The Mediating Role of Virtual Experience in Online Purchase Intentions

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ABSTRACT

Research and practice underscore the importance of online (web-based) virtual reality applications that mimic product interactions in the physical world and its consequence of end-user decision making. This study examines a model that traces how certain characteristics of online virtual reality applications increase virtual experience, subsequently contributing to online purchase intentions. Virtual reality applications are demarcated by their ability to empower consumers with control and their ability to richly render content. Findings from the empirical study reveal the growing importance of demand-centric virtual reality application design where manipulation and control is more important than the richness of the content. It is seen that online virtual reality applications that offer a perceived level of manipulation and control elevate consumer experience more than just the rendering and delivery of rich condition, subsequently aiding consumer purchase intentions. The study offers new insights into how virtual reality applications should be designed and deployed to guide consumer decision making in an online environment.

Keywords: Direct Manipulation, Human Computer Interaction, Online Shopping, User Interface, Web-Based Commerce

I. INTRODUCTION

Online retail shopping has seen phenomenal growth in recent years. In 2008, consumers spent more than $500 billion in online shopping (Levinson, 2006) thanks to wide availability of broadband technologies and engaging technologies such as Flash, bots, and multimedia - aimed towards enriching and enlivening consumers’ online shopping experience (Levinson, 2006). In fact, it is well-argued in literature that if consumers’ virtual experience of a product or service can match their [direct] physical experiences, the likelihood of purchase increases considerably (Chen, Gillenson, & Sherrell, 2004; Li, Daugherty, & Biocca, 2001; Suh & Lee, 2005; Walsh, 2002). Intuitively, 2D renditions of texts and simple images offer limited tangibility and representational capabilities. However, with faster graphics processors, object-oriented technology, available plugins, and platform-independent development of content, the transition from a 2D to a 3D space is growing popular.
More and more business websites try to differentiate their content using technologies and plug-ins such as QuickTime VR (QTVR) and Flash to post 360-degree views and 3D rendering of their wares – aimed at increasing the virtual experience and inducing consumers purchase decision. For example, automobile manufacturers such as Land Rover use virtual interfaces to describe model features and offer customization in an attempt to reduce the distance between the virtual and the real renditions of experiential products. Recently, Troy Brown, the senior director of Timberland, noted that the role of virtual technologies were to “replicate in the virtual world the experiences people have in our stores” (Levinson, 2006). Noting that a well-designed virtual interface can positively influence consumer purchase decisions online, Walsh and Pawlowski (2003: 298) bemoan that “little is reported about [such]… behavioral… areas where there is pressing need to understand better how these technologies might impact business”

The objective of this study is to understand how virtual reality applications’ impact consumer purchase-behavior in the context of B2C e-commerce. In particular, we are interested in unraveling the underlying process by which interactions with online virtual interfaces correspond with consumers’ intention to transact. First, how are consumers’ perceptions of a virtual experience influenced by attributes inherent to virtual reality applications (e.g. richness and level of direct manipulation)? How is this perception influencing consumers’ attitudes and intentions towards purchases? Combining factor and process models, we are proposing a transaction framework suggestive of consumer experiences in e-commerce environments.

In what follows, we begin by integrating prior literature to theorize a factor model of consumer perceptions of online virtual interfaces. The next section describes the research method used to empirically test the proposed model. The results of the data analysis are then presented. The concluding section discusses the results, contributions, and limitations of the study.

II. LITERATURE REVIEW

Research on consumer decision making in virtual environments has gained popularity and credence in both marketing and information systems literature (Jiang & Benbasat, 2004; Li, Daugherty, & Biocca, 2002; Suh & Lee, 2005). It is not uncommon to find that various threads of investigation have often drawn on virtual experience as a central construct in observing consumer behavior (Klein, 2003; Schlosser, 2006). In this section, we review the previous literature on virtual experience and provide our understanding of virtual experience.

Virtual Experience

Following Li et al. (2001), human experience can be generally direct or indirect. Direct experience is compelling to people because it provides unmediated interaction using multiple sensory cues, such as vision, sound, physical touch, smell, and/or taste. When we walk into a car dealer, we physically view, hear, touch, and test drive cars demonstrated in the show room. Indirect experience, however, is usually mediated by a traditional communication medium such as catalogues or TV commercials. A typical application of indirect experience is mail advertisement. By sending out finely printed catalogues, advertisers extend their show rooms to the home of their potential customers. Obviously, only limited information is conveyed with indirect experiences.

Experience occurs over a continuum with direct and indirect experiences as two extremes of the spectrum. Although virtual experience is generally understood as a form of indirect experience (Li, et al., 2002), virtual experience can be rendered in ways that create richer [functional] cues that surpass certain affordances from direct experience. According to Haughtvedt, et al. (2005: 470), “as the notion of virtual experience evolves, vivid and imagery-based associations are more likely to enjoy advantages of both direct and indirect experiences…dynamic 3D visualization of products is able to offer user control over the inspection of a product, even