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Can avatar and self-referencing really increase the effects of online 2-D and 3-D advertising? ☆

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ABSTRACT

Previous studies have sought insights into how websites can effectively draw sustained attention from internet users. Do different types of information presentations on webpages have different influences on users' perceptions of the information? More precisely, can combinations of an ever greater number of advertising elements on individual websites increase consumers' purchase intentions? The aim of this study is to explore changes in web advertising's verbal and visual stimulation of surfers' cognitive process, and to provide valuable information for the successful matching of advertising elements to one another. We examine optimal website design according to the personality-trait theory and resource-matching theory. Study 1 addresses the effects that combinations of various types of online advertising can have on web design factor, and to this end, we use a 2 (visual complexity: 3D advertising with an avatar, 2D advertising) × 2 (verbal complexity: with or without self-referencing that is an advertising practice to express product claims in words) factorial design. Study 2 treats personality traits (i.e., need-for-cognition and sensation seeking) as moderating variables to build the optimal portfolio regarding the "online-advertising effects" hypothesis. Our results suggest that subjects prefer medium-complex advertising comprising "3D advertising elements with an avatar" or "2D advertising elements with self-referencing": high-sensation seekers and low-need-for-cognition viewers prefer the former, whereas low-sensation seekers and high-need-for-cognition viewers prefer the latter.

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1. Introduction

Advertising is a convincing presentation of ideas, usually in the form of a company's product or service geared toward consumers. Over the last decade, the Internet has grown into the third most popular advertising medium after newspapers and TV. Through the World Wide Web, companies can deliver marketing messages to potential or established customers and directly interact with them. In the Internet world, which features 2D advertising (usually presented texts and images on webpages), consumers can receive product information through 3D advertising (based on interactive videos and animation techniques) and visual Avatars (a graphical representative role of a given company or advertiser). These types of advertising create different types of advertising experiences that could have pronounced social-interaction effects, while providing consumers with opportunities to participate in commodity promotion and persuasion for marketing activities (Holzwarth, Janiszewski, & Neumann, 2006; Wang, Baker, Wagner, & Wakefield, 2007).

Consumers can experience reduced product-related information processing in contexts where advertising appeals to consumer-related memory (Burnkrant & Unnava, 1995). These positive influences on advertising improve consumers' evaluations of the advertised product or service. In this respect, self-referencing is the manipulation practice that links consumers' experiences and memories with a given brand or product. Although self-referencing usually occurs in print advertising, the vivid nature of network environments and network interactivity makes it possible for self-referencing to enhance positive advertising effects on potential consumers. To confirm this point, this study examines self-referencing on internet advertising.

Personality trait is different to person and had confirmed by previous studies. On the web, consumers face a lot of information and are constantly interpreting the meanings of various messages. As they perceive a message, consumers select, organize, and explain its stimuli. In other words, individuals who are exposed to the same advertising will differ from one another regarding their response to that advertising (Berger & Mitchell, 1989; Mantel & Kardes, 1999). Related to this theme is the idea of Need for Cognition (NFC), which refers to an individual's tendency to seek and en-

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gage in effortful thinking (Cacioppo & Petty, 1982). NFC is also the main motivation factor underlying personal-information processing (Cacioppo & Petty, 1982). On a related note, sensation seeking (SS) refers to levels of personal-preference diversity and to novel, complex, and intense sensory stimulation and experiences (Zuckerman, 1994). On the basis of these arguments, we consider that the effects of online advertising will be moderated by consumer's personality traits, namely NFC and SS.

We use resource-matching theory to examine the interactions between the consumer and advertising, and manipulate visual- and verbal-complexity levels as a resource measure. Our objective is to identify the optimal combinations of online advertising (2D advertising, 3D advertising, self-referencing, and avatars) and establish the hypotheses. Next, we use NFC and SS as moderating variables based on the forenamed optimal combinations; in this way, we hope to build an appropriate portfolio of the consumer experience and personality traits that can get consumers interested in internet advertising, and can enhance positive Internet-advertising effects. The findings of our study could provide scholars with a better understanding of consumer behavior online as well as improve the prediction for effective persuasive 2D or 3D advertising strategies.

2. Theory

2.1. Online advertising and consumer experiences

Online advertising generally uses texts, images, sound, animation, or video to promote marketing messages on the Internet. Pine and Gilmore (1998) stated that before paying for a product, consumers not only think about the product itself but also evaluate the experience that they perceive themselves as having if they were to purchase the product. That is, consumers learn from experience; they learn by interacting with environments. It has been shown that the degree of consumers' interactions with products and the number of individuals' sensory aspects correspond to three types of experience: direct, indirect, and virtual experience (Li, Daugherty, & Biocca, 2001). Direct Product Experience (DPE) is an unmediated interaction that occurs between the consumer and a product with sensory capacity, and may help consumers make better product choices on the basis of accurate product-related information (Mooy & Robben, 2002). In contrast to DPE, Indirect Product Experience (IPE) occurs when consumers gather information about a product or service through an intermediary, such as traditional advertising (Daugherty, Li, & Biocca, 2001). Notably, research confirmed that DPE might increase consumer expectations regarding future purchases (Chiou, Wan, & Lee, 2008). Klein (1998) further suggested that the medium through which consumers *virtually* experience product functions is a dominant source of such information. The Virtual Product Experience (VPE) proceeds via product representation that activates consumers' mental processes in a sensory-rich mediated environment (Daugherty, Li, & Biocca, 2008; Fortin & Dholakia, 2005; Ozoka & Komlodi, 2009). Burke (1997), who set up a virtual store using 3D computer animation, proposed that when the richness of VPEs increases, the persuasiveness of advertising increases. The study also confirmed that VPE is similar to IPE.

Additionally, there is a significant similarity between VPE and DPE insofar as they involve interactivity (Hoch & John, 1989). In the past, many studies have verified that virtual-experience effects derive from consumers' personal experiences, which have various interaction modes. Li, Daugherty, and Biocca (2002) found that 3D product visualization in e-commerce environments is better than traditional 2D product representations and television advertising in terms of positively influencing both consumers' attitude toward brand and consumers' intention to purchase. Klein (1998) argued that experiences in a virtual world are similar to direct experiences in a store. Further, virtual experiences with interactive media (i.e., in a 3D virtual environment) would be more powerful in Internet environments than in static environments (Mills & Noyes, 1999). The Internet has always provided the public with not only simulations of real-world environments, but also alternatives to real-world environments (Hoffman & Novak, 1996). Via the Internet, consumers can interact with products online, and the Internet facilitates virtual experience with ever greater popularity (Wexelblat, 1993).

2.2. Avatars

A commercial website is a channel of communication that produces machine interactions. These interactions take place between users and content via hypermedia that create machine-related virtual experiences. On the other hand, interpersonal interactions that create interpersonal virtual experiences can include direct dialog and indirect exchanges of information via such media as online communities or advertising characters.

Spokes-characters are common advertising and marketing tools. According to Holzwarth et al. (2006) and Wang et al. (2007), "avatars" can be virtual spokes-characters that companies use for advertising on the Internet. These researchers placed avatars in one of two categories: "the expert avatar" and "the attractive avatar." These two categories of avatars significantly differ from each other in appearance. The expert avatar looks steady and credible, wearing glasses as would a stereotypical expert; appearing on computer screens, the expert avatar would help consumers make purchase decisions, and when consumers would have questions about the product, expert avatars would reply kindly. The attractive avatar has a likable and youthful appearance, presented as fashionable and interesting. The attractive avatar would help consumers make purchases and would reply to consumers' questions on the screen. The above-cited studies suggest that these kinds of avatars strengthen website visitors' positive impressions of a web site's entertainment value and informativeness. The studies also show that different types of consumer product-involvement generate different types of consumer avatar-responses on the Internet and finally affect consumers' product attitude.

Consumer-experience theory posits that consumers' experience of avatars is a media-mediated experience (Nowak, 2004) and that the objective to the mediation is to provide consumers with both certain kinds of product knowledge and a highly interpersonal shopping experience consistent with consumer demand. In this study, we define 'avatar' as an image of a quasi-human character whose role is to assist consumers in their shopping and, specifically, to be the chief source of product information, to strengthen consumers' trust in the website's information, and to enhance consumer-shopping experiences, thereby increasing the possibility of a final purchase (Barlow, Siddiqui, & Mannion, 2004; Nowak & Rauh, 2005; Wang et al., 2007).

The current study focuses on websites' manipulation of consumer experiences on the Internet. However, online-consumer direct experience is hard to study in experimental ways and rarely mirrors offline-consumer direct experience. As a result, we investigated the 2D advertising (IDE) and the 3D advertising (VPE) of online consumers, and added to our study the variable of consumer avatar experience.

2.3. Self-referencing

Advertisers attempt to persuade consumers of a product's value by encouraging them to relate the product to themselves or to their

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