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Choice of E-Channels: Performance Risk and Dominance of Search Attributes

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ABSTRACT

Telepresence in the psychomotor domain, offline knowledge in the cognitive domain, and brand reputation in the affective domain are theorized to positively affect perceived dominance of search attributes of a product. It is also hypothesized that rather than product type, dominance of search attributes created by online sellers makes people to overcome the performance risk in e-channels and accept the Internet as a purchasing avenue. This study presents a framework of e-channel choice that enables better understanding of online consumer behavior, and provides insight into the pivotal role of conversion from experience to search attributes for products in e-channels.

KEYWORDS: Performance risk, Search attributes, E-channel, Telepresence, Offline knowledge, Brand reputation

INTRODUCTION

Early projections of the impact of computer and communication technologies predicted that sellers would become highly dependent on electronic transactions (Huber, 1984). As predicted, the Internet opened unprecedented electronic channels (e-channels), where firms could expand their markets by overcoming barriers such as time, distance, and high up-front costs in traditional physical channels. Consequently, when web vendors attract consumers to purchase their products and services, they benefit not only from 24/7 convenience and cost savings, but also from the expanded reach to distant consumers (Chiu et al., 2014; Scholl et al., 2009; Chiang and Dholakia, 2003). However in 2014, online sales accounted for only 6.4 percent of the retail sales in the United States (U.S. Census Bureau, 2016).

Research on e-commerce has identified various channel-choice factors using diverse theoretical foundations. A limitation in this stream of research is that researchers either perceive e-channels only as purchasing places, or do not explicitly understand and/or investigate the different effects resulting from the different roles of the e-channels. Also, the same dependent variables in e-channel choice studies are used but in different contexts, and with different definitions and meanings. This has caused inconsistent and conflicting descriptions of e-channel choice. For example, 'high intention to purchase online' for Yao and Liao (2011) and Heijden et al. (2003) is interpreted to mean that consumers do not have anxiety in using Internet technologies and are willing to use the Internet as a purchasing channel. This is especially true for many 2nd generation digital natives (Joiner et al., 2013). While traditional approach focuses only on consumers' resistance to use e-channels, resistance and its consequent determinants of the channel choice may vary depending on whether consumers regard the Internet as an information source or a purchasing place. Therefore, an explanation for the small ratio of electronic transactions might be based on Booker's (1995) finding that many consumers use the Internet only as an information source to complement physical channels. However, studies that recognize the distinction between using e-channels as an information source compared to a

purchasing place are rare. Several studies acknowledge e-channels uniquely as an information source, but they fail to perceive it as a purchasing point as well (Chiu et al., 2005). While other studies perceive an e-channel as a purchasing place, they do not consider the potential relationship between information search and purchase behaviors, and the relationship between the information search and the purchasing channels (Ha and Stoel, 2009; Bagozzi, 2007). In the investigation of the e-channel choice and the potential linkage from information-source to the purchasing-place roles of e-channels, a critical issue is how confident consumers are in evaluating the characteristics of goods in the digital environment (Ba et al., 2005). Online consumers can assess the value and quality of a product through web technologies like three-dimensional experience (Visinescu et al., 2015; Yi et al., 2015; Petit et al., 2010; Debbabi et al., 2010), interactivities (Beuckels and Hudders, 2016; Lee and Park, 2014; Stavropoulos et al., 2013; Sukoco & Wu, 2012), and feedback systems (Markopoulos et al., 2016; Lin and Heng, 2015; Park et al., 2014; Yu & Wu, 2013; Pan & Zhang, 2011). Then, they may be able to alleviate the performance risk in e-channels, and be inclined to buy products online because of the benefits offered by e-channels (e.g., shopping convenience and lower prices). In this sense, Lee and Park (2014) argued that increased virtual presence or telepresence facilitated by information technologies enhances consumers' decision-making process by providing multiple cues. Whereas the importance of information has been emphasized in the marketing and e-commerce literature, dominance of search over experience attributes in a product has been limited in the studies that regard the Internet as a purchasing channel. Consequently, this study examines the balance between experience and search attributes as a potential factor to the choice of e-channels.

LITERATURE AND THEORETICAL FOUNDATION

Choice of E-Channels

Consumer transactions generally proceed by 1) sellers and consumers exchanging information about products and services, 2) sales transactions being carried out, followed by, 3) the products and services physically being delivered to the consumer. Traditionally, these three processes have been viewed to be functionally independent, and have been completed separately through communication, transaction, and distribution channels (Peterson et al., 1997). However, with the rapid development of information technologies, the boundaries between the different functional channels have become blurred as these processes now co-mingle and overlap (Li et al., 1999). For example, a consumer that once acquired information about a product through a newspaper (communication function) and bought it at a store (transaction function) now can either search for information on the Internet and/or purchase in an e-channel. Electronic channels can be used for carrying out both communication and transaction functions for most products, and electronic channels can even perform the distribution function for information goods. Indeed, electronic channels offer information-based value through a buyer-focused mentality (Christiaanse and Zimmerman, 1999). Therefore, consumers' information search, an issue once constrained to the communication function of a channel, warrants a new investigation in the e-channel context where both communication and transaction functions can be carried out together.

Researchers have studied what attracts consumers to use e-channels through a variety of dependent variables (DVs) including incentives, intentions, buying online, electronic purchasing, adoption, and commitment. These variables have been frequently used in diverse contexts and with different foci leading to an ill-defined concept of e-channels choice, and to confusion about a clear definition of "choice" in the e-commerce literature. These studies can be categorized into

three perspectives: (1) choice among individual websites, (2) choice to use e-channels as an acceptable purchase channel, and (3) choice of e-channels over traditional (physical) channels for purchase (Lim et al., 2012).

The prevalent perspective among the three is choice to use e-channels as an acceptable purchase channel. Technology acceptance model has been the dominant framework to describe this perspective (Ha and Stoel, 2009; Bagozzi, 2007). Since this perspective is concerned with individual intention to accept e-commerce systems, various constructs centered on the salient beliefs such as ease of use and usefulness have been identified. Trust (Kim, 2012; Lee et al., 2011) and perceived risk (Heijden et al., 2003; Pavlou, 2003) are popular constructs discussed within and in relation to the framework. In the marketing literature, the categorization of utilitarian factors and hedonic factors has contributed to understanding of consumers' purchase intention (Tong, 2010). While both utilitarian and hedonic factors have played important roles in the perspective of choice among individual websites (Venkatesh et al., 2012; Chiu et al., 2005; Van der Heijden, 2004), only utilitarian factors have been shown to affect consumers' choice to use e-commerce systems for purchasing tasks. People compute gains and losses regardless of the personal preference or resistance when confronted with a choice situation (Abdellaoui et al., 2005). Consumers who are open to e-commerce technologies for purchase may not choose electronic channels depending on the balance of the computation. If consumers use e-channels exclusively to browse and acquire product information, different factors will influence their sensitivity about using e-channels. The consequent determinants of the channel choice may vary depending on whether consumers regard the Internet as an information source or a purchasing place or both. However, studies that distinguish between a purchasing place and an information source are rare. Consumers can choose electronic channels as an information source, a purchasing place, or a marketplace where consumers search for information and make actual purchases. Some argue that the *raison d'être* of e-channels is providing information (Huizingh, 2000). However, consumers perceive the e-channel not only as an information source but also as a purchasing place (Maignan and Lukas, 1997). An issue in this argument is whether consumers actually buy products through e-channels. In this regard, choice of e-channels represents consumers' intention to use e-channels as a potential purchasing avenue beyond an information source.

A brief glance over consumers' current usage of e-channels offers a starting point for the study of the e-channel choice issue. The task of purchasing products has basically two components: (1) search for a product that satisfies a consumer's desire, and (2) the actual purchase (Patwardhan and Ramaprasad, 2005). The usage of e-channels can be understood by looking at how consumers combine these two components of purchasing: search and purchase as illustrated in Figure 1. Non-commercial consumers shown in cell (A) use e-channels for non-transactional purposes, usually entertainment (e.g., chatting, game, e-mail). This segment does not utilize the Internet as an information source nor as a purchasing channel. Consumers in the cell (B) of complementary information source utilize e-channels for information search, but usually purchase products through physical channels. Consumers in the cell (C) of complementary purchasing place, either have pre-knowledge of the products or physical experiences before purchase, but buy the product in e-channels because of the comparative benefits such as lower price. Finally, consumers in the substitute marketplace cell (D) use e-channels for searching information as well as buying products. While a consumer can move between cells depending on situational contingencies, a U.S. Census Bureau report (2016) shows a small portion of online sales results from a large population who search for product information in e-channels. This suggests that the majority of U.S. consumers are in cell B, using the Internet only as an information source. Consequently, this study focuses on understanding

why consumers shift from using the Internet solely as an informational source (cell B) to using it as an informational source and purchasing channel (cell D). Further, it examines why a consumer who uses the Internet as an information source and purchasing channel (cell D) sometimes returns to using the Internet solely for information search (cell B).

Figure 1. E-Channel usage

Task		Search	
		Physical channels	E-channels
Purchase	Physical channels	Non-Commercial Activity (A)	Complementary Information Source (B)
	E-channels	Complementary Purchasing Place (C)	Substitute Marketplace (D)

Performance Risk

Consumers, who are initially attracted to e-channels by the comparative benefits of buying through e-channels, may hesitate to actually buy online because of the risk arising from the peculiar characteristics of e-channels. Recent studies especially see perceived risk as a key barrier to e-commerce success (Chiu et al., 2014; Glover and Benbasat, 2010; Ramanathan, 2010). Risk shapes discouraging factors to online transactions while factors in the appetitive motivation systems encourage online purchase. Alleviating perceived risk will decrease the influence of factors that discourage consumers from staying online for product purchase. To choose e-channels on the base of comparative benefits from online product purchases, the risk that a consumer is exposed to has to be around the optimum level. The optimal level means the level at which a consumer becomes indifferent between shopping via e-channels and via physical channels (Bhatnagar et al., 2000). Otherwise, she will be likely to avoid e-channels. Six types of risk in traditional retail channels have been identified in the literature. These include financial, source, performance, physical, social, and psychological risks. In this study, we focus especially on performance risk, which is quite relevant in electronic channels. Nöteberg (2003) defined performance risk as a concern about whether a purchased product will perform as expected and satisfy the consumer’s requirements. Problems with performance risk in e-commerce can be addressed by providing web-enabled experience of a product. Then, consumers will have sufficient and appropriate information about what to expect from the products that they are about to purchase (Chiu et al., 2014).

Behavioral, Cognitive, and Affective Learning Theories

Since our study focuses on consumers’ behavior to seek experience, we identify factors from Breckler’s (1984) tripartite model, which centers on three facets of human experience. This is also consistent with the three factors that educational scholars have theorized (Martins et al., 2012). According to these theories, people learn or process information in three different domains: 1) cognitive domain, which deals with recognition of knowledge or intellectual understanding; 2) affective domain, which deals with emotional processing of information (Martin & Reigeluth, 1999); 3) behavioral or psychomotor domain, which refers to behavioral action including reactive and/or interactive domains (Romiszowski, 1999).

Characteristics of Product Information

Consumers examine or experience products to collect information, which helps them evaluate products before purchasing decision. Categorizing products based on their characteristics is quite relevant since this study examines consumers' perception of product characteristics and consequent behaviors. According to Nelson (1974, 1970), a search good is one of which full information about quality and value can be obtained before consumers' purchase of products, while an experience good is one of which quality and value consumers will have hard time to know until they purchase and use it. Further, search goods are known to be ones that are dominated by attributes that substitutes physical experience, for which information search is easy and cheap while it's difficult and expensive for experience goods (Klein, 1998). Further, Shapiro and Varian (1999) recognized that every product has some extent of both experience and search attributes and a product would be called an experience good when the balance is leaning toward more experience attributes than search attributes.

HYPOTHESES DEVELOPMENT AND RESEARCH MODEL

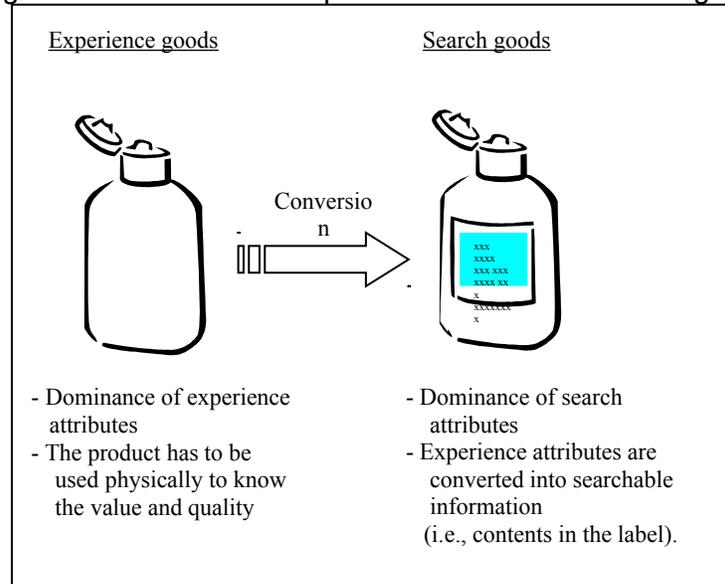
Drawing on the three domains of learning, we came up with three variables as important factors to alleviate consumers' concern of performance risk in e-channels: telepresence for behavioral domain (Mollen and Wilson, 2010; Dholakia and Zhao, 2009), brand reputation for affective domain as evidenced by Rose et al. (2011), Kwon and Lennon (2009), and Silva and Alwi (2008), and offline knowledge for cognitive domain in seeking product information (Kim and Prabhakar, 2004).

Consumers who want to buy products can easily go to physical stores to evaluate the products' value and quality. Accordingly, online consumers are more prone to performance risk. Independent of why consumers come to e-channels, they need to know if a chosen product will perform as expected and satisfy their requirements (McCorkle 1990). Therefore, the reduction of performance risk is a primary key to breaking barriers to e-commerce (Laurence and Tar, 2010; Kshetri, 2008). Consistent with this reasoning, conventional wisdom states that experience goods demand physical examination and are not suitable for online shopping while search goods are amenable to e-commerce (Mahajan et al., 2002). McCabe and Nowlis (2001) find that the consumer's choice of channel depends on the difference of product attributes. A product cannot be easily converted from an experience good to a search good. However, if the experience attributes of a product can be converted into search attributes through consumers' learning process, a seller would benefit from making the product-attribute information available to consumers before they purchase it. Therefore, we think what's really important in consumers' decision about e-channel choice is the sufficiency of given product information rather than the product type itself.

Whether sufficient information is given to address consumers' performance risk depends on the extent to which experience attributes of a product becomes searchable information. We can achieve high dominance of search attributes in products by converting need-to-know experience attributes into search attributes. Then, the 'dominance' of experience attributes in a product may wane out as Klein (1998) suggested, and the search attributes will become more salient in the same product. Therefore, we define the dominance of search attributes in a product as the extent to which a consumer knows the value and quality of a product before buying and experiencing the product. For example, a personal computer (PC) has many properties that need to be experienced before purchase. However, if a consumer is provided with information with high search dominance that is developed along the standardized specifications such as RAM size, hard drive capacity, and CPU type, she will be able to determine the quality of the PC without physically experiencing it. In this case, the dominance of search attributes in PCs

increases and it can be perceived as a search good with high-quality information. Figure 2 summarizes this conversion mechanism.

Figure 2. Conversion of Experience Goods into Search goods



Products with search dominance are known to be appropriate for e-commerce because the required information is simple, and consumers know what information to look for or already have sufficient information (Barron and Saharia, 1990). When a product is perceived as a search good, the product information will give consumers the similar experience to physical goods without having to physically experience the product before purchase. Then, online consumers of the product will have fewer concerns about whether it will perform as expected and satisfy the consumer's requirements.

Through the transformation of product attributes, performance risk in e-channels can be reduced. If a product is perceived as an experience good, consumers become uncomfortable buying the product online because of the performance risk. Consumers will eventually return to physical channels if it is difficult to evaluate the product through e-channels because of the dominance of its experience attributes. Therefore, as a product's search dominance increases, consumers do not have to physically experience the clearly demonstrated value and quality of a product. In summary, conversion of experience attributes into search attributes reduces experience saliency, and increases the search dominance of a product by facilitating consumers' indirect experience (Chiu et al., 2012; Scholl et al., 2009). The increased search dominance will reduce performance risk, which then encourages consumers to accept e-channels as one that can substitute physical channels for product purchases. If the searchable information provided is not sufficient enough, consumers will have to check the product physically and e-channels' role will remain as a complementary information source. Therefore, we expect a positive relationship between search dominance in a product and e-channel choice.

H1: The dominance of search attributes in products positively affect consumers' choice of e-channels as a purchasing avenue.

Among the basic components of the product-purchasing task, the importance of information search activities in the consumer decision process has been highly emphasized in the literature (McCull-Kennedy and Fetter, 2001). The information search activities are directly related to reducing performance risk. This suggests that web vendors need to be aware of the quality of product information being displayed to, and searched for by consumers. Studies on website traffic focus on what attracts consumers to a website during their initial information search (Lua et al., 2010; Sparrow 2003). These studies find that for sellers to attract consumers to their channels, consumers should first be aware of the existence of a product, and then learn about the product (Vakratsas and Ambler, 1999). Consequently, it is product information that draws consumers to e-channels. Consumers may be satisfied with high-quality information in e-channels that offer the required product experience. However, if consumers are not captured by high-quality information in the e-channels during the information search stage, a path-dependent 'hierarchy of effects'¹ (Lavidge and Steiner, 1961) from awareness of a product to buying decisions will occur outside the e-channels or within conventional channels. Bellman et al. (1999) uphold this idea, and conclude that online purchasing is preceded by a behavior that seeks product information on the Internet. However, the biggest source of consumer dissatisfaction in both physical and electronic channels is the unavailability of required information, which increases perceived performance risk of consumers (Chiu et al., 2014). If web technologies resolve this issue by enhancing the quality of information through various electronic tools and provide better information, then consumers will be less likely to require the physical experience of products. Then, consumers in the information search stage will be more likely to purchase in e-channels. This web-technology-enabled experience of products is referred to telepresence. Telepresence has been defined as a perceived reality through a variety of media (Bracken & Skalski, 2009), recognized as an antecedent of engagement in positive attitude to a product (Mollen & Wilson, 2010), and reported to affect effective advertising, user enjoyment in video games, and psychological immersion (Pelet et al., 2017; Yim et al., 2012; Nah et al., 2011; Bracken & Skalski, 2009). We adopt Lim et al.'s (2012, p.351) definition of telepresence, "the experience of one's physical environment perceived through the mediation of a communication medium or the presence which is an illusion of being there in a mediated environment". Experience goods are characterized by the dominance of experience attributes, but telepresence can make search attributes to be dominant by flipping experience attributes into search attributes. Lim et al. (2012) point out four tools that enable this through enhancing telepresence through standardized specification, visual and auditory description, interactive components, and feedback of high quality. If the experience mediated by e-channels is sufficient to evaluate a product, the product becomes dominated by search attributes. Therefore, we posit a positive relationship between telepresence and search dominance in a product.

H2: Telepresence positively affect affects the dominance of search attributes in products.

While we argue that high information quality in e-channels increases search dominance in a product, search dominance in a product is known to increase with brand reputation and pre-knowledge of a product. Sometimes experience goods cannot be experienced in the physical stores. For example, when a product is displayed with a sealed wrapping, consumers may not be able to see the details of what are inside the wrapped boxes or cases. Consumer-based branding research and signaling theory assert that this information asymmetry between consumers and sellers can be solved by signaling the 'missing' value information in a market interaction (Kirmani and Rao 2000; Boulding and Kirmani 1993). One solution for sellers in this situation is to 'send pre-purchase signals' about the product's value or quality using branding

¹ Another name is a 'persuasive model'. The six stages of it are Awareness, Knowledge, Liking, Preference, Conviction, and Purchase.

(Nelson, 1974). Vendor and/or brand image (Tsao et al. 2006; Kirmani and Rao 2000), and/or vendor reputation (Pennington et al. 2003) can alleviate consumers' evaluation into a simple searchable quality attribute through engendered trust. Further, Morgan-Thomas and Veloutsou (2013) argue and prove that brand reputation is an important signal of trust for purchase. Tsao et al. (2006) assert that brand name can carry information about the quality of products as an effective signal of unobserved quality. Brand reputation simplifies the consumer evaluation of the complicated experience attributes, and facilitates the conversion of experience attributes into search attributes. Therefore, we argue that brand reputation has a positive relationship with the perceived search dominance in a product.

H3: The brand reputation positively affects the dominance of search attributes in products.

Offline pre-knowledge is another factor to affect search dominance in a product. It is the extent to which a consumer knows a product with familiarity gained through previous experience or association. Jiang and Benbasat (2007) argue that perceived website diagnosticity, rather than product knowledge, affects the perceived usefulness of websites. Consistent with their argument, the product's attributes become simple search attributes to a consumer with offline knowledge or experience of products, who in consequence can easily evaluate the value of the product (Kim and Prabhakar, 2004). Therefore, we hold that the level of offline knowledge about a product has a positive relationship with the perceived search dominance in a product.

H4: The offline knowledge positively affects the dominance of search attributes in products.

Table 1. Definition of Variables

Variables	Definition
Choice of E-Channels	A consumer's decision to use e-channels as a purchasing place beyond an information source.
Dominance of Search Attributes	The extent to which a consumer can know the value and quality of a product before physically experiencing the product.
Telepresence	The extent to which one can experience one's physical environments through the mediation of the Internet.
Brand Reputation	Overall quality of a firm's products judged by people in general.
Offline Knowledge	The extent to which a consumer knows a product with familiarity gained through previous experience or association.
Channel Trustworthiness	Beliefs about a specific web store comprising a willingness to become vulnerable to that store.

Many researchers consider trust as an important component of an online exchange relationship (Weisberg et al., 2011; Palvia, 2009; Kim et al., 2009; McKnight et al, 2004). Trust is asserted to be one of the important enabling forces of online exchanges under uncertainty, lack of control, and anonymity of virtual shopping (Fang et al., 2014; Lu et al., 2010). Therefore, we use e-

channel's trustworthiness as a control variable to the research model. Table 1 summarizes the variables in the research model.

RESEARCH METHOD

This study seeks general perceptions about e-channels rather than vendor-specific perceptions, and requires a minimum level of outside interference. Also, the measured perception of consumers should reflect on the actual electronic business-to-consumer environment. Considering these requirements, we employ a methodology in which we combine a survey and a quasi-experiment, where participants are asked to navigate through the designated websites and then answer the survey. This way, we could collect data about consumers' real perceptions while adopting several tools to secure reasonable control of extraneous factors. The unit of analysis for this study is a consumer who searches for information about a product on a website.

For structural equation modeling, researchers equate the required sample size to 10 times the number of free parameters (Klein, 2005), but this idea has not been empirically supported yet (Jackson, 2003). An advanced approach is calculating sample size based on a target power level and the estimate of partial effect size, which can be calculated through correlation estimates. This approach has been accepted as reasonable in the psychological methodology literature (Maxwell, 2000). To estimate the correlations, studies similar to our study in investigating online behaviors were examined in the e-commerce literature. Ten random articles that reported correlation matrix were sampled, and both ρ^2_{xy} and ρ_{xx} were conservatively estimated as .4. The result shows that the required sample size to achieve a power of .80 is 235 for the research model, which is less than our final sample size (N= 304). This sample size was also tested for MacCullum et al.'s (1996) power analysis for testing SEM models, and the expected power level approximated 1, which triangulates the adequacy of the sample size of this study.

Using the survey instrument presented in Lim et al.'s (2012), we collected and analyzed 304 data from college students in the southeastern area of the U.S. Initial data show that most participants have experience in using the Internet for product purchase, and only 3.9 percent of the participants have used the Internet only for searching for product information. This study is concerned with the behavior of those who have ever experienced the Internet either for information search or purchase, and all the participants are qualified for our analysis. Participants' Internet experience ranges from 3 to 13 years with the mean of 9.1 years, and their ages range from 18 to 35 years old with the mean of 21.3 years old. Most of the participants are undergraduate students, and female students constitute 40.1 percent of the total participants. To test the research model, we used Structural Equation Modeling (SEM) through EQS 6.1.

Measurement Model Specification

Mardia's statistic did not identify any outliers in the collected data. Observed data for each individual variable met univariate normality. However, when all variables in the model were pooled together, the test showed normalized estimate of 19.3, which is a little over the desired level while there is less consensus about the cutoff value for normalized estimate. Bentler (2005) suggests 5.0 and Klein (2005) recommended 3.0. However, Gao et al. (2008) questioned these cutoff values, asking for balance between the two extremes of (a) a model on the full sample that is unreliable because of extreme nonnormality and (b) a model on a sample that has discarded so many cases to achieve multivariate normality and is no longer fully

representative of the desired population. Based on Byrne's (2006, p.167) recommendation, we used the ROBUST ML (Maximum Likelihood) methodology and the Satorra-Bentler scaled chi-square to attain correct and stable statistics. The data demonstrates an excellent model fit with model χ^2 of 332.82 (d.f. = 124). This makes the normed chi-square (NC = $\chi^2/d.f.$) 2.68, which is less than Klein's (2005) recommended value (< 3.0 for a good fit). Our model demonstrates an RMSEA value of 0.075, which is less than the cutoff value of 0.08 for reasonable fit (Byrne, 2006, p.167), and rests within 90% CI of 0.065 and 0.084. The comparative fit index (CFI) assesses relative improvement in fit of the research model with a null model, and values greater than 0.95 indicate a good fit of the model (Hu & Bentler, 1999). The CFI value of the research model is 0.95, which meets the criterion. Overall, the model demonstrates a good fit throughout core fit measures of NC, RMSEA, and CFI.

Construct Validity and Discriminant Validity

The scale items' validity was tested through convergent and discriminant validity tests (Boudreau et al., 2001). Convergent validity checks to see if a factor captures the variance well in its indicators. Convergent validity is evaluated through three criteria: (1) all measurement factor loadings exceed 0.70 (Fornell and Larcker, 1981), (2) construct reliabilities exceed 0.70 (Netemeyer et al., 2003), and (3) average variance extracted (AVE) for each construct exceeds 0.50 (Fornell & Larcker, 1981).

Table 2. Factor Loadings and Reliabilities

Construct	No. of indicators	Loading	Cronbach's Alpha	Composite Reliability
Telepresence	3	0.784-0.870	0.918	0.866
Brand Reputation	3	0.952-0.959	0.940	0.968
Offline Knowledge	3	0.858-0.895	0.840	0.903
Dominance of Search Attributes	3	0.757-0.884	0.799	0.875
Choice of E-channels	3	0.910-0.957	0.894	0.940
Channel Trustworthiness	3	0.827-0.868	0.811	0.883

As seen in Table 2, all factor loadings exceeded the recommended 0.70. Both Cronbach's alpha and composite reliability for our model demonstrated estimate values over 0.70. AVE shows how much variance of the indicators is captured by the underlying factor (Fornell & Larcker, 1981). AVE for each factor of the research model ranged between 0.69 and 0.85 (see Table 5),

Table 3. Correlations and AVE

	1	2	3	4	5	6
1. Telepresence	0.89					
2. Brand Reputation	0.365	0.97				
3. Offline Knowledge	0.431	0.651	0.92			
4. Dominance of Search Attributes	0.658	0.47	0.528	0.89		
5. Choice of E-channels	0.411	0.245	0.314	0.568	0.95	
6. Channel Trustworthiness	0.413	0.542	0.432	0.452	0.248	0.90

* Each diagonal element is the square root of the average variance extracted (AVE) estimate for each variable.

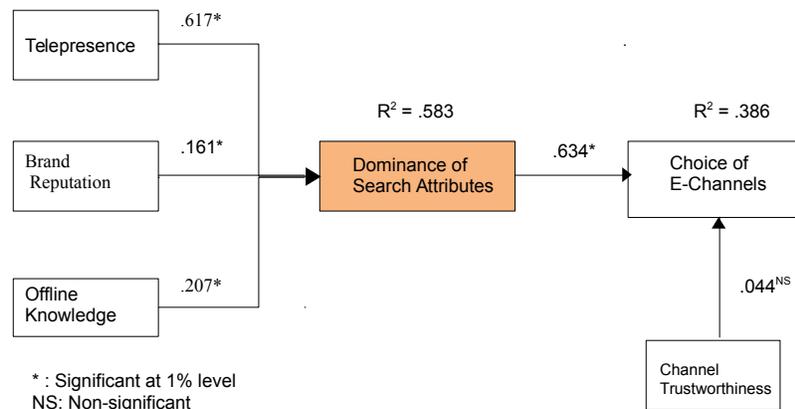
** Off-diagonal elements are the correlations between the different variables.

which meets Fornell & Larcker's (1981) required level (> 0.5) for convergent validity. Discriminant validity is assessed by the square root of AVE for each variable, which is the diagonal element in the correlation matrices. As seen in Table 3, discriminant validity is verified as all the diagonal elements are larger than their corresponding horizontal and vertical correlation coefficients. This indicates that all variables in the model show appropriate discriminant validity (Gefen et al., 2000).

Assessment of the Structural Equation Model

For structural equation modeling, covariances in the measurement model were replaced with causal relationships. All causal relationships in the research model were estimated through structural equation modeling approach using EQS 6.1.

Figure 3. The Regression Results of the Research Model



All coefficients including one for a control variable were estimated together through the ROBUST ML estimation. The result of the SEM showed adjusted R^2 of 0.583, explaining 58.3 % of the variance of search dominance in products with three determinants. Hypothesis 1 predicts a positive effect of search dominance on choice of e-channels. The data showed a significant influence as predicted (standardized coefficient: 0.634; $p < 0.01$). Hypothesis 2 about telepresence's effect on search dominance is also supported, as the regression coefficient is estimated to be 0.617 ($p < 0.01$). Hypothesis 3 was also supported at the 1 % level of significance as the regression coefficient was estimated as 0.161. Finally, the coefficient for the relationship between offline knowledge and search dominance presented a coefficient value high enough to support the hypothesis (standardized coefficient: 0.207; $p < 0.01$). Therefore, all four hypotheses are supported, and Figure 3 presents the test results of the structural model.

CONTRIBUTION AND CONCLUSION

The present study test a structural equation model through the validated instruments. For causal relationships, three factors were identified and proved to help consumers' online product evaluation through conversion of experience attributes into search attributes. These three factors of telepresence, brand reputation, and offline knowledge were drawn from behavioral,

affective, and cognitive learning theories, offering online sellers three levers to attract customers suffering with performance risk. Among those factors, the biggest impact on search dominance turned out to come from perceived telepresence. Since there exists a big potential that telepresence can be easily manipulated through web information technologies, telepresence warrants further investigation in the future. Fast development in web technologies has facilitated consumers' continuous effort to evaluate products before purchase, and sellers who can place these telepresence features like interactive tools, three-dimensional views, users' feedback, etc. on the consumers' fingertip would attract more buyers. This study attempted to find out how to lessen online consumers' concern about performance risk. Brand reputation can be enhanced through accumulated good feedback and words of mouth from the existing users of the product. Online sellers can enhance it through encouraging their patrons to post good feedback on the sellers' or public sites. Online sellers may have the least control on consumers' offline knowledge, which may be boosted through campaigns like test drive events.

Information of high quality addresses online consumers' anxiety toward performance risk. The result of the data analysis shows that what matters is online sellers' ability to help customers experience and evaluate products rather than appropriate types of products for online transaction. It also indicates that online consumers do not separate the quality of product information from the quality of contextual information, e.g., website quality. Therefore, it is recommended that online vendors pay just as much attention to the contextual information as they do to the quality of product information. To the best of our knowledge, this is the first paper in information systems research to examine the three factors drawn from the behavioral, cognitive, and affective learning theories in the framework of converting digital attributes, not product characteristics themselves.

For academics, this study projects several important implications. First, this study introduces a new framework to observe online consumer behaviors. It sheds a light on the complex nature of the construct - choice of e-channels. By focusing on online buyers' performance risk, our research model enables better understanding of consumers' risk-avoiding behaviors. Second, the result of this study shows that telepresence reveals the strongest effect on perceived information quality, and consumers' perceived performance risk. While the IS literature is silent on testing the effect of telepresence, this study presents it as a new window of research, through which we might further investigate the virtual reality by indirectly experiencing of the physical world.

For practitioners, online sellers should make every effort to transform from being a mere information source, to being a place for purchase. The product pool for online sales may be expanded through high-quality information that converts experience goods into search goods. Against the prevalent acceptance of the inadequacy of experience goods for e-commerce, our results show that experience goods are excellent candidates for electronic transactions with the help of web technologies. Klein (1998) argues that the categorization of search and experience goods only provides a relative spectrum of search and experience attributes of a good. While admitting that search goods are suitable for electronic transactions (Gupta et al., 2004), this study's support for the effect of dominance of search attributes suggests that experience goods can be perceived by consumers as search goods through well-digitalized product information that reflects intangible experience attributes.

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