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Nitin Walia

Ashland University, nwalia@ashland.edu

Mark Srite

University of Wisconsin-Milwaukee, msrite@uwm.edu

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The Influence of Price, Product Complexity, and Personal Involvement on Web Interface Efficacy

Nitin Walia

Dauch College of Business and Economics
Ashland University
Ashland, OH 44805
Email: nwalia@ashland.edu

Mark Srite

Sheldon B. Lubar School of Business
University of Wisconsin-Milwaukee
Milwaukee, WI 53201
Email: msrite@uwm.edu

ABSTRACT

Although Internet retailing has become part of mainstream commerce, there is still lack of web-interface design strategies as a function of price of product, complexity of product, and personal involvement of consumer with the product. Different types of products require different aspects of information and environment as demanded by consumers; thus, it is imperative for retailers to appropriately tailor their online presentation of products. Drawing from the elaboration likelihood model (ELM), we intend to investigate the effectiveness of peripheral-cue dominated interfaces, balanced-cue dominated interfaces, and central-cue dominated interfaces on consumer purchase intentions. Our initial analyses provide support for the contention that the role of website cues (peripheral and central) on the consumer varies by the type of product. Our findings have implications for research and practice. We intend to provide greater insights into our results in our presentation at the conference.

KEYWORDS

Elaboration Likelihood Model, Peripheral/Central Cues, Web Interface Design

INTRODUCTION AND LITERATURE REVIEW

Due to the virtual nature of online commerce, the design of a site plays an important function in both informing the consumers about the product and providing cues about the nature and abilities of the seller (Chiou et al., 2010; Song et al., 2011; Palmer, 2002; Pavlou and Fygenson, 2006). Prior literature pertaining to the design of online shopping interfaces suggests that the websites mainly differ in terms of the information cues provided and the quality of the information design (Song and Zahedi, 2005; Hausman and Siekpe, 2009; Sicilla and Ruiz, 2009), which in turn influences the decision making process of the consumer. Many of the popular retailers' websites (Bestbuy, Walmart, and Dell) employ a common presentation design on their website interface for all categories of their products irrespective of the price, complexity, and involvement (interest) of consumers with the product. While such practices may promote consistency and ease of maintenance it also assume the same information requirements, processing needs, and interest of consumers for all categories of products. Examination of the effectiveness of the web interface website interface design as to how it relates to the type product (price and complexity) and personal involvement of the consumer with the product could provide important insights into consumer online behavior and preferences.

Research suggests that several information design elements on a website (text, pictures, graphics, and animation) affect user outcomes such as perceived ease of use, satisfaction, product knowledge, product understanding, attitude, and behavioral intention (Nadkarni and Gupta, 2005; Jiang and Banbasat, 2007). However, conflicting results exist in the literature. Agarwal and Venkatesh (2002) suggest that simple websites are perceived as easy to use and effective by consumers while other studies suggest that increased multimedia richness enhances user satisfaction (Palmer, 2002; Brynjolfsson and Smith, 2000). We attempt to resolve this ambiguity by theorizing that the three Ps (i.e., price of product, complexity of product and personal involvement) moderate the influence of web interface cues on website design perception, product understanding, and consumer's purchase intention. Thus, we examine the effectiveness/efficacy of the web interface in communicating relevant product information, conveying the quality of website design and affecting consumer purchase intention in context of three Ps.

For the theoretical development of this paper, we rely on theory of elaboration likelihood model (ELM) (Petty and Cacioppo, 1986a/1986b; Petty et al., 1981) as an overarching theory guiding our conceptualization. As per ELM theory, information processing in an individual could be accomplished via a central or peripheral route depending on information

intensity, user motivation, and message complexity (Angst and Agarwal, 2006; Tam and Ho, 2005; Bhattacharjee and Sanford, 2006). In the central route (text, message content), the emphasis is on critically analyzing the information, high involvement of consumers, and a systematic effort to access information for making an informed decision (Tam and Ho, 2005). Thus, when an individual has both the ability and motivation to process detailed information ELM persuasion occurs via the central route which is based on critical thinking and greater cognitive effort. In contrast, the peripheral route is taken to form a decision based on simple cues. When individuals lack the motivation and need for high information processing, they rely on simple heuristic cues (also called as peripheral cues such as pictures, third party ratings, and experts' opinions) which require less cognitive effort (Morris et al., 2005). Thus the peripheral route to an overall change in attitude is based on low cognitive efforts, low motivation, and simple information cues. This study, with respect to the web interface, investigates the effect of peripheral /central cues on consumers' purchase intention and more importantly examines the moderation of this relationship by the three dimensions related to price of product, complexity of product, and personal involvement of consumer (Three P's). Thus the research question addressed in this paper is:

What is the influence of price of product, complexity of product, and personal involvement of consumers on the relationship between web interface design (peripheral/central cues) and consumer's website design perception, product understanding, and purchase intention?

An important implication of this study would be that retailers should customize their website interface design based on product price, complexity of product, and personal involvement in order to maximize the positive impact on consumers, resulting in the purchase of their product. Although previous studies done in web design and e-commerce interfaces provide insights on various web designs (multimedia), they do not shed light on the simultaneous moderating effect of the three Ps on consumers' behavior in an online environment. This omission has been addressed in a few research studies such as Jiang and Benbasat (2007), and Jahng, Jain, and Ramamurthy (2001) but no comprehensive framework exists to study the moderating role of the three Ps. This study is a natural extension of web interface design work done in IS research by addressing some of the limitations. It uses a three-product sample which provides an explanation beyond product characteristics by employing product price and personal involvement (person fit).

THE PROPOSED CONCEPTUAL MODEL

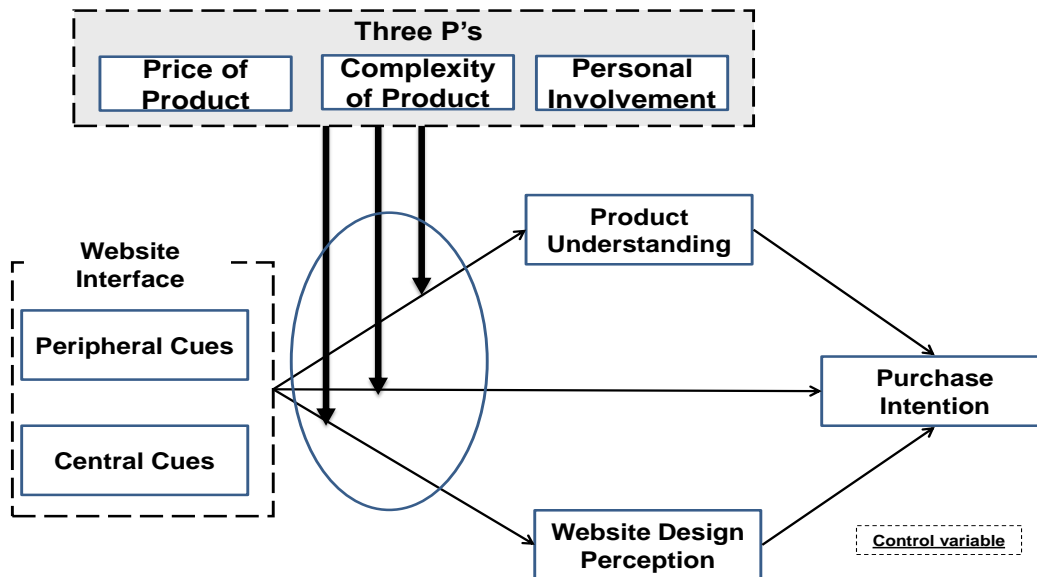


Figure 1. The Proposed Model

Drawing from the ELM, we have developed the framework for this research (Figure 1). In context of this research, we have three user outcomes: Product understanding (PUD), website design perception (WDP), and purchase intention (PI). PUD (Jiang and Benbasat, 2005; Jahng, Jain and Ramamurthy, 2007,) in this research is a direct measure of the effectiveness of the

website interface (elements) in communicating relevant product information to consumers as required for making a purchase. WDP (Song and Zahedi, 2005; Bansal, Zahedi and Geffen, 2008) acts a measure of website quality (appearance) as perceived by the consumer. PI is widely used proxy for actual buying behavior in consumer behavior research (Pavlou, 2003; Chen and Barnes, 2007). Our overall research model is shown below in Figure 1. The main focus of our current study is the moderating role of three P's.

RESEARCH METHODOLOGY

A laboratory experiment followed by an online survey is envisioned to test the proposed model. The experiment will be conducted in three phases: pilot study, design and validation of experiments, and laboratory experiment followed by an online survey. Whenever possible, measurement items will be adopted from prior literature or existing scales for the developed of the survey instrument. With most of the measurements being based on pre-tested surveys we can ensure a higher level of reliability and validity. The face validity and content validity would be tested and confirmed during the instrument development stage. The research model would be transferred into a structural equation model (SEM) approach in Mplus.

During the of design of experiments, websites representing a peripheral-cue dominant interface (PCD), central-cue dominant interface (CCD), and a balanced-cue dominant interface (BCD) balanced between central and peripheral will be designed for each of the products based on literature review and real-world websites. In addition to varying the three interface types, three products of varying price, complexity, and personal involvement (low, medium and high) levels will be selected to capture the purchase intention of participants as part of our experiment. The products selection will be based on the product features, attributes, and complexity (multiplicity, variability, interdependence –Campbell 1998). We plan to employ multiple separate focus groups to validate (a) the product characteristics identified for the experiments, and (b) the design validity of PCD, CCD and BCD interfaces for each product category.

The data collection and analysis stage is currently in process. We intend to provide more insights into our results at the conference presentation. Below we provide initial results from out pilot study based on a sample (n=88) of undergraduate students at a Midwestern urban public university. The pilot test provides evidence as to the existence of factors affecting consumer preferences for the web interfaces. As can be seen from Figure 2, it is evident that the variability in price of product, complexity of product and personal involvement affects the preference between the peripheral and central interface. Thus, the pilot test provides substantial support to conduct the full study. The results from pilot study will not be combined with the main study or used for theory validation.

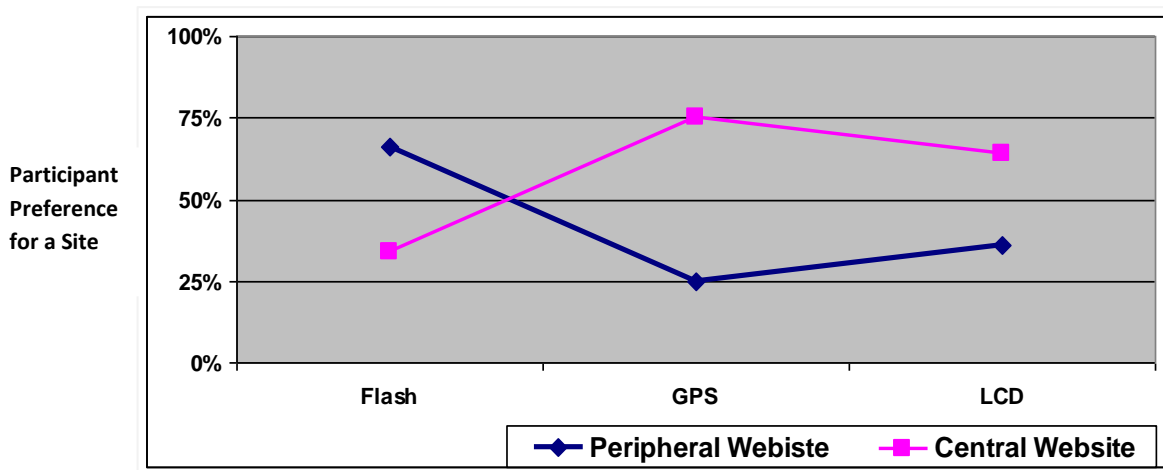


Figure 2. Site-Selection Pattern of the products examined; n =88,
 Note : Neither site was purely peripheral or central but dominated by the particular type of cues

CONCLUSION AND LIMITATION

In conclusion, the ELM concept of peripheral and central routes is a fertile area for examining website design and e-commerce. We theorized the relationship between the three Ps and online consumer information processing methods and preferences. Our framework offers insights about the drivers of website design based on price and complexity of products sold.

Our work has interesting implications for both research and practice. Our study proposes that the different website cues can affect the level of impact on an online consumer in forming a decision but that such affect may vary by the type of product as defined by the level of price and complexity. Based on ELM, this study presented two alternative modes to influence consumer behavior, thus by emphasizing the appropriate route retailers can positively influence a consumer's purchase intention. For practice, our conceptual study questions that the consistent web interface style, "one size fits all" followed by most major online retailers in depicting their products. Our framework provides guidance to online retailers to test new types of multimedia technologies before spending resources to install such tools on their websites.

The current research is limited by the lack of data collection. Data collection and analyses for the full study is currently ongoing and all the proposed links in the model should be treated as that until they are supported or not supported. We intend to provide more insights into our results at the conference presentation.

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