UNDERSTANDING PERCEIVED RISK: A CASE STUDY OF GREEN ELECTRONIC CONSUMER PRODUCTS

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ABSTRACT

Perceived risk is defined as consumers' perception of the uncertainty and adverse consequences of engaging in a purchase activity. Since the risk is in consumers' mind, it is perceived and not necessarily real. In this research, we have tried to understand the risk as perceived by consumers while purchasing green electronic products. By uncovering the five dimensions of risks (Financial, Functional, Physical, Psycho-social, and Time Risk) that may be holding consumers back to purchase green electronic products, this research does give some indication on how a company engaged in selling green electronic consumer products (GECPs) should pay special attention in minimizing the consumers'level of uncertainty regarding the outcome of a purchase decision. The results of this research can be used by manufacturers and marketers of GECPs to negate common sales objections of consumers and to apply appropriate strategies to minimize and manage perceived risk.

Key Words: Perceived Risk, Risk Dimensions, Green Electronic Consumer Products (GECPs)

INTRODUCTION

Bauer (1960) was thefirst to introduce the concept of 'perceived risk'to consumer behavior research. It is defined as consumers' perception of uncertainty and adverse consequences of engaging in a purchase activity and istreated as the antecedent which negatively affects consumers' purchase decisions.When consumers have a high perceived risk, the likelihood to purchase a particular product becomes low. Perceived risk has been studied in the past and has most oftenbeen conceptualized as a multi-dimensionalconstruct *(refer table 1)*.

Table 1 : Perceived Risk Dimensions as Investigated in Previous Studies

Authors Year	**Fabien 2012**	**Kang 2013**	**Carroll 2014**	**Chan 2014**	**Laczko 2014**	**Gnawali 2015**
Purchase Situation	Green Cleaning Products	Green Apparel	Sports Event	Green Electronics	Online Shopping	Used Motorbike
Dimensions						
Financial	√	√	√	√	√	√
Functional	√	√	√	√	√	√
Physical	√	?	√	√	√	√
Psychological	√	√	√	?	√	√
Social	√	√		√	√	√
Time	?	?	√	?	√	√

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Despite different purchase situations, the perceived risk can be sub-divided into five distinct dimensions i.e. 'Financial Risk, Functional Risk, Physical Risk, Psycho-social Risk, and Time Risk'.Psychological and social risk dimensions have been found to be fused and treated as one in some literature *(e.g. Carroll, et al. 2014).* On a conceptual level, these five dimensions can be considered as functionally independent of each other. A brief definition of each dimension is given in *table 2*.

Table 2 : Dimension Table that Uniquely Defines Each Dimension

Dimensions	Definitions
Financial	Financial risk is associated with possible monetary loss to consumers with the initial purchase price of a product and monetary loss due to fraud.
Functional	Functional risk is associated with the poor performance of a productwhere consumers feel that it may not perform asdesigned or may not be of desired quality.
Physical	Physical risk refers to the possible harm or injury that consumers can experience while using a product.
Psycho-social	Psycho-social risk is a combi-nation of psychological and social risk,combining possible loss of self-image or social embarra-ssment resulting from purchase of a product.
Time	Time risk refers to inconvenience and loss of time while searching for a product.

Perceived risk has garnered attention in different fields of study;however, it has not been fully investigated within the context of green electronic consumer products (GECPs). The amount of empirical research focusing perceived risk within the context of GECPs can be considered as rather limited, with a few exceptions, like contribution of *Chan and Chu (2014)*. GECPswhich are also known as eco-friendly or environment friendly electronic productscan be characterized as electronic products (e.g. Refrigerators, Air-conditioners, LED TVs etc.)that do not harm or pollute the environment, save energy and contain recycled material and non-toxic chemicals. The concept of GECPsis relatively new and its adoption, purchase and consumption by consumers are necessary for conservation of natural resources and sustainable development.As these issues are important, understanding perceived riskthat affects the purchase decisions for GECPs is very important. Here, it is worth pointing out that, conceptually, we need to recognize those risk dimensions that are perceived to be as 'high risk' dimensions. The dimensions that are perceived to be as 'high risk' are the principal dimensions that affect the purchase of a product. Knowledge about these principal dimensions provides basic foundation for the formulation of appropriate strategies to minimize and manage consumers' perceived risk.

In view of thebackground, research gap in this areaand importance of the problem mentioned above, two objectives were set for this research; first, *to identify perceived risk dimensions* (through review of literature) andsecond, *to ascertain principal perceived risk dimensionsthat consumers associate with GECPs* (through consumer survey).

METHODOLOGY

Sample: A survey on random respondents who accepted to participate in this research was administrated within the two cities; New Delhi and Varanasi. An overall sample of '150'respondents participated in the survey, approximately evenly divided between the two cities. The demographic profile of respondents is

Table 3 : Demographic Profile of Respondents (n=150)

Age	**Mean age: '35.73 Yrs.'**	
Gender	Male: '115' (76.7%)	Female: '35' (23.3%)
Annual Household Income	Mean income: Approx. 'Rs. 10 00000'	
Location (Sample Size)	New Delhi: '80' (53.3%)	Varanasi: '70' (46.7%)

given in *table 3*.

Measures: The Questionnaire was designed in two sections. The first section *(Section-1)* of the questionnaire measured perceived risk of respondents regarding purchase of GECPs. The scale items to measure perceived risk was adapted from the studies of*Boivin et al. (2011), Carroll et al. (2014), and Dehghanan and Bakhshandeh (2014).* The scale was a five-point Likert scale (ranging from; 1-Strongly Disagree to 5-Strongly Agree) and had a total of '17' items grouped under '5' distinct dimensions. The second section *(Section-2)* of the questionnaire was on respondents' demographics (gender, age, income etc.) and extent of usages of GECPs. This section also had a filter question to exclude such respondents from this research who were not aware of the GECPs. Reliability of perceived risk measurement scale was primarily analyzed using the Cronbach's alpha coefficient, which was found to be '.859'.According to the quick rule (á>.70; as suggested by *Nunnally, 1978*)this value indicates that the scale is reliable.

EMPIRICAL ANALYSIS

Extent of Usage: The data related to the extent of usage of GECPs indicated that'73.3%'(n=110) of the respondents used GECPs in their homes. Out of this '110', '40.9%'of the respondents reported the use of GECPs in the product form ofRefrigerators followed by Air-Conditioners (36.3%) and LED TVs(18.1%). Electronic products like Induction Cooker etc. were also mentioned by the respondents. The most prominent brand, as reported by respondents was LG, followed by Samsung, Whirlpool and Voltas.

Principal Perceived Risk Dimensions : To ascertain principal perceived risk dimensions, mean scores of items involved in the respective dimensions were calculated. It is important point to note that calculatedmean scores for each of the dimensions will fall within the range of '1' to '5' (scale range is min-1, max-5; mid-point-3). Since, all the items in the scale were positively framed (assuming all the five dimensions to be perceived as risk), deviation from the mid-point value (3) is indicative of emerging agreement (High Risk; mean>3) or emerging disagreement (Low Risk; mean<3). Out of the five perceived risk dimensions, only, 'Financial Risk' showed a positive deviation i.e. 'High Risk' (M=3.37, SD=.732), rest of the four dimensions 'Functional Risk' (M=2.40, SD=.654), 'Physical Risk' (M=2.26, SD=.631), 'Psycho-social Risk' (M=2.06, SD=.700) and 'Time Risk' (M=2.40, SD=.659) showed a negative deviation i.e. 'Low Risk'*(see fig 1)*.Furthermore, a series of one sample *t-tests* were conducted to evaluate whether mean scores of each perceived risk dimensionswere significantly different from '3' (mid-point on the perceived risk scale). The level ofsignificance chosen for the test was 'á=0.05'. The results for all the five dimensions were found to be significant (p<0.05)*(refer table 4)*.

Fig 1. Mean Scores of Perceived Risk Dimensions

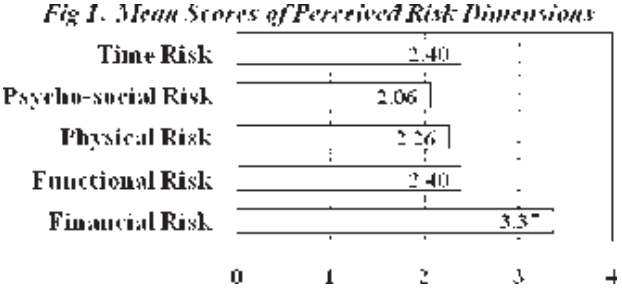

Table 4 : Results of One Sample t-Test

Perceived RiskDimensions	No. of Items (17)	Mean	t-value	p-value	Results*
Financial	3	3.37	5.65	.000	Sig.
Functional	3	2.40	-10.03	.000	Sig.
Physical	3	2.26	-12.72	.000	Sig.
Psycho-social	4	2.06	-14.58	.000	Sig.
Time	4	2.40	-9.96	.000	Sig.

***Statistical significance: using a 95% confidence level (p<.05)**

DISCUSSION AND IMPLICATIONS

The literature review yielded five distinct perceived risk dimensions (Financial Risk, Functional Risk, Physical Risk, Psycho-social Risk and Time Risk). Looking at the mean and one sample *t-test* results, it is quite obvious that consumers, by and large, did not report much risk with the purchase of GECPs. It is surprising that out of the five perceived risk dimensions, consumers displayed low level of risk on four of the dimensions viz. functional risk, physical risk, psycho-social risk and time risk. This research found only one principal perceived risk dimension i.e. financial risk to be salient (i.e. high risk dimension) in the context of GECPs. Consumers perceived financial risk as the highest among all other perceived risk dimensions. If we decipher consumers' responses, it gives an indication that consumers are afraid of getting 'green-washed'. They are of the opinion that the GECPs are overpriced as compared to conventional electronic products. They also feel that GECPs are costly relative to savings or benefits they offer. Here, the reason for such responses may owe to green qualities of GECPs and their aid towards environmental sustainability being ignored by consumers. The pricing structure seem to have a significant impact on GECPs purchase. Most consumers denied lack of quality and performance, presence of physical risks, loss of self-image and social embarrassment, andlow availability and purchase complexity in case of GECPs.

The perceived risk framework calls for strategies which aim to reduce perceived risk. In response to the specific results of this research, if manufacturers and marketers desire toincreaseadoption, purchase and consumption of GECPs, they should attemptfollowing strategies*(refer table 5)*.

Table 5 : Strategies to Reduce Perceived Risk in Case of GECPs

1]	Diffuse and highlight information about those key attributes of GECPs where consumers understand the financial returns on their investment (like money saved due to energy efficiency)
2]	Educate consumers about environmental performance of GECPs.
3]	Don't sell on premium prices, place acceptable price tag on GECPs. Consider manufacturing GECPs as social responsibility rather than a marketing opportunity.
4]	Offer more benefits (by adding more features, improved money-back guarantee schemes etc.)

There are certain limitations of this research. One limitation can be consumers' lack of understanding of what is meant by GECPs. There are also limitations in terms of sample size, location and validation of scale. The limitations of this research warrant future research and refinements bychoosing representativeand large samples to reach generalizable results so that sound recommendations to the manufacturers and marketers could be made.

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