EXPLORING THE DIMENSIONS OF PERCEIVED RISK IN USING INTERNET FOR PURCHASE DECISIONS

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Abstract

Internet is one of the revolutionary technological innovations and B2C commerce is one of the notable applications of this innovation. When companies are trying to make commercial use of this innovation, there is still lot of resistance from the consumers. Any innovation is accepted by the consumer after the risk factor in it is removed which acts as a constraint in trying out the new innovation. It is the consumer perception which is playing a major role in formation of attitude and one of the consumer perceptions is the perception towards risk. It is this consumer perception towards internet for purchase decisions discussed in the current paper. Perceived Risk is an important dimension in consumer behaviour studied by Bauer (1960). The current study tries to explore this Perceived Risk dimension of consumer innovation perception towards using internet for making purchase decisions. There is always uncertainty in the outcome of using any new innovation. There is initial resistance by the consumers because of the risk factor involved in it. The current study tries to the understand this consumer perceived risk in using technology for making purchases. There were very few studies on the concept of perceived risk in Indian context which formed the main gap for the study.

Objectives: The main objective of this research paper is to understand different types of risks factors perceived by consumers in using internet for making purchase decisions.

Methodology: The instrument used for collecting data was Structured Questionnaire method. 156 respondents were considered for the study using purposive sampling.. Respondents with at least one

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experience of making purchase using internet was considered for the study. Responses were collected by meeting them personally to avoid any missing data for analysis. The sampling frame included post graduate students studying in Bangalore City. PCA in SPSS 20 was used to explore the dimensions of perceived risk while using internet for purchase decisions.

Findings: The study resulted in the emergence of 7 components with Eigen values more than 1 and could explain 64% of the data. The items of theses 7 components were grouped into 7 factors with common factor loadings. The items in the questionnaire with weak loadings were removed and only those questions with factor loadings above 0.5 were retained. The factors which emerged were psychological risk, reliability risk, product risk, time risk, finance risk, information risk and security risk

Key words: Perceived risk, internet, consumer behaviour, purchase decision.

JEL classification: I35, P12, R23, R18

Introduction

Usage of internet in India for commercial purpose dates back to 15th August 1995, when Videsh Sanchar Nigam Ltd (VSNL) launched the first publicly available internet service. Initially there was negative publicity and issues. It was considered to be expensive too. Very quickly in just 6 months of launch, there were 10,000 subscribers of internet. To cope up with the growing demand for the use of internet access, it was in 2004 Government of India formulated with a broadband policy and defined broadband as data connection that supports interactive services, including internet access and capable of minimum download speed of 512 kbps to an individual subscriber. The below table shows that the overall internet penetration in India is 28.77%, which is comparatively lower than other developed countries. However it is expected to grow to 60% by 2020. Asian population contributes 55% of the total world population and today, China stands in the top list in terms of internet penetration among Asian countries which is about 48% and second is India.

Table 1 Key internet subscriber statistics in India as on 30th September 2016

Statistic	Figures
Total subscribers	367.48 million
Narrowband subscribers	175.18 million
Broadband subscribers	192.30 million
Wired subscribers	21.26 million
Wireless subscribers	346.22 million
Urban subscribers	247.69 million
Rural subscribers	119.79 million
Overall net penetration	28.77 %
Urban net penetration	61.98 %
Rural net penetration	13.65 %

Source: TRIA (Retrieved 9th Jan 2017)

The latest move by Government with the campaign "Digital India", with the objective of encouraging and empowering people with digital accessibility and awareness as well as promoting digital transactions and cashless economy is accelerating more and more internet subscribers and one can expect a positive trend. Hence the marketers need to note that the internet connectivity and infrastructure is growing, facilitating the awareness and accessibility of internet. This can automatically bring in opportunities for marketers to widen their market offerings.

One of the service sectors growing at a rapid rate is e commerce. B2C commerce, which refers to Business to Consumer, is one of the types of e commerce which is being used by companies as competitive advantage. With the growing per capita income, double income families, variety of options for purchases, the value for the time and convenience has gone high. With such changes in the consumption pattern, there is a huge opportunity for companies to cater to this changing consumer base. Though the internet subscription is high as compared to other developing nations, the e commerce penetration is very low in India. India's ecommerce market by the end of 2015 was worth US $24 Billion, and is estimated to grow to 63.5 billion US $ in 2020.

1. **Perceived Risk**

The credit of exploring the concept of Perceived risk in consumer behaviour goes to Bauer (1960), who developed the perceived risk theory. Accordingly, a consumer while purchasing any

product has an apprehension and fear of uncertainty in the purchasing activity and the outcome of the purchase decision. It was studied in retail purchases (Schiffman et al., 2007). This tells the beliefs of people according to the subjective norms (Fishbein 1987) of the probability of any adverse outcome of using internet for purchases. The types of risk involved were financial risk, Performance risk, physical risk, social risk and psychological risk as identified by Cunningham (1967) and later by Jacob and Kaplan (1972). Time Risk as a dimension was then added to the previous dimensions by Peter and Tarpey (1975). It was in 1999, Tan found that the consumer perceived risk was higher when purchased using internet than brick and mortar companies.

In the current study, the perceived risk is studied in the context of consumer behaviour with respect to internet purchases. Bhatnagar et al (2000) in his research says that internet is risky medium for shopping. As internet helps in giving readily available instant solution for any kind of problem when put across, it has become the most easiest and preferred platform for seeking solutions. Hence, internet has become one of the platforms for selling, as consumers are looking for quick solutions with respect to purchasing of products and services via internet. However, the perceived risk still exists and one can say it is a bit more, as it is virtual. Here, additional risk dimensions like, information risk, product quality risk, delivery risk, social risks, source risk were added as per the literature.

2. **Literature review on Perceived risk in using internet for purchases**

The following table shows the summary of literature studies with respect to perceived risk and various dimensions of perceived risk in using internet for purchase decisions.

Table 2: Summary of literature about perceived risk dimensions

No.	Author	Year	FR	PR	TR	DR	PsR	IsR	So R	HR
1	Jacoby and Kaplan	1972	✓	✓	✓		✓		✓	
2	Peter and Tarpey	1975		✓	✓		✓		✓	
3	Aishah Arshad et al	2015	✓		✓		✓	✓		
4	Shreya R & Dr. P.T Raveendran	2016	✓	✓	✓			✓		

#	Author	Year	FR	PR	TR	SR/DR	PsR	HR	ISR	SoR
5	Forsyth & Shi	2003	✓	✓	✓			✓		
6	Bhatnagar & Ghose	2004	✓	✓						
7	Deborah J. C. Et al	2016	✓	✓	✓		✓	✓	✓	
8	Jarvenpaa and Todd	1997	✓	✓				✓	✓	
9	Dahlen	1999	✓	✓			✓			
10	Eastlick and Lotz	1999							✓	
11	Emad Y. Masoud	2013	✓	✓	✓	✓		✓	✓	
12	Zhang *et al*.	2012	✓		✓	✓	✓	✓	✓	✓
13	Kayworth and Whitten	2010						✓		
14	Almousa	2011	✓	✓	✓		✓	✓	✓	
15	Youn	2009						✓		
16	Chang and Chen	2008						✓		

Source: primary *FR-Financial Risk, PR-Product Risk, TR- Time Risk, SR/DR- Service/ Delivery Risk, PsR-Psychological Risk, HR-Health Risk, ISR-Information Security Risk, So R- Social Risk,

3. Objectives of the study

The main objective of the study was to identify the dimensions of perceived risk of the consumers while purchasing using internet.

4. Methodology

Based on the literature, a structured questionnaire was developed with certain additions and modifications taken from literature. The questionnaire contained 20 questions related to various aspects of perceived risk, while making purchases using internet. Likert's five point rating scale was adapted in questionnaire. Respondents were asked to mark their opinion towards each of the statements in the questionnaire using (5- Strongly Agree, 4-Agree, 3- Neutral, 2- Disagree, 1- Strongly disagree).

A sample of 156 respondents was considered from university student population, who were pursuing their post graduation. Purposive sampling was adopted. Hence respondents who had an experience of purchasing any product using internet at least once were considered for the study. The questionnaire had 20 questions, a minimum of 1:5 ratio of items to responses were taken. i.e.,

5 respondents to each item in the questionnaire, which was min of 100 respondents. Out of 156 responses, data from 150 completely filled questionnaires was considered for further analysis, 6 responses were omitted as it was incomplete. The sample was hence in the ratio 1:7.5, which was considered sufficient for data analysis. The study was conducted in Bangalore city, Karnataka. Exploratory factor analysis was used in the study to explore the dimensions using SPSS 20. It also helped to remove those questions which had low factor loadings as it is a dimension reduction technique.

Reliability Test:

The questionnaire was tested for reliability using Cronbach's alpha test and was found to be 0.786. The value is reasonably high and hence the questionnaire was found to be reliable for the further analysis.

Table 3: Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.789	.786	20

5. Analysis and discussion

Kaiser Mayer Olkin measure of sampling adequacy was used to check whether the sample size was adequate to further conduct factor analysis.

Kaiser, H. (1974), Cerny, C.A., & Kaiser, H.F. (1977) recommended that the KMO value above 0.9 was marvellous, between 0.8 and 0.9 was meritorious, 0.7 and 0.8 was good, 0.5 and 0.7 was mediocre and below 0.5 was miserable.

Table 4: KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.751
Bartlett's Test of Sphericity	Approx. Chi-Square	778.041
	df	190
	Sig.	.000

The KMO measure of sampling adequacy was 0. 751, which was good. Bartlett's Test of sphericity χ2 with degree of freedom 190 was 778.041 and was significant.

The results clearly indicated that there were sufficient correlations between the variables and data was suitable for Principle Component Analysis.

The variables which had communalities less than 0.5 were eliminated after the preliminary analysis and the again factor analysis was used to extract the appropriate factors. Based on the Eigen values >1 explaining 64.583% of variance, 7 factors emerged. 4 questions which did not have sufficient factor loadings were omitted from the questionnaire and the 7 factors were grouped based on the 16 questions retained in the questionnaire with high factors loadings.

Table 4: Output of Total variance explained extracted from SPSS 20.

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	4.806	24.028	24.028	4.806	24.028	24.028	2.769	13.847	13.847
2	1.807	9.036	33.064	1.807	9.036	33.064	1.839	9.197	23.044
3	1.551	7.754	40.818	1.551	7.754	40.818	1.797	8.984	32.028
4	1.432	7.160	47.978	1.432	7.160	47.978	1.782	8.911	40.939
5	1.228	6.139	54.118	1.228	6.139	54.118	1.742	8.710	49.649
6	1.074	5.371	59.488	1.074	5.371	59.488	1.537	7.686	57.334
7	1.019	5.095	64.583	1.019	5.095	64.583	1.450	7.249	64.583
8	.975	4.874	69.458						
9	.764	3.822	73.280						
10	.707	3.533	76.812						
11	.692	3.460	80.272						
12	.643	3.214	83.486						
13	.569	2.845	86.331						
14	.500	2.499	88.830						
15	.460	2.300	91.130						
16	.432	2.159	93.288						

17	.407	2.033	95.322						
18	.370	1.849	97.170						
19	.309	1.543	98.714						
20	.257	1.286	100.000						

Extraction Method: Principal Component Analysis.

Table 5: Factors emerged from the items in the questionnaire

Statements	Factor loadings						
	1	**2**	**3**	**4**	**5**	**6**	**7**
Creates mental stress, till product is delivered to our destiny	0.73						
I feel frustrated using internet for any purchase decisions.	0.7						
I feel it is very risky to make purchase decisions using internet	0.67						
I might not receive the product I ordered		0.83					
The information provided in the internet may not be from reliable source		0.63					
One may have to wait till product is delivered.			0.80				
There is no certainty in delivery of products within the prescribed time.			0.69				
I think using internet for purchasing takes lot of time			0.63				
Using internet we may have to pay extra amount (Like delivery charge)				0.74			
There is hidden cost involved while purchasing using internet				0.80			
There is a possibility of getting damaged product when purchased in internet					0.64		
There is a fear that I may get second hand products					0.52		
The product may not resemble as shown virtually in internet					0.61		
The reviews posted by the people may not be genuine						0.51	
The comparison of products made on internet may not be true						0.73	
There is a fear of our personal/financial details to be misused							0.75
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization							
a. Rotation converged in 10 iterations.							

The questions which loaded high on first factor related to the "psychological risk" undergone by the consumers during their purchasing activity using internet. This risk arises because there is third party involved in the selling process and there is less of human interaction and hence there is less confidence and trust as the outcome is uncertain. The second factor emerged was "reliability risk", which arises because there is no surety of getting the products ordered and also the reliability of the source of information given by the third party over the internet. The third factor emerged was "time risk". Three questions accounted for this factor and this risk was because consumers go for buying the product over the internet at the opportunity cost of getting the same product at a lesser time when compared to that of the traditional method. The next factor which emerged was "finance risk" of paying extra for processing, delivery, transportation and other hidden charges. The fifth factor emerged was "product risk" which was due to the fact that there may be chances that there may be damaged product or second hand products when received. The sixth factor emerged was "information risk", which is another important factor arising due to the unavailability of the proof for the source of the information in the internet, especially the reviews written. The sole item which contributed for the emergence of the last factor was "security risk" of the personal or financial details being misused by the third party. Factor 1 accounted for more variance compared to other factors after rotation i.e., 13.847, followed by (9.197, 8.984, 8.911, 8.710, 7.686, and 7.249 respectively.)

Conclusions and Marketing implications:

The concept of risk and returns applies to every aspect of life and hence the consumers too. Consumers will be ready to take the risk provided they get the maximum benefit out of it and are completely satisfied with the marketers' products and service offerings. Hence the e marketers' must ensure that they minimize each of the risk and improve the efficiency and assurance so that the marketing efforts would reach the consumers and can get a plausible response and business. One of the factors which affect the buying intension over the internet is perceived risk and it is the role of the marketer to consistently offer the consumers and reduce the dissonance of risk so that the consumers will ensure to continue to purchase through e marketers.

Limitations

One of the main limitations of the study was that the sample was selected from the university students, who had experience of purchasing products using internet at least once and hence the study cannot be generalized to all consumers. The study was restricted to Bangalore city. The risk factor differed for different product categories, which was not considered in the study, and was another limitation.

Scope for further studies:

The study used EFA (Exploratory Factor Analysis) to explore and identify the factors of "perceived risk" among the consumers who made product purchases using internet. Further the factors emerged can be confirmed by CFA (Confirmatory Factor Analysis) using additional construct of Behavioural intension which is a part of TPB by Ajzen (1985). The relation between these factors can be studied using a measurement model and path model. Further, the study can be conducted in few selected product categories and how similar or different is the risk for different product categories.

Table 6: Definitions of the factors emerged:

Factor	Definition	Literature Reference
Perceived Risk	Perceived risk is defined as the potential for loss in pursuing a desired outcome while engaged in online shopping; it is a combination of uncertainty with the possibility of serious outcome	(Ko *et al.*, 2010)
Psychological Risk	Potential loss of self-esteem (ego loss) from frustration at not achieving a buying goal	Cunningham [1967],
Reliability Risk	Level of website credibility and reliability.	McCorkle [1990], Cases [2001]
Time Risk	Possibility of time wasted researching information and purchasing when the purchase turn out bad	Cunningham [1967],
Finance Risk	Potential loss of current cost as well as additional charges in the future (e.g., possibility that the product may need to be repaired,	Jarvenpaa & Todd [1996-1997]

	delivery risk).	
Information Risk	Level of website credibility and reliability.	McCorkle [1990], Cases[2001]
Product Risk	Potential loss incurred when a product/service does not perform as expected.	Jarvenpaa and Todd [1996–1997],
Security Risk	Personal information will be collected without their consent when giving one's credit card number online or use of cookies and web bugs.	Jarvenpaa and Todd [1996–1997],

References:

1.   Ajzen, I(1991) "The theory of planned behavior", Organisational Behavior and Human Decision Process, vol.50, pp.179-211

2.   Bhatnagar, S. Misra & H. R. Rao. On Risk, Convenience, and Internet Shopping Behavior. Communications of the ACM. 2000, 43(11), 98-105.

3.   Cerny, C.A., & Kaiser, H.F. (1977). A study of a measure of sampling adequacy for factor-analytic correlation matrices. Multivariate Behavioural Research, 12(1), 43-47.

4.   Chang, M. K., W. Cheung, and V. S. Lai, "Literature Derived Reference Models for the Adoption of Online Shopping", *Information & Management*, Vol. 42, No. 4: 543-559, 2005.

5.   Forsyth, S. M., & Shi, B. (2003). consumer patronage and Risk perception in internet shopping., *Journal of Business Research*, Vol. 56: 867-875, 2003.

6.   J. Jacoby & L. B. Kaplan. The components of perceived risk. Proceedings of the annual conference of the association for consumer research.1972, pp. 382-393.

7.   Kaiser, H. 1974. An index of factor simplicity. Psychometrika 39: 31–36.

8.   http://www.internetworldstats.com/stats.htm

9.   "The Indian Telecom Services Performance Indicators" (PDF). TRAI. Retrieved 9 January 2017.

10. J. P. Peter & L. X. Tarpey. A Comparative Analysis of Three Consumer Decisions Strategies. Journal of Consumer Research. 1975, 2(1), 29-37.

11. L. Schiffman & L. L. Kanuk. Consumer Behavior, Eighth Edition. Pearson Education. 2008.

12. Ezgi Akar, V. Aslihan Nasir. A review of Literature on consumers' online purchase intensions. Journal of Customer Behaviour, 2015, ISSN 1477-6421.

13. Dr. Suresh A. M. and Shashikala R, International Conference on Information and Financial Engineering, IPEDR vol.12 (2011) IACSIT Press, Singapore.

14. Sreya R, Dr. P. T. Raveendran, dimensions of perceived risk in online shopping – a factor analysis approach, *BVIMSR's Journal of Management Research, Vol. 8 Issue - 1 : April : 2016*

15. Chen, Y.H. and Barnes, S., 2007. Initial trust and online buyer behaviour. *Industrial management & data systems*, *107*(1),pp. 21-36.

16. Aishah Arshad et al, The Impact of Perceived Risk on Online Buying Behavior, International Journal of New Technology and Research (IJNTR) ISSN:2454-4116, Volume-1, Issue-8, December 2015 Pages 13-18

17. Zheng, L., M. Favier, P. Huang,, and F. Coat, "Chinese Consumer Perceived Risk and Risk Relievers in E-shopping for Clothing," *Journal of Electronic Commerce Research*, Vol. 13, No. 3: 255-274, 2012

18. Eastlick, M. (1993). Predictors of videotext adoption. Journal of Direct Marketing, 7, 66-74. http://dx.doi.org/10.1002/dir.4000070309

19. Zhang, P., and von Dran, G. M. Expectations and rankings of website quality features: results of two studies on user perceptions, Proceedings of the 34th Annual Hawaii International Conference on System Sciences (HICSS34), January 2001

20. Deborah J. C. Brosdahl, Moudi Almousa, Risk perception and internet shopping: comparing United States and Saudi Arabian consumers, Journal of Management and Marketing Research.

21. Jarvenpaa, S.L. and P.A. Todd, " Consumer Reactions to Electronic Shopping on the World Wide Web," Journal of Electronic Commerce, Vol. 1, No. 2: 59-88, 1997

22.   Dahlén, M., & Nordfält, J. (2004). Interference effects of a purchase on subsequent advertising within the category. Journal of Current Issues and Research in Advertising, 26 (1), 1-8. http://dx.doi.org/10.1080/10641734.2004.10505152

23.   Almousa, M. (2011), "Perceived Risk in Apparel Online Shopping: A Multi Dimensional Perspective", Canadian Social Science,(2), 23-31.

24.   Youn, S. (2009), "Determinants of online privacy concern and its influence on privacy protection behaviors among young adolescents", Journal of Consumer Affairs (3), 389 – 418

25.   Kayworth, T. and Whitten, D. (2010), "Effective information security requires a balance of social and technology factors", MIS Q. Ex(3): 163 – 175

26.   Emad Y. Masoud , The Effect of Perceived Risk on Online Shopping in Jordan, European Journal of Business and Management, ISSN 2222-1905 (Paper) ISSN 2222-2839 (Online) Vol.5, No.6, 2013

27.   McCorkle, D. E., "The role of perceived risk in mail order catalog shopping," *Journal of Direct Marketing,* Vol. 4, No. 4: 26–35, 1990.

28.   Cases, A.-S., "Perceived risk and risk-reduction strategies in Internet shopping," *The International Review of Retail, Distribution and Consumer Research,* Vol. 12, No. 4: 375-394, 2001.

29.   Cunningham, S. M., "The major dimensions of perceived risk," in Cox, D.F. (Ed), *Risk taking and information handling in consumer behavior*, Graduate School of Business Administration, *Harvard University Pres*s, Boston, MA: 82-108, 1967.

30.   Lili Zheng et al, CHINESE CONSUMER PERCEIVED RISK AND RISK RELIEVERS IN E-SHOPPING FOR CLOTHING, Journal of Electronic Commerce Research, VOL 13, NO 3, 2012

31.   Sara Selvaraj et al, A STUDY ABOUT THE IMPACT OF PERCEIVED RISK ON ONLINE SHOPPING AMONG THE WOMEN EMPLOYEES IN CHENNAI International Journal of Sales & Marketing Management Research and Development (IJSMMRD); ISSN(P): 2249-6939; ISSN(E): 2249-8044 Vol. 4, Issue 4, Aug 2014, 41-48

32.   A_. Herrero Crespo, I.A. Rodrı´guez Del Bosque Rodrı´guez, Explaining B2C e-commerce acceptance: An integrative model based on the framework by Gatignon and Robertson, Interacting with Computers 20 (2008) 212–224

33.   Kuan-Pin Chiang, Ruby Roy Dholakia, Factors Driving Consumer Intention to Shop Online: An Empirical Investigation, JOURNAL OF CONSUMER PSYCHOLOGY, *13*(1&2), 177–183

34.   Bo Dai, Sandra Forsythe, Wi-Suk Kwon, THE IMPACT OF ONLINE SHOPPING EXPERIENCE ON RISK PERCEPTIONS AND ONLINE PURCHASE INTENTIONS: DOES PRODUCT CATEGORY MATTER? Journal of Electronic Commerce Research, VOL 15, NO 1, 2014

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