TOWARDS UNDERSTANDING RISK PERCEPTIONS OF ONLINE CONSUMERS

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Abstract

Although electronic commerce (e-commerce) is expanding, online sales account for only a small percentage of the total retail sales. Perceived risk is one of the factors affecting online consumers' purchasing intentions. Reduction of online consumers' risk perceptions is critical in order to attract new customers and retain existing ones. Therefore, understanding of online consumers' risk perceptions and attitudes is desperately needed. This research initiative will utilize the psychometric paradigm to study online consumers' risk perceptions and reveal a "cognitive map" of their attitudes and perceptions to online risks that will aid researchers to understand and predict consumers' responses to risks posed by online hazards and activities. The goal of this research is to uncover a cognitive map of people's attitudes and perceptions related to online risks.

Keywords: Risk perceptions, cognitive map, online shopping risk

Introduction

Although electronic commerce (e-commerce) is expanding, online sales account for only a small percentage of the total retail sales. International Council of Shopping Centers forecasts that online sales in United States will account for only 5.3% of retail sales by 2010 (Su, 2003). Forester Research predicts that online retail sales will account for 8% of total retail sales in United States by 2007 (Kim, Lee, K., Lee, D., Ferrin, and Rao, 2003). Perceived risk is one of the factors affecting online consumers' purchasing intentions. In fact, Bhatnagar, Misra, and Rao (2000), Featherman and Wells (2004), and Kanungo and Jain (2004) noted the negative relationship between perceived risk and purchasing intentions. Chang (2003) saw the perceived risk of engaging in an online transaction as a major barrier to the online shopping adoption. Corbitt and Van Canh (2005) and Miyazaki and Fernandez (2001) claimed that consumer risk perceptions block the growth of e-commerce. Corbitt and Van Canh stated that more than 50% of online users do not purchase online due to high perceived risk. Reduction of online consumers' risk perceptions is critical in order to attract new customers and retain existing ones (Jarvenpaa and Tractinsky, 1999; Verhagen, Tan, and Meents, 2004). In fact, Verhagen, et al. (2004) reported that perceptions of trust and risk account for 49% of online purchasing decisions. Therefore, an understanding of online consumers' risk perceptions and attitudes is desperately needed.

This research initiative will study online consumers' risk perceptions and will reveal a "cognitive map" of their attitudes and perceptions to online risks. This will be accomplished by composing a master list of online hazards and activities, measuring current level of perceived risk, desired level of risk, and desired level of regulation associated with them, composing a master list of online risk characteristics, determining online risk dimensions, and revealing a position of each online hazard or activity in the factor space diagram. A factor space diagram captures a graphical representation of the results of the factor analysis. This study is still in progress and results are not available yet.

Research Questions to be Investigated

This research will address the following research question: How do consumers perceive various online risks? This research question will be answered by obtaining responses to four other research sub-questions, as follows:

1. What dimensions or a combination of dimensions affect people's online risk perceptions?
2. What is the current level of risk for each online hazard or activity?

3. What is the desired level of risk for each hazard or activity?
4. What is the desired level of regulation for each hazard or activity?

The first research sub-question will be answered after a factor analysis is conducted on the study participants' ratings of each online hazard and activity, using various risk characteristics scales. The results of the factor analysis will identify online risk dimensions. The second research sub-question will be answered after means are computed on the study participants' ratings of various online hazards and activities in terms of their current level of risk to consumers' well-being, focusing on financial and moral losses. The third research sub-question will be answered after means are computed on risk adjustment factors for each hazard and activity specified by the study participants. Finally, the fourth research sub-question will be answered after means are computed on the desired level of regulation for each hazard and activity provided by the study participants.

Brief Review of the Literature

Limayem and Khalifa (2000) emphasized that an online shopping is completely different from a traditional shopping. Therefore, it is vital to understand online consumers' behavior. In addition, factors affecting purchasing decision need to be carefully studied. Featherman and Wells (2004) noted that understanding of perceived risk is the key to success for electronic commerce.

The psychometric approach was used in numerous risk perceptions studies such as studies conducted by Fischhoff, Slovic, and Lichtenstein (1978), Slovic, Fishhoff, and Lichtenstein (1980), Von Winterfeldt, John, and Borcherding (1981), Slovic, et al. (1982, 1985), Slovic (1987), Sparks and Shepherd (1994), McDaniels, Axelrod, and Slovic (1995), Fife-Schaw and Rowe (1996), Towsend, Clarke, and Travis (2004), Siegrist, Keller, and Kiers (2005), and Willis, DeKay, Fischhoff, and Morgan (2005). These studies suggested that the psychometric paradigm is an effective approach to studying perceived risk. This research will also utilize the psychometric approach to study risk perceptions of online consumers.

Kraus and Slovic (1988) stated that the level of perceived risk can be predicted from the location of the corresponding hazard in the factor space. This research will attempt to construct a factor space diagram for online hazards and activities as a result of the factor analysis.

The majority of existing research initiatives in the online consumer behavior domain studied perceived risk as part of other constructs, effects of other elements on perceived risk, or effects of perceived risk on other elements and activities. In fact, Cheung and Lee (2000), Corritore, et al. (2005), and Jarvenpaa and Tractinsky (1999) studied perceived risk as part of a trust construct. Featherman and Pavlou (2002) and Kanungo and Jain (2004) studied perceived risk in the context of a technology acceptance model (TAM). Ha (2002) studied the effect of consumer information processing on consumers' perception of risks during the pre-purchase stage. Miyazaki and Fernandez (2001) studied perceived risk related to privacy and security and its effect on the shopping activity. This research, however, will study perceived risk per se.

Some studies were focusing on perceived risk per se, such as studies conducted by Fischhoff, et al. (1978), Slovic, et al. (1980, 1982, 1985), Von Winterfeldt, et al. (1981), Slovic (1987), Sparks and Shepherd (1994), McDaniels, et al. (1995), Fife-Schaw and Rowe (1996), Marris, Langford, Saunderson, and O'Riordan, et al. (1997), Lim (2002), Vaidyanathan and Devaraj (2003), Towsend, et al. (2004), Siegrist, et al. (2005), Willis, et al. (2005), and Nyshadham and Ugbaja (2006). Lim (2002) identified sources of perceived risk in a B2C environment. However, the author incorporated existing dimensions widely discussed in the past research initiatives into their study. This research offers a new perspective on online risk perceptions. In addition, the scope of Lim's analysis of consumer reactions to various online activities is limited. Nyshadham and Ugbaja (2006) utilized psychometric techniques to explore consumers' organization of novel online risks in memory. The authors assumed that online risk dimensions are unknown and judged online risks based on offline risk perceptions. This research also assumes that online risk dimensions are unknown, however, will take a different approach by studying online risk perceptions without associating them with offline risk perceptions. Fischhoff, et al. (1978), Slovic, et al. (1980, 1982, 1985), Von Winterfeldt, et al. (1981), Slovic (1987), Sparks and Shepherd (1994), McDaniels, et al. (1995), Fife-Schaw and Rowe (1996), Marris, et al. (1997), Towsend, et al. (2004), Siegrist, et al. (2005), and Willis, et al. (2005) conducted risk perception studies related to offline risks, that are very different from online risks. This research will study perceptions of online risks. Vaidyanathan and Devaraj (2003) examined risks in an online B2B environment. However, a B2B environment is very different from online shopping (B2C or C2C environments). Hence, risks in a B2B environment are different from risks in an online shopping environment. This research investigates risk perceptions in the context of an online shopping environment.

Approach

The proposed methodology for this research is adopted from the methodology originally used in research studies conducted by Fischhoff, et al. (1978), Slovic, et al. (1980, 1985) and Slovic (1987). Rohrmann (1999) emphasized that this approach is popular in a risk perception research worldwide. There are eight major phases in the proposed methodology:

1- Identification of online hazards and activities
2- Ratings and determination of the current level of risk for each online hazard and activity
3- Ratings and determination of the adjustment factor for each online hazard and activity
4- Ratings and determination of the desired level of regulation for each online hazard and activity
5- Definition of risk characteristics and scales
6- Ratings of online hazards and activities using scales of risk characteristics
7- Identification of e-commerce-related risk dimensions
8- Construction of the factor space diagram

Identification of Online Hazards and Activities

Slovic et al. (1985) defined hazards as "threats to humans and what they value. In order to identify online hazards and activities, online shopping experience needs to be analyzed to extract activities that online shoppers participate in. An online shopping experience is divided into three phases: pre-purchase, purchase, and post-purchase. The pre-purchase phase includes product search, comparison, selection, and an understanding of and an agreement on terms such as price, delivery options, delivery times, etc. The purchase phase includes the placement of an order, payment authorization, and the receipt of a product. Finally, the post-purchase phase includes future interactions with customer service for previously purchased items such as returns, exchanges, order cancellations, etc. (Nemetz, 2000). In addition, the post-purchase phase will include social events or events that impact consumers psychologically.

Ratings and Determination of the Current Level of Risk for Each Online Hazard and Activity

Fears of an identity theft and/or loss of money are considered to be ones of the most significant threats of online shopping (Business Wire, 2007). Consumers who lost money or were victims of an identity theft encounter both, financial and moral losses. Therefore, participants will be instructed to consider risk to their well-being focusing on financial and moral losses as a consequence of each previously identified online hazard or activity when rating their risk level. In addition, the participants will be instructed to select the least risky hazard or activity and assign a rating of 10 to it. Risk ratings for remaining hazards or activities should be adjusted accordingly. Fischhoff et al. (1978) and Slovic et al. (1980, 1985) utilized the same approach. A survey questionnaire will be used to accomplish this task. The collected data will be analyzed by calculating geometric means. Geometric means will be used instead of arithmetic means due to the possible skewness of arithmetic means caused by sporadic extreme values. Geometric means were used in similar studies such as ones conducted by Fischoff et al. (1978), Slovic et al. (1980, 1985), Von Winterfeldt et al. (1981), etc. Extensive research conducted by the Principal Investigator reveled that geometric means are widely used in the finance, investment, and risk-related research domains.

Ratings and Determination of the Adjustment Factor for Each Online Hazard and Activity

In order to determine acceptable levels of risk, study participants will specify risk adjustment ratings. The participants will specify the number of times each hazard or activity could be riskier, safer, or whether its current risk level is acceptable without any adjustments in its risk level. Fischhoff et al. (1978) and Slovic et al. (1985) used the same approach. Risk adjustment ratings will be analyzed based on calculations of means.

Ratings and Determination of the Desired Level of Regulation for Each Online Hazard and Activity

The desired level of risk regulation will be determined by asking participants to specify it using a scale from 0 to 5 ranging from "does not need to be regulated" to "needs to be regulated" for each hazard or activity. Slovic et al. (1985) used a similar approach. The collected data will be analyzed by calculating arithmetic means.

Definition of Risk Characteristics and Scales to Measure Them

Risk characteristics relevant to online risks will be extracted from existing related literature. A 5-point or a 7-point Likert scale is the most commonly used one in similar studies. Therefore, it is appropriate to use a 7-point Likert scale for each risk characteristic in this study

Ratings of Online Hazards and Activities Using Scales of Risk Characteristics

Study participants will be asked to rate the identified online hazards and activities using the identified scales of risk characteristics, an approach that Fischhoff et al. (1978) and Slovic et al. (1980, 1985) used. A survey questionnaire will be used to accomplish this task.

Identification of E-Commerce-Related Risk Dimensions

Slovic et al. (1982), Slovic (1987), Slovic and Weber (2002) emphasized that psychometric techniques are well suited for identification of similarities and differences in risk perceptions and attitudes among different groups of people. Under this approach, participants' quantitative judgments about risk levels of various hazards are collected and then related to judgments regarding risk characteristics such as voluntariness, dread, knowledge, controllability, etc. Nyshadham and Ugbaja (2006) used a psychometric paradigm to investigate organization of novel online risks on consumers' memory. Corbitt and Van Canh (2005) used factor analysis to identify factors affecting consumer perceived risk. Cheung and Lee (2000), and Slovic et al. (1985) used factor analysis for related studies. Therefore, factor analysis will be used in this dissertation to identify risk dimensions (factors). The collected survey data will be fed into SPSS software for factor analysis processing.

Construction of the Factor Space Diagram

Based on the risk dimensions identified by the factor analysis, a factor space diagram will be constructed. This diagram will show a position of each online hazard or activity in the factor space.

Description of Samples to be Used in the Study

There will be two samples in this study. The first sample will be a small convenience sample that will consist of approximately 25 students and will be used for a pilot test of the survey. One of the objectives of the pilot test is to test the instrument for comprehension of instructions and terminology. Another objective is to measure reliability and establish validity of the instrument. The second sample will be used for the main survey to collect research data and will consist of 100 randomly selected online U.S. consumers 18 years old and older who purchased at least one item online within the last 6 months.

Reliability and Validity

Reliability of a measure will be established by testing for internal consistency. This test relies on a computation of Cronbach's Alpha. Validity will be established by assessing the content validity. A panel consisting of three experts will be used to establish the content validity.

The Contribution this Study Will Make to the Field

This research will contribute to the field of study in a number of ways. First of all, this research will produce a cognitive map of people's attitudes and perceptions to e-commerce-related risks. The proposed research study will help researchers to understand and predict people's reactions to risks posed by online hazards and activities. Second, this study will attempt to transfer a proven and popular methodology of risk perception research, the psychometric paradigm, to a new domain, e-commerce. Third, although this study will raise interesting implications for researchers, it will also be relevant for the management teams of e-commerce firms as well as practitioners such as Web designers and developers. The management teams may use the results of this study to modify business processes and strategies that will result in reduction of consumers' risks. Similarly, Web developers and designers

may use the results of this study to design sites in such a way that minimizes consumers' risks. Finally, the results of this study will be relevant to policy makers who will be able to make more effective regulations concerning online hazards or activities by adjusting their current levels of regulations and taking into consideration consumers' desired levels of regulations.

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