

An Exploratory Study on Catalog Affiliation as a Risk Reducer Signal

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The author presents findings from an exploratory study that provides insight on the effects of print- and online-catalogs on perceived risk and the role of catalog affiliation as a risk reducer signal. Key findings indicate an interaction effect and show that shoppers using online catalogs, as compared to those using print catalogs, rely more on catalog affiliation. Although affiliation serves as risk reducer in both print- and online-catalog shopping, it is stronger online because shoppers have fewer other cues. In this environment, catalogers should consider increasing investments in research to spot other signals and in advertising to boost awareness.

INTRODUCTION

Previous direct marketing studies on in-home and in-office consumer catalog shopping for non-digital products have focused on print catalogs and actual sales. Online catalogs and perceived risk (i.e., a consumer's perceptions of uncertainty, along with associated consequences, in contemplating a specific product purchase using a particular mode of catalog) have received little or no consideration. Further, there has not been any catalog study with an explanation of the role of any signal. Answering basic and new up-and-coming questions about (1) perceived risk (e.g., do online catalog shoppers face new or different types of risk? does risk increase as online shopping experiences increase as suggested by some researchers? does risk at the product level transfer to the shopping medium as suggested by other researchers?) and (2) the role of signals as reducers of risk (e.g., what are the conditions under which signals can benefit catalogers? which signals are the most easily recognized? in shopping through different catalog modes, do consumers show differential reliance on signals) is essential in designing and executing programs that will address the needs of target consumers.

The current research extends studies on perceived risk and signaling theory, and examines impact of the most conspicuous catalog signal, i.e., affiliation with local brick-and-mortar stores. For shoppers, the idea of catalog affiliation can give an indication of past investment along with likelihood for future investment. The following four sections first provides a review of perceived risk and signaling theory literatures and advances hypotheses, second presents preliminary issues regarding context and pretests, third describes the main study and reports its findings; and finally, fourth concludes with theoretical and managerial implications, limitations and directions for future research.

BACKGROUND AND HYPOTHESES

Perceived Risk

A large amount of research attention has been devoted to the study of perceived risk. Perceived risk has been shown to be affected by amounts at stake, levels of uncertainty and negative consequences if wrong choices occur, and has been found to be context-dependent and to have an impact on a variety of behaviors (Tsiros & Heilman, 2005). Perceived risk has been found to increase with higher levels of uncertainty and chance of making mistakes; and importantly, higher levels of involvement have been found to be a prerequisite for higher perceived risk (Dowling & Staelin, 1994; Mitchel, 1999). Under almost all higher perceived risk conditions, consumers have been found to be more wary and risk averse, and to prefer the norm to the novel; in contrast, under lower perceived risk conditions, some consumers have been found to enjoy the positive stimulation provided by novel products and shopping medium (Campbell & Goodstein, 2001). In the context of higher perceived risk, and higher levels of involvement, as it relates to discouraging consumers from purchasing, two choice situations (i.e., product-context or specific product choice and shopping-situation or shopping medium choice) have stood out in the literature (Lee & Turban, 2001). In examinations of risk for choice of shopping medium, Korgaonkar (1982) and others (e.g., Korgaonkar & Karson, 2007; Milne & Culnan, 2004; Spence, Engel, & Blackwell, 1970) suggested that specific product choice risk can be transferred to the shopping medium.

Bauer (1960) and many researchers (e.g., Dowling & Staelin, 1994; Havlena & DeSarbo, 1991; Wedel & DeSarbo, 1993) regarded specific product choice risk as a consumer's perceptions of uncertainty concerning fit between choice of products and buying goals. Researchers have identified a variety of types of risk with regard to specific product choice, these include: *performance quality/functional* (e.g., product may not meet standards of quality, possibly will not work as expected), *financial* (e.g., product may not be worth the price), *physical* (e.g., might not be safe), *social* (e.g., can result in embarrassment before family or friends), *psychological* (e.g., can harm consumer ego), *front-end time loss for search* (e.g., failure can result in time loss opportunity cost of finding another product), and *obsolescence/up-to-date* (e.g., product might be out-of-date soon, may be replaced by newer substitutes) (Dowling & Staelin, 1994; Mitchell, 1999; Wang, Beatty, & Foxx, 2004).

Researchers dealing with shopping medium choice found additional types, such as: *privacy* (e.g., uncertainties about retailers collecting personal information and how it is used), *security* (e.g., unauthorized third party access to credit card numbers), *lack of tactile inspection/tangibility inconveniences* (e.g., unable to touch, feel, or see products), *front-end shipping related inconveniences* (e.g., waiting for delivery), *back-end time loss for returns* (e.g., time loss related to returns of undesired products), *availability information* (e.g., uninformed on product availability), *merchandise variety* (e.g., cannot access a wide selection), *catalog design* (e.g., may be cluttered), and *personal attention* (e.g., difficulty in contacting customer service personnel) (Chen & Dubinsky, 2003; Huang, Schrank, & Dubinsky, 2004). Korgaonkar and Karson (2007) suggested that types of risk can vary in importance from one shopping medium to another one, and online-only retailers have to deal with more risk overall. Milne and Culnan (2004) and others (e.g., Andrews & Boyle, 2008; Gonul, Kim, & Shi, 2000; Reardon & McCorkle, 2002) found that online environments can create new risk, such as, privacy/location data (e.g., online retailers tracking shopping habits) that go beyond traditional transaction information and catalog web site design (e.g., difficult to navigate) which relate to the unique appeals and drawbacks of doing business online.

Signaling Theory

Researchers, in other shopping medium studies on signaling theory, have examined numerous signals as indicators of quality and reducers of risks (e.g., Biswas & Biswas, 2004; Dean, 1999; Rao, Qu, & Ruekert, 1999). Surprisingly, in catalog shopping for products with non-digital attributes, there has not been any study with an explanation of the role of signals. Drawing on signaling theory principles, the current research examines whether consumers perceive less risk shopping through affiliated catalogs than

through unaffiliated ones. Consumers may feel that affiliated catalogers/retailers can offer: added experiential value, better delivery and return policies, and more opportunities for personal service.

In catalog shopping, unobservable quality has been a difficult barrier, especially for non-digital products (Marketing Matters, 2005; Muldoon, 2006). Consumers may make inferences about cataloger familiarity and their capability and willingness of offering risk reducers from the physical presence or absence of affiliated local brick-and-mortar stores. Familiar, affiliated catalogers have more well-known channels for shopping and more impressive size as compared to unaffiliated catalogers (Muldoon, 2006; Wang, Beatty, & Foxx, 2004). It is expected that consumers will feel that affiliated catalogers/retailers have tried to create bonds with them by their large past investments in alternative channels, and that these catalogers will be more likely to make larger investments in the future to continue to maintain the bond.

Hypotheses

Modes: Print- and Online-Catalogs

The current research takes into account the two major modes of print- and online-catalogs. Recently in-home/office sales of non-digital products have increased through almost all types of non-store shopping with print catalogs dominating the category (Gonul, Kim, & Shi, 2000; Muldoon, 2006). Montgomery Ward offered the first print consumer catalog in 1872. This catalog was only one page long and it included “more products at better prices than consumers could find in their own local shopping areas” (Muldoon, 2006, p. 10). In 1897, Sears, Roebuck and Company issued a 700-page “Big Book” catalog of over 6,000 products. More recently the Direct Marketing Association found that greater than half the U.S. adult population ordered products through print catalogs in 1997 (Direct Marketing Association, 1998). Until lately almost all catalogs were printed on paper and mailed to select consumers. In 1997, 14 billion copies of more than 8500 different print catalogs were mailed out, and the average household received almost 50 print catalogs that year. In 1995, print catalog sales accounted for more than \$86 billion, almost 4% of total retail sales (Direct Marketing Association, 1998; Reinartz & Kumar, 2000).

Over the past fifteen years, many catalogers have made substantial outlays in technology and now use the Internet to try to increase overall catalog sales. In 2004, the number of online catalogs grew from 6147 to 7400; and of the ones available online, 6668 were also available in print versions (Marketing Matters, 2005). Online shopping has become more accepted; however, because of perceived use difficulties, rapid changes in online design and layout, and non-complementary linkages with more traditional shopping, many consumers have not actually purchased non-digital products online (Pavlou & Gefen, 2005). Further, some consumers may have limited computer power or slow Internet connections and cannot quickly access online catalogs. Recently, some researchers made a somewhat counterintuitive claim: as online shopping experiences increase, risk increase (i.e., as consumers become more experienced shopping online, they become aware of new and different online uncertainties) (e.g., Hampton-Sosa & Koufaris, 2005; Pavlou & Gefen, 2005).

The current research extends work on direct marketing and perceived risk, and examines effects of the modes of print- and online-catalogs. Given the relative “newness” of online catalog use along with the long history of print catalog use, it is expected that shopping through online catalogs will produce more risk than through print versions.

H1: Shoppers using online catalogs will perceive more risk than those using print catalogs.

Signals and Interaction

Recent research on signal’ interactions provide guidelines for similar work in catalog shopping. Findings from a study by Biswas and Biswas (2004) on online and in-store shopping revealed interaction effects using different signals (e.g., advertising expense). Their findings suggested that while both types of shoppers were influenced by signals, online shoppers relied more on them. For online shoppers, since they had less previous relevant shopping experiences to draw on, they tended to rely more on easily

recognizable cues. In a related study, Korgaonkar and Karson (2007) found an interaction effect of store-based online retailers and online-only retailers on perceived risk. Under both high- and low-product risk conditions, their findings suggested that shoppers using online-only retailers exhibited more shopping medium choice risk.

In making shopping medium choices, consumers have shown different preferences at different stages of shopping. Peterson, Balasubramanian, and Bronnenberg (1997) found that some consumers used only one channel to perform all of their shopping, while other consumers relied on different channels (e.g., consumers might use catalogs in information search and initial price comparisons, and local stores for actual product purchase). In the case of print-catalog shopping, consumers can make inferences about cataloger credibility and quality from the more traditional catalog presence; however, in online-catalog shopping, less individual experience, less influence from older generations/important others, fewer other signals along with added fears, for example, phishing scams, can result in different effects, and more reliance on conspicuous signals. In the current research, it is expected that high familiarity will be necessary for consumers to adequately assess catalog affiliation levels. The idea of affiliation with familiar local brick-and-mortar retailers should serve as an easily available, highly noticeable risk reducer signal; further, the use of only one (high) level of familiarity should help to establish a more generalizing simulation (Rao, Qu, & Ruekert, 1999).

The current research extends recent work on signal' interactions, and investigates whether catalog affiliation has different effects in different settings. More specifically, this research examines whether catalog affiliation has more of an impact on online catalog shoppers than on print catalog shoppers.

H2: Shoppers using online catalogs will rely more on catalog affiliation as a reducer of risk than those using print catalogs.

PRELIMINARY ISSUES

Use of Clothing

In an effort to examine the effects of catalog modes on perceived risk in settings as realistic as possible, the current research sets up the following simulation: shopping for a dress shirt or a pair of jeans using familiar affiliated- and unaffiliated-catalogs with both print- and online-versions (e.g., Biswas & Biswas, 2004). For catalogers, this simulation should be of high interest because of its direct examination of risk by different modes. The use of this clothing (dress shirt, pair of jeans), instead of other possible catalog items, should help to establish a usable, generality shopping setting. This clothing has a history of being frequently purchased through all modes of catalogs, yet it also has high return rates (Eastlick & Feinberg, 1999; Goldsmith & Goldsmith, 2002; Grewal, Iyer, Gotlieb, & Levy, 2007). This clothing has been found to have high personal relevance with relatively high levels of involvement ((note: according to Dowling and Staelin (1994) and Mitchel (1999), perceived risk studies should have moderate to high levels of consumer involvement)), and researchers have suggested that consumers might perceive a variety of risk when shopping for this clothing (Kwon, Paek, & Arzeni, 1991).

Pretests

Three pretests, each one using different samples, were carried out. The first pretest examined whether involvement, at the specific product choice level, in shopping for a dress shirt or a pair of jeans was adequate for a study on perceived risk. Findings from this pretest (N = 89, mean age = 24.5, female = 58%) revealed that shopping for a dress shirt or a pair of jeans had relatively high levels of involvement. For the specific product choice involvement measure, participants answered five seven-point items (adapted from Mishra, Umesh, & Stem, 1993; Zaichkowsky, 1985). The first item was "How interested are you in shopping for this clothing (dress shirt, pair of jeans)" (7 = Extremely Interested, 1 = Not at All Interested). The second was "How useful is this clothing (dress shirt, pair of jeans) to you" (7 = Extremely Useful, 1 = Not at All Useful), the third was "How important is this clothing (dress shirt, pair of jeans) to you" (7 = Extremely Important, 1 = Not at All Important), the fourth was "How beneficial is this clothing (dress shirt, pair of jeans) to you" (7 = Extremely Beneficial, 1 = Not at All Beneficial), and

the fifth was “How valuable is this clothing (dress shirt, pair of jeans) to you” (7 = Extremely Valuable, 1 = Not at All Valuable). A composite measure of involvement in shopping for this clothing indicated higher levels of involvement ($M = 5.48$; $\alpha = .88$).

In the second pretest, numerous catalogs were examined in one-on-one interviews to spot potential ones to use in the main study. On the basis of the interviews, a number of catalogs were examined (note: for all of the following scale items which contained the phrase “the ___ catalog,” names of appropriate catalogs were inserted in the blanks). For the measure of cataloger affiliation with local brick-and-mortar stores, participants answered three seven-point scales anchored by “7 = Strongly Agree” and “1 = Strongly Disagree” (Manolis, Keep, Joyce, & Lambert, 1994) that provided a usable composite measure ($\alpha = .86$). The first statement was “The ___ catalog has a direct association with a local brick-and-mortar retail store.” The second was “The ___ catalog fits with a local brick-and-mortar retail store very well” and the third was “When you first thought of the ___ catalog, a local brick-and-mortar retail store also came to mind.” Affiliated catalogs were viewed as significantly more associated with local physical stores ($M = 6.01$) than unaffiliated ones ($M = 1.78$; $t(101) = 18.01$, $p < .0001$). For the catalog familiarity measure, participants answered three seven-point scales. The first statement was “How familiar are you with the ___ catalog?” (7 = Very Familiar, 1 = Not at All Familiar) (Jung & Kellaris, 2004). The second was “Regarding the ___ catalog, how frequently have you seen it or used it, or heard of others that have used it?” (7 = Very Frequently, 1 = Not at All Frequently) (Shapiro, MacInnis, & Heckler, 1997) and the third was “Please indicate how much you recognize the ___ catalog” (7 = Definitely Recognize, 1 = Definitely Do Not Recognize) (Simonin & Ruth, 1998). A composite measure was used ($\alpha = .76$). All catalogs were viewed as equally familiar, although participants gave slightly more familiar ratings (not significant) to affiliated catalogs ($M = 6.21$) than unaffiliated ones ($M = 6.07$). For the desirability measure, participants answered three seven-point scales semantic differential scales (Haugtvedt & Petty, 1992). The first statement was “For catalog shopping for clothing, how much do you like the ___ catalog?” The second was “Please rate your impression, good-bad, of the ___ catalog” and the third was “Please give your feelings, favorable-unfavorable, toward the ___ catalog.” A composite measure was used ($\alpha = .81$). Participants gave more favorable ratings (not significant) to affiliated catalogs ($M = 5.14$) than unaffiliated ones ($M = 5.02$). Overall, findings from this pretest indicated that certain catalogs were perceived to be affiliated (direct association with at least one local brick-and-mortar retailer) or unaffiliated (no association with any local brick-and-mortar retailer), and to have equal high levels of familiarity and desirability.

The third pretest used each of the catalogs identified for the main study (i.e., based on results from the second pretest) in a catalog shopping simulation for a dress shirt or a pair of jeans and examined whether involvement with these particular catalogs, i.e., at the shopping medium choice level, was adequate; plus, it examined whether perceptions of cataloger past investment varied by catalog affiliation. For the shopping medium choice involvement measure, participants were asked to respond to an adaptation of the same five seven-point items as in pretest 1 (i.e., the first pretest considered only clothing involvement, it did not examine shopping through catalogs). For example, the first item in pretest 3 was “How interested are you in shopping for this clothing (dress shirt, pair of jeans) using the ___ catalog” (7 = Extremely Interested, 1 = Not at All Interested), the second was “How useful is the ___ catalog in shopping for this clothing (dress shirt, pair of jeans)” (7 = Extremely Useful, 1 = Not at All Useful), etc. A composite measure, by catalog, indicated high levels of involvement (average $M = 5.92$). Also in this pretest, perceptions of past investment by cataloger were examined (i.e., according to signaling theory principles, affiliated catalogers/retailers should produce perceptions of higher past investment because they have more channels for shopping and more impressive size as compared to unaffiliated catalogers). For this measure, participants were asked to respond to three seven-point scales anchored by “7 = Strongly Agree” and “1 = Strongly Disagree” (Ping, 1993). The first item was “The ___ catalog company has made a sizeable monetary investment in their business,” the second was “The ___ catalog company has invested a lot of money and effort in their building their business,” and the third was “The ___ catalog company has put a considerable amount of money in their business.” A composite measure was used ($\alpha = .84$). Affiliated catalogers were perceived to have significantly higher levels of past investment ($M = 6.11$) than

unaffiliated ones ($M = 3.34$; $t(94) = 8.01$, $p < .01$).

THE MAIN STUDY AND ITS FINDINGS

Design, Participants and Procedures

The main study used a 2 (print- and online-catalogs) x 2 (affiliated- and unaffiliated-catalogs) between-subjects experimental design. It used one (i.e., high) level of catalog familiarity and equal levels of catalog desirability. On the whole, it used four different sets of up-to-date authentic catalogs, from major well-known catalogers, designed to represent four conditions: (1) affiliated print catalogs, (2) affiliated online catalogs, (3) unaffiliated print catalogs, and (4) unaffiliated online catalogs. The study was conducted using pre-screened catalog shoppers, with recent relevant shopping experiences, associated with a mid-western university. Participants in the pretests were not part of the main study sample. Some main study participants were nonstudent adults; other participants were recruited from upper-level undergraduate business courses and MBA courses. All participants were familiar with catalog shopping for clothing. All participants took part voluntarily and student participants were given course credit. Overall, these participants were viewed as surrogates for catalog shoppers as a whole.

Participants were asked to sign-up for a time-slot that was convenient for them. As each participant arrived at the designated room, he/she was assigned to one of the four sets of catalogs following a simple random assignment method. Participants were provided with the appropriate catalogs (e.g., those in the affiliated print catalog group were given only the print catalogs having direct associations with local brick-and-mortar stores, participants in the affiliated online catalog group were provided with high-speed Internet access for the online versions of the same catalogs). The task for all participants was to engage in a simulation of buying a dress shirt or a pair of jeans of their choice. They were asked to browse through assigned catalogs, select clothing, and complete an order form. The task was intended to experientially sensitize participants to their assigned mode of catalog shopping. After completing the task, participants were asked to fill-out questionnaires. The questionnaires elicited perceptions of risk and other relevant variables (e.g., previous relevant shopping experiences, likelihood of future investment by cataloger, relevance of clothing selected in shopping simulation, relevance of assigned catalogs used in the shopping simulation). On average, each participant took about 30 minutes to complete tasks and fill-out questionnaires.

Sample Description and Manipulation Checks

A questionnaire was used to collect information about each participant's previous relevant shopping experiences using catalogs, online commercial web sites, and other forms of in-home/office shopping. Standard demographic measures (e.g., gender, year of birth) were also included in the questionnaire. Usable information was obtained from 196 participants. Participants were pre-screened and all were familiar with catalog shopping. The average age of the participants was 28, their weekly web use averaged 24 hours, 127 of them were female, and 80 were undergraduates. Almost all of the participants had recently engaged in catalog shopping, 114 participants had used online commercial web sites, and 21 participants had shopped through other in-home/office mediums (e.g., television, mail). For the sample, the average dollar amount per order using catalogs was \$147 (range \$0 to \$350) and the average amount per order using online commercial web sites was \$168 (range \$0 to \$400). For participants who had recently used catalogs, clothing, shoes, fitness equipment, gourmet food, and hunting and fishing supplies were popular product categories. For those who had purchased products through online commercial sites, clothing, digital products (e.g., music, software), shoes, fitness equipment, CDs, DVDs, books, plane tickets, computer hardware, cosmetics, nutrition products, and jewelry were the most frequently mentioned categories. For those who had purchased products through other in-home/office mediums, clothing, jewelry, computer games, and fitness equipment were the most popular product categories.

To confirm that the catalog affiliation, familiarity and desirability manipulations worked as intended, participants were asked only about the catalogs used in their assigned group. As a check for the catalog affiliation manipulation, participants were asked to respond to the same three seven-point items (e.g.,

“The ___ catalog has a direct association with a local brick-and-mortar retail store”; “7 = Strongly Agree” and “1 = Strongly Disagree”) as in pretest 2 ($\alpha = .83$). Affiliated catalogs were viewed as significantly more associated with local physical stores ($M = 6.12$) than unaffiliated ones ($M = 2.18$; $F(1,190) = 68.01$, $p < .001$). As a check for the catalog familiarity and desirability manipulations participants were asked to respond to the same seven-point items as in pretest 2 ($\alpha_{\text{familiarity}} = .75$, $\alpha_{\text{desirability}} = .78$). Participants’ catalog familiarity and desirability did not vary across mode of catalog. The findings indicated that both familiarity and desirability were high; however, participants gave more familiar ratings (not significant) to affiliated catalogs ($M = 6.32$) than unaffiliated ones ($M = 6.17$) and more desirable ratings (not significant) to affiliated catalogs ($M = 5.72$) than unaffiliated ones ($M = 5.58$). Thus, the manipulations of catalog affiliation, familiarity and desirability were consistent with pretest 2 results and were all deemed adequate for the main study. To confirm that catalog shopping for this clothing (dress shirt, pair of jeans) using assigned catalogs was in fact high involving, participants were asked to respond to the same five seven-point items ((e.g., “How interested are you in shopping for this clothing (dress shirt, pair of jeans) using the ___ catalog?”; 7 = Extremely Interested, 1 = Not at All Interested)) as in pretest 3 ($\alpha = .88$). The findings indicated that their involvement was high (average $M = 6.01$). Thus, the involvement manipulation was deemed adequate. As a check for perception of cataloger past investment, participants were asked to respond to the same three seven-point items (e.g., “The ___ catalog company has made a sizeable monetary investment in their business”; “7 = Strongly Agree” and “1 = Strongly Disagree”) as in pretest 3 ($\alpha = .84$). Affiliated catalogers were viewed as significantly more engaged in past investment ($M = 6.12$) than unaffiliated ones ($M = 3.18$; $F(1,190) = 68.01$, $p < .001$).

Description of Primary Measures

Measures of types of risk toward shopping for clothing using catalogs were adapted from studies on specific product choice risk and shopping medium choice risk, and qualitative interviews with non-sample respondents, equally divided in terms of students and nonstudent adults and gender. Since it was the first wave of research, almost all types of perceived risk mentioned in the literature review were examined using a relatively large number of seven-point items. An exploratory factor analysis, using principal components analysis with Varimax rotation to obtain factor loadings, was performed to give an indication of whether types and items could be reduced to make it more manageable (Hair, Black, Babin, & Anderson, 2010). As given in Table 1, this analysis generated a four-factor solution in which close to 75 percent of the total variation was explained by the solution.

Privacy and security loaded more heavily on Factor 1 (personal information risk); financial, performance quality/functional, social, and personal attention loaded more heavily on Factor 2 (value risk); catalog design, availability information, and merchandise variety loaded more heavily on Factor 3 (ease-of-finding risk); and front-end time loss waiting for delivery, back-end time loss for returns, and front-end time loss for searching loaded more heavily on Factor 4 (time loss risk). Items were coded prior to analyses so that lower scores indicated lower risk. Composite measures were constructed by averaging items for dimensions (average $\alpha = .76$).

TABLE 1
FACTOR LOADINGS

Risk Variable ^a	Factors ^b			
	Factor 1 (personal information)	Factor 2 (value)	Factor 3 (ease-of- finding)	Factor 4 (time loss)
Catalog-Privacy	.801			
Catalog-Security	.775			
<i>Product- Financial</i>		.788		
<i>Product-Quality/ Functional</i>		.721		
<i>Product- Social</i>		.598		
Catalog Personal Attention		.541		
Catalog- Design			.620	
Catalog- Availability			.610	
Catalog- Merchandise			.590	
Catalog-Wait for Delivery				.646
Catalog-Time Loss for Returns				.603
<i>Product-Front End Search Loss</i>				.540
% Variance Explained	27.92	24.02	11.80	10.80
Cronbach's Alpha	.82	.78	.72	.70

^aNotes on types of risk: “specific product choice” risk types shown in italics and denoted by: *Product-*, “shopping medium choice” risk types represented by: *Catalog-*.

^bNotes on factor loadings: loadings less than .40 suppressed, variables sorted by loadings on each factor

Hypothesis Testing

Tests of hypothesis H1 revealed significant main effects, of the modes of print- and online-catalogs, for all four risk dimensions. Hypothesis H1 (i.e., shoppers using online catalogs will perceive more risk than those using print catalogs) tests indicated significant effects for personal information risk ($F(1,190) = 27.74, p < 0.01$), value risk ($F(1,190) = 24.77, p < 0.01$), ease-of-finding risk ($F(1,190) = 18.39, p < 0.01$), and time loss risk ($F(1,190) = 14.39, p < 0.01$). These findings revealed support for predictions of

significant effects of modes on perceived risk. Therefore, hypothesis H1 was supported.

Tests of hypothesis H2 of existence of interaction effects (i.e., shoppers using online catalogs will rely more on catalog affiliation as a reducer of risk than those using print catalogs) revealed significant effects for all four risk dimensions. The findings indicated significant interaction effects for personal information risk ($F(1,190) = 5.99, p < 0.05$), value risk ($F(1,190) = 4.84, p < 0.05$), ease-of-finding risk ($F(1,190) = 4.49, p < 0.05$), and time loss risk ($F(1,190) = 3.39, p < 0.05$). Follow-up t tests (e.g., Biswas & Biswas, 2004) revealed that in print catalog shopping, risk was greater for unaffiliated (than affiliated) catalogs for personal information risk ($M_{\text{unaffiliated}} = 3.92, M_{\text{affiliated}} = 3.02, t = 18.73, p < 0.01$), value risk ($M_{\text{unaffiliated}} = 3.33, M_{\text{affiliated}} = 2.74, t = 12.59, p < 0.01$), ease-of-finding risk ($M_{\text{unaffiliated}} = 3.13, M_{\text{affiliated}} = 2.72, t = 18.41, p < 0.01$), and time loss risk ($M_{\text{unaffiliated}} = 2.93, M_{\text{affiliated}} = 2.42, t = 12.41, p < 0.01$). However, differences in risk were magnified in online catalog shopping for personal information risk ($M_{\text{unaffiliated}} = 6.01, M_{\text{affiliated}} = 3.99, t = 36.80, p < 0.01$), value risk ($M_{\text{unaffiliated}} = 4.02, M_{\text{affiliated}} = 3.48, t = 13.64, p < 0.01$), ease-of-finding risk ($M_{\text{unaffiliated}} = 5.01, M_{\text{affiliated}} = 4.01, t = 24.20, p < 0.01$), and time loss risk ($M_{\text{unaffiliated}} = 3.13, M_{\text{affiliated}} = 2.72, t = 5.41, p < 0.01$). Therefore, hypothesis H2 was supported. Additional tests on catalog affiliation revealed that shoppers perceived more risk using unaffiliated catalogs than affiliated ones; the tests indicated significant effects for personal information risk ($F(1,190) = 72.44, p < 0.01$), value risk ($F(1,190) = 34.75, p < 0.01$), ease-of-finding risk ($F(1,190) = 28.93, p < 0.01$), and time loss risk ($F(1,190) = 18.39, p < 0.01$). Overall, these findings suggested that shoppers perceived more risk using online catalogs than print catalogs, shoppers perceived more risk using unaffiliated catalogs than affiliated ones, and online catalog shoppers, as compared to print catalog shoppers, relied more on catalog affiliation as a risk reducer signal.

Shopping Experiences and Supporting Issues

The data related to the sample's previous relevant shopping experiences and the measures of risk were analyzed using correlation techniques. These findings indicated negative correlations between risk (all dimensions) and previous relevant in-home/office shopping experiences (average $r = -0.25, p < 0.01$); and revealed that as previous relevant in-home/office shopping experiences increase, risk decrease. Overall, these findings were consistent with the past literature on experience and shopping; which in turn indicated, that the proposal of a counterintuitive link between online experience and risk was not accepted (i.e., as mentioned, some researchers suggested that as consumers become more experienced shopping online, they become aware of new and different online uncertainties, and as their online shopping experiences increase, risk increase).

Other findings related to two supporting issues: likelihood of future investment by catalogers and thoughts about assigned catalogs. First, for likelihood of future investment, participants were asked to respond to three scales. Findings from this information, along with findings dealing with cataloger past investment, were consistent with signaling theory principles. Affiliated catalogers/retailers produced perceptions of higher past investment and higher likelihood of future investment which contributed to lower risk. Regarding unaffiliated catalogers, the idea of no affiliation with local brick-and-mortar stores adversely affected perceptions of past investment and likelihood of future investment which contributed to higher risk. Second, responses to certain open-ended questions were examined for thoughts about assigned catalogs. In comparisons of responses regarding print- or online-catalogs, it was revealed that if they used online catalogs, the catalogs were perceived to be less intrinsically pleasing and, interestingly, less accurate than print catalogs. Participants had not as much experience and less intergenerational influence with online catalogs. In comparisons of responses regarding affiliated- or unaffiliated-catalogs, it was revealed that they preferred affiliated catalogs; however, responses were equivocal regarding channel image and product-service overlap. These findings revealed that print and affiliated catalogs had more advantages than online and unaffiliated catalogs; but, some participants mentioned inconsistencies and lack of integration between certain affiliated catalogs and brick-and-mortar stores.

DISCUSSION AND CONCLUSIONS

The current research provided evidence of catalog affiliation as a significant risk reducer signal. When participants shopped through affiliated catalogs they perceived less risk than when they shopped through unaffiliated catalogs, and responses to open-ended questions revealed that catalog affiliation was highly noticeable, obvious, and evident; the idea of catalog affiliation was an indicator of past investment and likelihood of future investment. Catalog affiliation served as a risk reducer signal in both print- and online-catalog shopping; though, in online catalog shopping, it was stronger because participants had fewer other cues about risk. Although, taken alone, these findings might lead unaffiliated catalogers to consider alliances/mergers with brick-and-mortar retailers (e.g., a few years ago Lands' End merged with Sears), other findings suggested that certain affiliated catalogs and associated brick-and-mortar stores suffered from image inconsistency, did not offer expected time savings of one-stop check-out, and had poor product-service overlap/integration.

Other contributions of this research related to the findings that online catalog shoppers, as compared to print catalog shoppers, faced different risk and to the findings of the two inverse associations: perceived risk and previous relevant shopping experiences, and perceived risk and perceptions of cataloger investment. Findings from the current research indicated that both print- and online-catalog shoppers experienced common types of risk (e.g., personal information risk); plus, online catalog shoppers perceived more and different types of risk associated with computer system invasion and catalog web site design. In assessing previous relevant shopping experiences, some shoppers indicated that they had little or no online purchasing experiences. As mentioned, some researchers have suggested that as online shopping experiences increase, risk also increase; however, findings from the current research indicated that risk varied inversely by shoppers' previous experiences. These findings also indicated that, regardless of mode, shoppers with previous relevant shopping experiences perceived less risk than non-shoppers, and shoppers with more experience perceived less risk than those with less experience.

At least two characteristics of the current research limit its findings; yet, both limitations stand for future research prospects. First, like many other experimental studies, a somewhat homogeneous sample was used to minimize individual difference variance. Although the controlled procedures provided an important basis for the initial examination of effects, future research might examine whether the findings can be substantiated by samples in different settings. Second, the shopping simulation for clothing was an artificial representation that has potential for biasing responses. Even though care was taken to assure that the representation was realistic, it may not have had the degree of realism found in actual catalog shopping and in shopping across different product categories. Because only certain catalogs were used, caution should be exercised in generalizing the findings. Future studies might use other catalogs, and investigate whether perceived risk varies across different products and catalogs (e.g., products that vary by frequency of purchase, catalogs with different product line breadth).

In summary, recent research on consumer in-home/office shopping has mostly dealt with commercial Web sites. Until now, no studies have reported about the effects of catalog modes on risk perceptions or the role of signals in reducing risk. The current research filled this gap. Drawing on perceived risk and signaling theory literatures, hypotheses were developed and tested. Key findings suggested that shoppers perceived more risk shopping through online catalogs than print versions, and the idea of catalog affiliation served as a significant risk reducer signal for all catalog shoppers; yet, online catalog shoppers relied more on it. Additional research might identify the next two or three most noticeable signals (satisfaction guarantees, security disclosures, third-party seals of approval, guarantees of privacy, customer' testimonials, etc.) using guidelines from the current research (e.g., can the signals be used as cues of past monetary outlays and potential for future outlays? do the signals have high representations in memory and easy accessibility?), and then examine whether these signals have different effects in different catalog shopping situations. Overall, catalogers should consider the unique characteristics of each catalog mode, along with target market needs, before offering the catalogs. Catalogers should be prepared to adapt to rapid changes in technology along with changing preferences. Additional studies on perceived risk and catalog shopping are needed to substantiate findings from this research and to examine

importance of other signals.

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