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PERSONALITY AND PRODUCT INFORMATION PRESENTATION IN E-COMMERCE ENVIRONMENTS

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Abstract

Consumer interaction with product information is one of the critical components in business-consumer (B2C) e-commerce environments. Online consumers' characteristics can be expected to play an important role when designing product information presentation in such e-commerce environments. We suggest that online consumers' personality affects the design of how to present product information and the extent to which the various e-commerce environments are effective. In this article, we propose that there are important relationships among personality, product information presentation and on-line consumer behavior in e-commerce environments. We argue that different styles of product information presentation have different impacts on different types of online consumers.

Keywords: Personality, product information presentation, E-commerce environments, online consumer behavior, and media richness

Introduction and Research Background

Over recent years, the number of people using e-commerce environments instead of physical environments for their shopping needs has been growing exponentially. Additionally, these shoppers are so diverse from one another on various aspects that it is difficult to neatly classify them into specific traditional categories such as socioeconomic classes, education groups, ethnic groups, or age groups. Successful e-commerce environments should be able to satisfactorily service their diverse needs regarding their product choice. We need to better understand their behaviors in cyberspace in relation to their individual characteristics in order to better design the e-commerce environments.

Over the past 2-3 decades user characteristics such as age, education, cosmopolitanism, systems experience, skill-base, cognitive style, gender, etc. have been of considerable importance in the design and implementation of individual information systems (Kwon & Zmud 1987; Lucas, 1978). There have been numerous studies on individual differences positing that these factors can potentially influence IS success (Zmud 1979). However, cognitive style research as an area has been criticized for inconclusive study findings and the small amount of variance explained (Huber 1983). Recently "personalization" as an area of research is gaining attention in IS and e-commerce field (Palma-dos-Reis & Zahedi 1999, Riecken 2000). Personalization (in terms of both the information content and context) needs to take into account many of the above-noted individual-specific characteristics. One of these characteristics is personality; thus, research dealing with consumers' personality is becoming increasingly important in e-commerce environments due to advancements in the Internet technology that makes it possible for e-commerce systems to be (almost) customized for every single customer. There are many different formats and media for presenting e-commerce environments to on-line consumers. We will argue a little later that different on-line consumers have different preferences on various aspects of e-commerce environments.

A key aspect of e-commerce environments is the presentation of product information to online consumers. There are various choices in terms of the media and formats to present product information. These choices range from simple text and static pictures to multimedia. In this article, we propose that there are important relationships among personality, product information

presentation and on-line consumer behavior in e-commerce environments. We argue that different product information presentation styles have different impacts on different types of online consumers.

Theory

Theory of Psychological Type

People are inherently different in terms of how they acquire and process information while engaged in decision-making. Psychological types that focus on cognitive style provide a fairly rigorous theoretical approach to detect these differences. The theory of psychological types (Jung 1923, 1970) describes individual differences in terms of their preferences for acquiring and processing information. Originally, the theory identified four major personality dimensions to summarize individual differences: Extroversion/Introversion, Sensing/Intuiting, Thinking/Feeling, and Judging/Perceiving.

Two of these four personality dimensions have been widely used in decision-making research: Sensing/Intuiting, and Thinking/Feeling. An individual's preference for certain types of data and the approach they adopt to process the data have been considered to be key indicators of how people employ data to make decisions (Nutt 1993). Sensing/Intuiting (or sensation/intuition) dimension concerns people's information acquisition style whereas Thinking/Feeling dimension relates to people's information processing style. Sensing-type people focus on hard data or facts, and the actual and realistic things that currently exist. On the other hand, Intuitive-types like qualitative and subjective information and enjoy vivid imagery, speculation, possibility, inspiration, and focus on opportunities in the external environment. In general, Thinking-types seek objective, impersonal, and logical basis of choice. Their focus is primarily on analysis of the problem/decision-making situation and the ensuing plan. On the other hand, Feeling-types prefer subjective and personal values. It must be noted, however, that feeling judgments are mental evaluations and not emotional reactions.

Extension of Media Richness: Product Information Presentation in e-Commerce Environments

As noted earlier, there are various media and formats of presenting product information in e-commerce environments. Traditional studies on information representation format were limited in terms of the number of formats they had available to them and could deal with. They focused primarily on table versus graph as major presentation formats and investigated the effect of these formats on decision-makers in various task contexts, coming up at times with seemingly inconsistent research findings. However, these two formats are not only formats available for presenting information in e-commerce environments. As information technology has advanced, there are a number of formats and media for representing product information in e-commerce environments. They range from textual information in table format, textual information with graph, textual information with static picture, textual information with dynamic picture (3D, for example), etc. In terms of media for presenting product information, there are numerous media including text, static picture, 3D-enabled picture, virtual experience-enabled picture, moving picture with sound, walk-through-enabled picture, virtual reality using gears, etc. Few, if any, studies exist that have examined the effects of these new information presentation media on user decision-making.

These media are substantively different in terms of richness. In order to investigate the theoretical differences of these media, there is a need to reconsider the notion of richness of various media in presenting product information. Richness is defined as the potential information-carrying capacity of data (Daft & Lengel 1984). Media (or Information) richness has been defined as the capacity of the media to facilitate the shared meaning within a given time interval (Dennis & Kinney 1998). It has also been defined as the ability of the media (information) to change understanding within a time interval (Daft & and Lengel 1986). According to the media richness theory of Daft and Lengel (1984), media richness emerges from four major factors: the number of cues and channels utilized, immediacy of feedback, language variety, and personal focus. Most previous studies based on media richness have dealt with information communication media, and not really with information presentation media. Therefore, the notion of media richness needs to be extended to information presentation media.

Along similar lines to the definition of richness of information communication media, we would suggest that the information presentation media richness refers to the potential information-carrying capacity of the media. The factors affecting richness of information presentation media can, however, be different from those influencing communication media. For example, immediacy of feedback is not appropriate in case of information presentation media. We suggest that the richness of information presentation media could be influenced by the number of informational cues and channels, and the degree of interactivity of the medium. The more the informational cues (e.g., visual cue and experiential cue) and the more interactive the information presentation media are, the richer the information presentation media can be expected to be.

Online Consumer's Personality and Effective Design of Product Information in EC Environments

The differences in people's information acquisition and processing styles have implications for product information presentation design in e-commerce environments and its effectiveness. Online consumers make product-choice decisions based on information offered in e-commerce environments. Their cognitive styles play an important role in the process of receiving and processing information for their product choice decision-making. As noted earlier, their preferences for the type and format of information they are seeking and ways of processing information are different depending upon their psychological types. We would argue that "preference-consistent" information types and formats lead to more desirable consumer outcomes such as higher levels of purchase intention or actual purchase behavior in e-commerce environments. Thus, the effectiveness of a specific e-commerce environment design can vary by online consumers' psychological types. We would, therefore, posit that the effectiveness of e-commerce environments could be improved by providing preference-consistent product information presentation.

Proposition 1: The effectiveness of product information presentation design in e-commerce environments varies by personality style of online consumers.

It is desirable/necessary to consider detailed relationship between personality and product information presentation design. We will consider sensing/intuitive dimension of personality first. Drawing upon the theory of psychological types, we pointed out that sensing-types tend to seek hard data or actual facts on product they like to buy while intuitive-types are more likely to enjoy vivid imagery of products they want to buy. Therefore, use of richer media in e-commerce environments to present product information is expected to be more significantly associated with intuitive-types than sensing-types.

Proposition 2: Effectiveness of media-richer product information in e-commerce environments will be more evident to intuitive-type than sensing-type of people.

Again, drawing from the theory of psychological types, we noted earlier that feeling-types prefer subjective and personal values while thinking-types pursue objective, impersonal, and logical basis of choice. Hard data and facts on product attributes can provide a stronger base for the logical choice of thinking-type people than for the feeling-types' subjective decision styles. On the other hand, media-richer product information tends to provide more opportunity for feeling-types to evaluate the information in terms of fit with their personal values than for thinking-types. Therefore, we posit that media-richer product information will appeal and be more useful to feeling-type than thinking-type people.

Proposition 3: Effectiveness of media-richer product information in e-commerce environments will be more evident to feeling-type than thinking-type of people.

Research Method

To validate the above three propositions, this study employed controlled laboratory experiments using various products. We developed two different versions (rich vs. lean) of product information representation for the same product. Less media-rich product information representation has text and static picture whereas media-richer product information representation includes multi-media as well as text and static picture. Subjects for this experiment were recruited from an undergraduate introductory information systems course in the business school of a major Mid-western university. Their participation was voluntary.

Personality (Feeling/Thinking, Intuition/Sensing) was measured by using Myers-Briggs Type Indicator (MBTI). Effectiveness of product information representation was measured by using purchase intention as well as (simulated) actual online purchase behavior (i.e., order-button clicking behavior). Propositions will be tested using analysis of variance (for purchase intention) and logistic regression (for actual online purchase behavior).

Expected Contribution and Conclusion

This study extends the notion of media richness to the context of e-commerce environments and proposed relations between personality and product information presentation design with respect to effectiveness of e-commerce environments. Empirical assessment investigations are currently under way.

Psychological type of Web site visitors can be obtained from a direct survey of consumers using MBTI items or other questions, or by inferring the type from the data already known about them (LaBarbera et al., 1998). The empirical results based on this study can be expected to offer practical guidelines for B2C commerce providers as well as theoretical implications for researchers.

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