

Factors Influencing Consumer Online Information Search in Yinchuan, China

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Abstract : *China had the world's largest Internet user base. The tendency of exploring online for product information has been developing steadily over recent years in China, especially for high involvement product categories. Although some research has endeavored to gain understanding of online information search behavior, they were virtually suffering from disputable findings and lack of empirical examination on high involvement products and on consumers in China. This study examined consumers' online information search behavior in China. Data were collected from automobile consumers in Yinchuan, Ningxia Hui Autonomous Region, China. This study extends the existing understanding of online information search by reconciling the conflicting findings on the effects of the selected predictors on online information search in the third-tier cities of China. Findings of this study indicates that, except for perceived search cost on the Internet, other factors do significantly contribute to online information search, including perceived risk, product knowledge, and extent of offline information usage.*

Keywords - *Online information search, factors influencing online search, China*

I. Introduction

The advance of the Internet has certainly brought tremendous changes to every facet of modern human life. Foremost among all benefits derived from the Internet are quantity and quality of customized information that the Internet offers with minimum effort and cost, and information that facilitates better decision making and makes the decision-making process more efficient (Bakos, 1997). China had the world's largest Internet user base, in which China National Net Work Information Center (2014) claimed that, as in 2014, there were about 618 million Internet users in China, which constituted 45.8% of its total population. Nearly eighty percent of Internet users in China claimed to have resorted to the Internet for information before making a purchasing decision (China National Network Information Center, 2013).

Although some researchers have made efforts to gain understanding of online information search behavior, the process of online search is not well understood (Rose & Samouel, 2009). Specifically, disputable findings and lack of empirical examination on high involvement products and on consumers in China are ones of major gaps in the extant research.

With the aim of improving the understanding of consumer information search on the Internet and clarifying the relationships between disputable predictors and information search on the Internet, the relationships between information search and selected factors (perceived search cost on the Internet, product involvement, perceived risk, extent of offline information usage, and product knowledge) were examined. Toward to this goal, the discussion started with the conceptualization of online information search. The following section discusses these factors influencing information search on the Internet. The next section discusses the research methodology and data analysis, which followed the research findings of the study. The final section presents managerial implications of the findings and proposals for future research.

II. Conceptualization of Online Information Search

Consumer information search on the Internet is defined as consumer's usage of information sources on the Internet for acquisition of product related information prior to a purchase. In the study, consumer information search the Internet is operationally defined as the degree of attention, perception and effort directed to actively acquire information about a product in order to make a purchase decision.

III. Factors Influencing Online Information Search

3.1 Perceived search cost on the internet

The construct of search cost came from the economics of information theory, which was based on the premise that consumers did not have fully inform themselves about the alternatives available in the market because of high information search costs (Stigler, 1961). Search cost included the perceived time and monetary

cost of undertaking the search effort, and the psychological costs of processing information. Beatty and Smith (1986) and Srinivasan and Ratchford (1991) emphasized the value of time of searchers as a major component of cost and accordingly employed measures of time availability to capture search costs. Similarly, Punj and Staelin (1983) and Klein and Ford (2003) proposed the opportunity cost of time was the major cost component other than out-of-pocket travel costs and cognitive cost and thus income has been used as a proxy for search cost. A consistent and significant negative relationship between search cost and search has been revealed in the prior research (Punj & Staelin, 1983; Schmidt & Spreng, 1996; Srinivasan & Ratchford, 1991).

However, the role of perceived search cost on the Internet for online search was rather disputable. Klein and Ford (2003) suggested the economics of consumer information search still held in the online context. Consumers' information search, measured in terms of time spent, was still driven by cost of search on the Internet. That is, high search costs decreased information search on the Internet. Jespen (2007) and Rha (2002) also confirmed the negative relationship between search cost and information search on the Internet. However, according to Rose and Maity (2009) and Maity, Hsu, and Pelton (2012), search cost was not found to be an influential factor for information search on the Internet. Some researchers argued, if the Internet was a more efficient and productive medium for search, it would lead to a reduction in search and therefore less concern for costs (Bakos, 1991; Peterson & Merino, 2003; Shim, Eastlick, Lotz, & Warrington, 2001). At the same time, the introduction of monthly flat-fee Broadband Internet subscriptions, which provided a fixed cost to search, may be changing the traditional negative effect of cost of search upon search behavior.

3.2 Perceived risk

Perceived risk is defined as the consumer's perceptions of the uncertainty and adverse consequences of buying a product/service (Dowling & Staelin, 1994). When a consumer is contemplating purchase of a product, he/she may have the feelings of uncertainty, discomfort, or anxiety, which results from consumer's perception of risk. Both probability and outcome of each purchase could be uncertain. The risk perception arises from unanticipated and uncertain consequence of an unpleasant nature resulting from product purchase (Dholakia, 2001). Each product class has risk inherently associated with it, which may become salient to a consumer when he/she considers it or decides which brand to purchase (Bettman, 1979). As Folkman and Lazarus (1988) proposed, people tried to engage problem-solving activities when they were in a distressed state. Similarly, consumers engage in information search activity as a risk reduction strategy to reduce their perceived level of risk (Dowling & Staelin, 1994). Prior empirical studies supported a positive relationship between perceived risk and information search (Dowling & Staelin, 1994; Moorthy, Ratchford, & Talukdar, 1997; Srinivasan & Ratchford, 1991).

As far as online environment is concerned, the effect of perceived risk on information search was disputable. Perceived risk did affect a consumer's adoption of new retail innovations, such as e-commerce. Shopping online was considered quite risky (Bhatnagar, Misra, & Rao, 2000). Consumers may fear for technology use and information overloads, feel uncertain and confused, and dread insecurity when engaging in online transactions. Ward and Lee (2000) argued that since it was hard to ensure the truthfulness of information online, some uncertainty may remain and thus online information search may not function as a strategy of risk reduction. In that case, Maity, Hsu, and Pelton (2012) confirmed that perceived risk did not significantly influence online information search. However, Rha (2002) insisted the positive relationship between perceived risk and information search on the Internet. It was argued that consumers perceived the Internet to be valuable source of information (Hammond, McWilliam, & Diaz, 1998) since the Internet has become a powerful tool for consumer to obtain information (Shim et al., 2001).

3.3 Extent of offline information usage

Extent of offline information usage is termed as the degree of attention, perception, and effort directed to toward obtaining data or information related to the specific purchase under consideration from offline environment (Beatty & Smith, 1987). Consumers who searched information on the Internet were found to conduct more information search in general, and thus to be relatively heavy users of all information sources (Ratchford, Talukdar, & Lee, 2001).

Some scholars suggested that the Internet functioned as a substitute for the other information sources (Klein & Ford, 2003; Ratchford, Lee, & Talukdar, 2003; Ratchford et al., 2001; Ratchford, Talukdar, & Lee, 2007). Klein and Ford (2003) found indirect evidence of substitution of the Internet for a dealer source, which was indicated by an increasing trend in time spent with use of manufacturer and dealer websites combined with a declining trend in time spent in dealer visits. Ratchford et al. (2001) found that the Internet has been taking place for other sources of information on functional attributes of a product while it actually led to the increased use of sources on expressive attributes. Ratchford et al. (2003) discovered that the Internet affected the use of other sources in search for automobiles in approximately the same proportion, which imposed the biggest effect on the use of dealer/manufacturer sources. The substitute of the Internet for the dealer/manufacturer

sources was confirmed by Ratchford et al. (2007), who detected the substitute of the Internet for print third-party source as well (Ratchford et al., 2007). Moreover, due to the increasing use, experience with the Internet, and boosting of the Internet, more substitution of online for traditional sources was expected (Klein & Ford, 2003).

However, Bei et al. (2004) found that extent of offline information usage was positively correlated to the usage of online information. Search behavior across different sources was cumulative rather than compensated. The function of the Internet as an information source did not replace the traditional offline sources, but added valuable information. The phenomenon that a consumer who searched product information probably used multiple information sources (Ratchford et al., 2001; Westbrook & Fornell, 1979) similarly indicated that both online and offline information sources may be complements.

3.4 Product knowledge

Numerous empirical evidences have supported the viewpoint that prior knowledge consumer brought to search affected information-processing behavior, including positive, negative, and an inverted-U shaped relationship. The positive relationship indicated the more prior knowledge, the more information search. One feasible explanation for the positive relationship was that prior knowledge encourages information search by making it easier to process new information. Consumers with knowledge of product attributes may formulate more questions and more adapt to responses to questions, which may result in the reduction of the cognitive cost of using information and greater search with increased knowledge (Punj & Staelin, 1983). On the contrary, a negative relationship between product knowledge on information search has been justified by the argument that the experienced consumers with prior knowledge about the attributes of various alternatives do not need to acquire such information from external sources (Lehto, Kim, & Morrison, 2006). The inverted-U relationship implied a positive relationship between prior knowledge and information search at low-to-moderate levels of knowledge/experience and a negative relationship at moderate-to-high levels, and consumers with a moderate knowledge conducted the most degree of search indeed. A positive or negative relationship or no effects at all can result when a linear regression line was imposed on inverted-U shaped data.

The contradictory conclusion on the effect of product knowledge has not been ironed out in the context of information search on the Internet. A negative relationship between product knowledge and online search was verified by Lehto, Kim, and Morrison (2006) and Rose and Samouel (2009). They attributed the negative relationship partially to the products investigated-travel and electrical goods as they were normally considered as medium level risk purchase, in which knowledgeable consumers did not need a high degree of search. However, Rha (2002) found that product knowledge, which was operationalized as subjective knowledge, was not significantly related to information search in online environment.

IV. Research Methodology

A stratified sampling technique was employed to achieve 402 consumers of automobile intercepted at the three branches of the local automobile administrative bureaus while they were applying for license plates. Data were collected using the self-administrated questionnaire. Three hundred and ninety valid responses were collected and used for data analysis. SPSS and AMOS software were adopted to conduct data analyzing. Descriptive analysis and structural equation modeling were employed to manage the data.

Before proceeding with data analyzing, exploratory data analysis (EDA), Confirmatory Factor Analysis (CFA), and testing of measurement model were conducted as data preparation. EDA was carried out in order to detect any error in the data set, to screen unusual and extreme values, to describe data, and to check the assumptions of missing data, outliers, and assumptions for normality, common method variance, and multicollinearity for the proposed statistical techniques. CFA tests validated each individual construct in the study. The CFA models of these constructs revealed satisfactory fit indices. The construct validity was achieved in the study as all loadings were found significant at .001 level and reached the thumb of .5. The construct reliability for all constructs indicated adequate internal consistency with the values greater than .7. Average Variance Extracted of constructs confirmed sufficient convergent validity for most constructs. The overall measurement model of the study indicated a relatively good fit between the data and the proposed model.

V. Research Findings

The structural model was developed to test the individual contribution of exogenous variables (perceived search cost, perceived risk, extent of offline information usage, and product knowledge) on information search on the Internet as the endogenous variable. The analysis of structural equation modeling using AMOS showed that the structural model was fit, which meant that the model fitted the data: $\chi^2=278.17$ (df=178), $p=.00$, Relative $\chi^2=1.56$, GFI=.94, AGFI=.92, CFI=.97, IFI=.97, NFI=.93, TLI=.97, RMSEA=.04, AIC=384.17. Thus, a battery of fit indices revealed an acceptable fit between the proposed model and the data. Moreover, the structural model illustrated that 19% of the variance of information search on the Internet was explained by all independent variables included in the structural model.

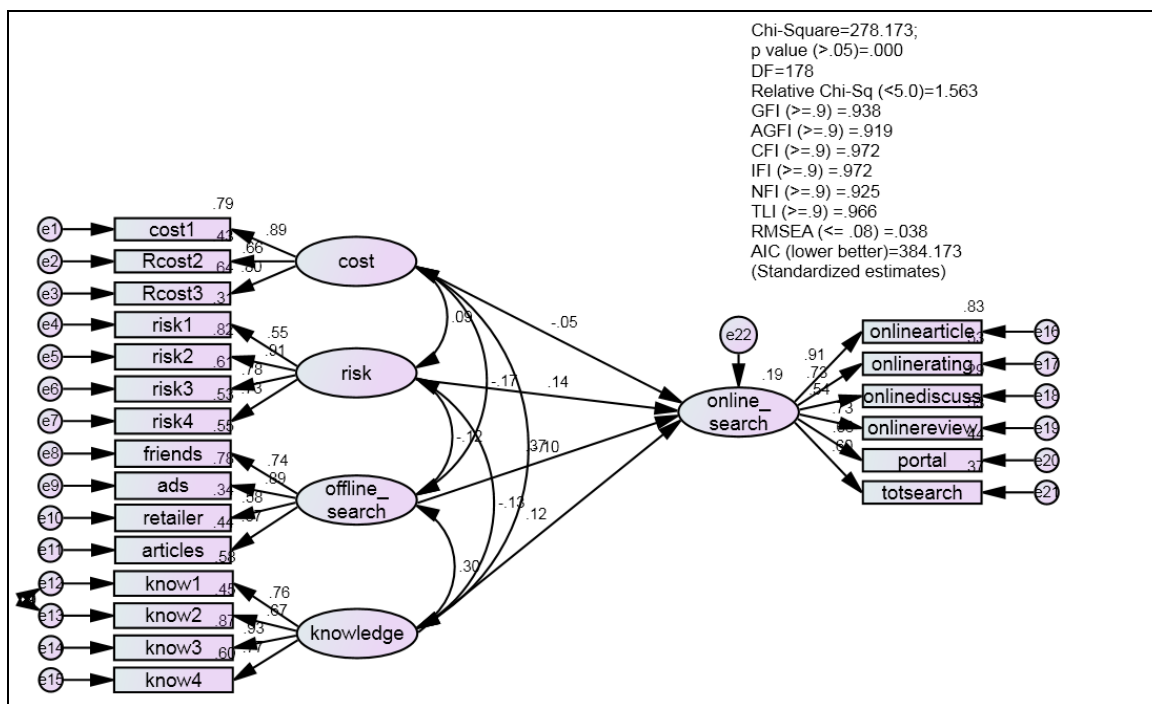


Figure 1 Structural equation model of information search on the Internet

The magnitudes and directional signs of the standardized regression weights led to the conclusion that all the hypothesized relationships were supported except for relationship between perceived search cost on the Internet and online information search. As empirically proved in this study, the integration of perceived risk, product knowledge, and extent of offline information usage contributed to information search on the Internet. Thus, this study affirmed the effects of perceived risk, product knowledge, and extent of offline information usage in the online information search context.

Table 1 Regression weights of hypothesized paths

Hypothesized Relationship			Unstandardized Regression Weights	S.E.	C.R.	P	Standardized Regression Weights Beta
online__search	<---	cost	-.03	.03	-.89	.38	-.05
online__search	<---	risk	.11	.04	2.67	.01	.15
online__search	<---	offline	.45	.08	5.60	.00	.37
online__search	<---	knowledge	.09	.04	2.09	.04	.12

The finding of the significant relationship between perceived risk and online search was in line with the well-established positive role of perceived risk in traditional information environment (Moorthy et al., 1997; Srinivasan & Ratchford, 1991) and some scholars' views on online information search (Hammond et al., 1998; Rha, 2002). The positive relationship indicated that consumers would choose search information on the Internet in order to reduce risk. Those who perceived higher risk in making a purchase decision of high involvement product were likely to search more on the Internet. The risk or uncertainty associated with a product normally was high in the case of a major purchase. The majority of automobile consumers in China were first-time buyers and they lacked experience to rely on. The finding of positive relationship between perceived risk and online search indicated that consumers of automobile in the third-tier cities in China perceived significant risk associated with searching information regarding automobiles and they deemed information presented online as a way bridging the gap in their product knowledge.

The significant positive relationship detected between product knowledge and online search indicated that the more prior knowledge, the more information search on the Internet. One feasible explanation for the positive relationship was that prior knowledge encourages information search by making it easier to process new information. Consumers with knowledge of product attributes may formulate more questions and more adapt to responses to questions, which may result in the reduction of the cognitive cost of using information and greater search with increased knowledge (Punj & Staelin, 1983).

The finding of the positive relationship between extent of offline information usage and online search was contrary to the proposition of the substitute effect of the Internet on traditional information source. A number of studies supported the positive relationship (Bei et al., 2004; Rha, 2002). Bei et al. (2004) insisted a cumulative, rather than compensated, relationship between offline and online information search. Meanwhile, the phenomenon that a consumer commonly made use of multiple information sources indicated online and offline information search were complement to each other. In the context of searching automobile information in China, the complementary relationship between online and offline search can be inferred from the fact that respondents normally made use of multiple information sources, including offline and online sources.

The insignificance of the relationship between perceived search cost and online search derived important implication for the body of literature. The variables which were proved to be influential predictors to offline search may impose different effects on information search on the Internet. A possible explanation for insignificant relationship between perceived search cost and online information search, as suggested by Rose and Samouel (2009) and Maity et al. (2012), may be attributed to that the Internet was so efficient and productive in terms of information distribution and communication that it resulted in a reduction in perceived search cost.

VI. Implications And Proposals For Future Research

This study reconciles inconclusive findings on information search on the Internet to some extent. As revealed in the study, perceived risk, product knowledge, and extent of offline information usage do significantly influence online information search. The model on information search on the Internet proposed in the study was proved applicable to high involvement products and to consumers dwelling in the third-tier cities in China. As one of few studies examining on sample of Chinese consumer, this study enriches the research body by verifying the applicability of online information search model.

The proposed instrument in the study has established a valid and reliable measurement for assessing search for high involvement product information on the Internet. The six-item instrument was developed based on extant literature and adapted to the context of China. CFA was firstly used to validate the structure of six items measuring information search on the Internet in the measurement model and the convergent and discriminant validity of online information search were achieved.

The finding of relatively low explanatory power requires further investigation. Further research should be undertaken, based on the emergent literature, to identify other antecedent variables that may play a contributory role in online information search behavior of consumers. One possible antecedent variable could be the convergence of the Internet with other technologies, such as the mobile phone. Research to identify the consistency of the findings of this study across a diverse range of products and services is called for. Moreover, the online information search model proposed in the present study should be further validated across consumers and products.

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