288	1.065	96.744						
24	.243	.900	97.645						
25	.237	.879	98.523						
26	.221	.818	99.341						
27	.178	.659	100.000						

Extraction Method: Principal Component Analysis.

Model strength is 73.597. The proposed model is accepted.

Table :17: **Component Transformation Matrix**

Component	1	2	3	4	5	6
1	.705	-.367	.502	-.180	.151	.248
2	.268	.604	.095	.510	.542	-.023
3	-.551	-.144	.743	.336	-.010	.098
4	.113	-.639	-.305	.655	.083	-.224
5	.226	.214	-.050	.404	-.701	.496
6	.253	.164	.301	.039	-.430	-.795

Table :18: Factors Influencing Online Shopping

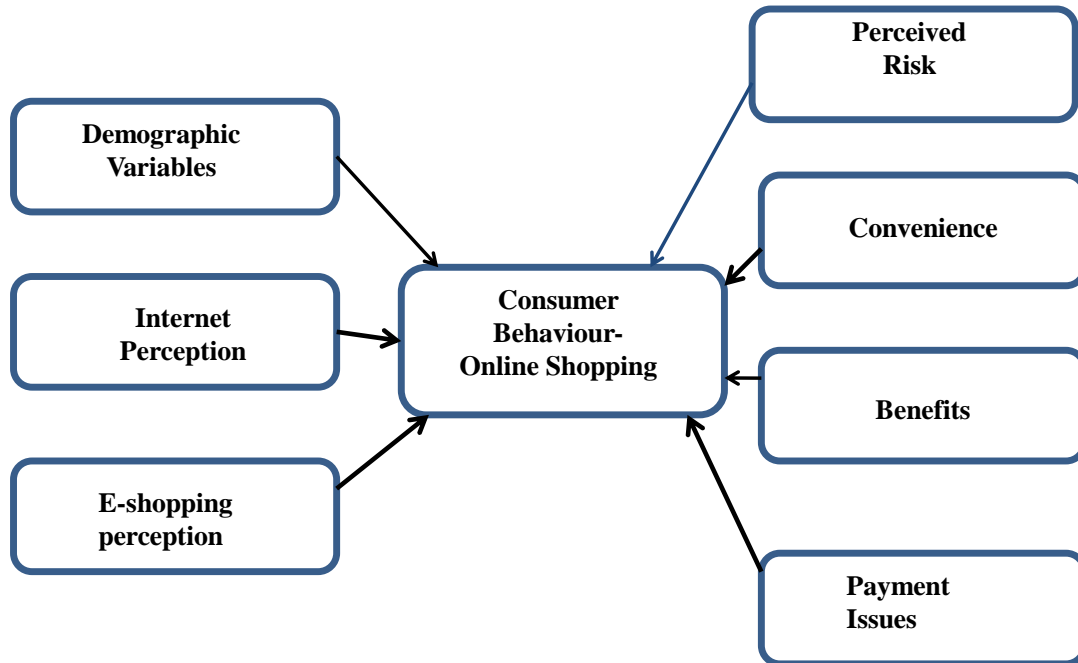
Sr.No.	Statements	Factors					
		1	2	3	4	5	6
1.	Product exchange involves cumbersome process	.769					
2.	I am very keen to adopt new things	.714					
3.	I feel internet has made life easy	.698					
4.	Internet facility is blessing in case of emergencies	.684					
5.	I does surfing conveniently	.675					
6.	I enjoy surfing net in order to explore new things	.613					
7.	Internet act as a very common communication media among youngsters	.576					
8.	The company may charge more than , what is the actual price		.689				
9.	Online shopping facilitates product comparison		.679				
10.	Online buying information is clear, precise and easy to understand		.678				
11.	Online buying provides more reliable and varied information easily		-.648				
12.	Prices offered through online shopping is less than the traditional shops		.621				
13.	I prefer cash payment instead plastic money		.565				
14.	There may be difference in the quality ordered and received			.767			
15.	Possibilities of getting cheated is more in case of online shopping			.705			
16.	It is very difficult to exchange the product in case of defects			.662			
17.	Online shopping includes risk factors			.592			
18.	Goods may get damaged, during transportation			.531			
19.	Online shopping showcases variety of products and brands				.768		
20.	Online shopping is very easy				.697		
21.	Online shopping saves time				.651		
22.	It is very convenient to depend on online shopping				.527		
23.	Online shopping offer more					.721	

	discounts and gifts than the traditional shopping						
24.	Online ordering layout is easy and convenient					.682	
25.	Internet is very convenient in providing the information					.570	
26.	Cash on delivery is not available in maximum occasions						.603
27.	Possibilities of receiving the product late is a common problem in case of online shopping						.598
<i>Extraction Method: Principal Axis Factoring ,Rotation Method: Varimax with Kaiser Normalization.</i>							
<i>Source: Primary Data</i>							

In total 33 items were considered for the study in the initial stage. After iteration 6 items were dropped due to their redundancy nature. The 27 items considered converged into 6 factors. These can be called as 6 variables which analysis the consumer behavior with respect to cyberspace shopping. Factor 1 was loaded with 7 items. These items were related to the attitude of consumer with respect to internet usage. So the Factor 1 is labeled as '**Internet Perceptions**'. Factor 2 loaded on 6 items, related to attitude of consumer in using online shopping. '**E-shopping perception**'. Hence factor 2 is labeled as '**E-shopping perception**'. Factor 3 was loaded with 5 items and it was related to the questions with respect to the perceived risk factors , and it was labeled as '**Perceived Risk**'. Factor 4 was questions related to online shopping benefits, and the variable is named as '**Convenience**'. Factor 5 was questions related to cyber space benefits in online shopping and the variable is named as '**Benefits**' and was loaded with 3 items. Factor 6 got loaded with 3 items and the questions were related to payment and the variable is named as '**Payment Issues**'.

Internet Perceptions (7 items)	Consumer Behaviour with respect to Cyber Space Shopping
E-shopping perception (6 items)	
Perceived Risk (5 items)	
Convenience (4 items)	
Benefits (3 items)	
Payment Issues (2 items)	

Consumer behavior with respect to Cyber Space shopping can be concluded as follows with the given model.



CONCLUSION

Study showed that the consumer behavior with respect to online shopping is dependent of 6 main factors, namely 'Perceived Risk', 'Internet Perception', 'E-Shopping Perception', 'Convenience', 'Benefits' and 'Payment Issues'. Under the demographic variables, age and education level influences the online shopping perception. Maximum respondents were under the age category of less than 25. It shows that maximum were youngsters. Youngsters are very keen to experiment and embrace new technologies and techniques. So marketers should focus on how to reduce risk in online shopping. Providing an information navigation facility based on such risk-reduction strategies, such as money-back guarantee, cash on delivery option, timely delivery of goods, desirable purchasing experience etc. decreases consumers perceived risk and increase their purchase on the cyberspace.

LIMITATION OF THE STUDY

Study was limited to Nagpur only. Sample Size was small.

FUTURE RESEARCH

The same topic can be studied by taking more sample size and more variables. You can study which factor is the more influencing one, in online shopping decision. Can be carried out as a national study, and also as International study, by having a comparison with respondents of other countries also.

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