



Full length article

An experimental investigation of the influence of website emotional design features on trust in unfamiliar online vendors

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ARTICLE INFO

Article history:

Received 24 April 2016

Received in revised form

10 October 2016

Accepted 19 October 2016

Keywords:

Initial trust

Unfamiliar website

Website design

Emotional design

Website visual appeal

Website usability

Gender effects

ABSTRACT

Online trust is considered as a critical factor in online shopping, especially when dealing with unfamiliar vendors. This research provides empirical findings from an experimental investigation of the influence of website emotional design features, visual appeal and ease of use on users' perceptions of usefulness, trust, as well as intention to use websites. The proposed research model was developed based on theories in the human-computer interaction and Information Systems domains. An experiment was conducted using a hypothetical website with four conditions of treatment manipulation. The study revealed that visual appeal can produce a greater influence on customers' evaluation of trust, than ease of use. It was also found that both visual appeal and ease of use are contributing factors in developing online trust among male customers, with visual appeal dominating trust formation among female customers.

Published by Elsevier Ltd.

1. Introduction

Establishing online trust is a challenge faced by the vast majority of online vendors, especially by those with newly established websites or by vendors who do not enjoy a brand reputation. For such vendors, the website is the primary means by which online consumers evaluate whether or not to engage or conduct business with the vendor. Consequently, the design features of the website should play a large role in establishing trust. Even though practitioners have proposed various website strategies for establishing trust in relatively unknown online stores, the mechanisms by which trust is built in such computer-mediated environments are still not well understood (e.g., Lankton, McKnight, & Thatcher, 2014; Schlosser, White, & Lloyd, 2006). Therefore, this study examines the affective and cognitive aspects of website design features and proposes that these design features play a significant role in developing online trust, and that affective aspects such as visual

appeal of the website may be more important in the unfamiliar vendor context. In this study, drawing from Norman's (2004) emotional design framework, we develop a conceptual research model and investigate on how website characteristics influence customers' trust in unfamiliar online vendors.

A substantial body of literature in the Information Systems (IS) and human-computer interaction (HCI) disciplines has examined the relationships between website design features and online trust. Much of that literature has largely focused on the cognitive aspect of design features, especially ease of use. Ease of use reflects the features of a website which can help or hinder users as they acquire knowledge or access different sections of a website (Cyr, 2008; Garrett, 2003). On the contrary, somewhat less attention has been devoted to affective aspects such as the design of website user experiences that requires emotional involvement in an online commerce activity. However, the affective dimension has received increasing attention in recent years (Hassenzahl & Monk, 2010; Hassenzahl, 2004; Norman, 2004; Tractinsky, Cokhavi, Kirschenbaum, & Sharfi, 2006). Furthermore, relatively few studies have been carried out in the context of unfamiliar websites. The investigation of how online trust can be established in unfamiliar vendors is especially important because of the growing

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number of businesses that are choosing the Internet as an alternative channel for developing a brand reputation, for transacting with and servicing customers and investors, or simply for public relations purposes (Subramaniam, Shaw, & Gardner, 2000; de Kunder, 2012). In addition, contrary to the majority of prior research in our context that have used non-experimental survey approach (Cyr, 2008; Hampton-Sosa & Koufaris, 2005; Vance, Elie-Dit-Cosaque, & Straub, 2008; Zhang, Prybutok, Ryan, & Pavur, 2009), we use an experimental design in our investigation because of the potential for better control, higher internal validity, and greater replicability of results. The experiment can also control for confounding factors such as characteristics of individuals in a group or environmental factors that can influence the outcome (Creswell, 2002; Pedhazur & Schmelkin, 1991).

In the literature, website design features have been classified in multiple aspects. For example, Hassenzahl (2004) proposed a model classifying website characteristics into pragmatic and hedonic attributes. Garrett (2003) developed a model categorizing website design features into information design, navigation design, and visual design. In the current research, we use Norman's (2004) emotional design model to explain the relationships between website characteristics and the user experience. The emotional design model fits the goals of this study because it is a comprehensive model that categorizes website design features broadly into affective, cognitive, and reflective modes of users' information processing. Norman's (2004) model describes different levels of aesthetics appreciation which should receive greater attention from researchers, as well as website designers. Consequently, our primary goal is to conduct an experiment to investigate how both affective and cognitive aspects of website design features, based on Norman's (2004) framework of emotional design, influence users' trust perception and intention to use unfamiliar websites.

2. Background and literature review

2.1. Website design and the emotional design framework

Website design features have been found to be key factors in influencing users' responses and experience (Nielsen & Loranger, 2006). To understand the impact of website design features on users, researchers have taken multiple approaches. Some studies have focused on specific, low-level aspects such as color (e.g., Coursaris & van Osch, 2016; Cyr, Head, & Larios, 2010), layout (Geissler, Zinkhan, & Watson, 2006), images (e.g., Karimov, Brengman, & Van Hove, 2011), navigation (e.g., Cyr, 2008; Flavián, Guinalíu, & Gurrea, 2006), and multimedia elements (Hong, Thong, & Tam, 2004). On the other hand, other studies investigated design features at a higher level of abstraction, for example, hedonic and pragmatic dimensions of design features (Hassenzahl, 2004).

We believe users' evaluations and responses are generally driven from the overall impression of a website rather than specific elements. Therefore, we aim to examine the holistic aspects of website design features that can provide a better understanding of a comprehensive user's reaction to websites. Specifically, our focus is on users' perceptions toward website design features, which include visual appeal and ease of use. In this study, perceived website visual appeal refers to visual aesthetic impressions of a website (Lavie & Tractinsky, 2004) and perceived ease of use is defined as "the degree to which a person believes that using a particular system would be free of effort" (Davis, 1989; Davis, Bagozzi, & Warshaw, 1989).

Website visual appeal is an over-arching concept which has been classified into two types — classical and expressive (Lavie & Tractinsky, 2004). While classical aesthetics is primarily

characterized by pleasant, clear, clean, and symmetric designs, expressive aesthetics considers creativity, fascinating, and sophisticated designs. These two dimensions have been adopted by past studies that investigated website aesthetics (e.g., Coursaris & van Osch, 2016; Lindgaard, Dudek, Sen, Sumegi, & Noonan, 2011; Tractinsky & Lowengart, 2007).

In the HCI literature, Norman's (2004) emotional design model is one of the most prominent models used to explain how different aspects of a product influence emotions, which subsequently affect cognition and user behavior (Sharp, Rogers, & Preece, 2007). The model has been broadly adopted by HCI researchers because it examines how attributes of a product cause emotional responses in users, such as feeling at ease, being comfortable, and enjoying the experience of using interactive products (Hassanein & Milena, 2004; Lavie & Tractinsky, 2004; Sharp et al., 2007; Tractinsky & Lowengart, 2007). According to Norman (2004), the emotional design model classifies users' mental processing into three levels—the visceral level, the behavioral level, and the reflective level. This framework is consistent with prior conceptual and empirical research in cognitive science (e.g., Sweller, van Merriënboer, & Paas, 1998), which typically distinguishes among three distinct levels of information processing — affective (cf. visceral), cognitive (cf. behavioral), and reflective thought (cf. reflective).

The first level, visceral, is where the aesthetics of a system (a website in this study) dominates human biological responses, which then leads to rapid judgment (in milliseconds) of a system (e.g., website)—whether it is good or bad, safe or dangerous and whether to approach or avoid (Lindgaard, Fernandes, Dudek, & Brown, 2006; Norman, 2004). The visceral level also evokes users' emotional responses to stimuli, e.g., pleasure, joy, and fear (Sharp et al., 2007). For example, on seeing a website with very poor visual design, users may experience fear, causing them to leave the website (Éthier, Hadaya, Talbot, & Cadieux, 2006). The second level of the emotional design model, behavioral, involves active and task-driven use of the website. For example, experienced computer users effortlessly work with computers or browse websites for well-learned routing or familiar operations (Gefen, Karahanna, & Straub, 2003). The last level, reflective, is at the top of the emotional design model. This level is associated with a higher level of cognition that reflects on one's cognitive processing. This level entails conscious thought, where users can generalize their evaluations across the behavioral and visceral levels, for example, a website's informativeness or usefulness (Wang & Emurian, 2005).

2.2. Trust in an unfamiliar website

Although understanding how trust is established in customers remains a crucial issue in all online settings, it is particularly important for websites with no prior or brand reputation. Since few studies have examined the impact of website design features on trust specifically in the unfamiliar website context, we review studies in the general online context.

Trust has been proposed as a critical determinant of customers' responses (Hong et al., 2004; Kim, Ferrin, & Rao, 2009; Ratnasingham, 1998) and has been found to be related to satisfaction (Flavián et al., 2006), perceived website usefulness (Gefen et al., 2003), intention to use a website (Jarvenpaa, Tractinsky, & Vitale, 2000; Pennington, Wilcox, & Grover, 2003; Schlosser et al., 2006), intention to buy from a website (Lim, Sia, Lee, & Benbasat, 2006), and e-loyalty (Cyr, 2008; Flavián et al., 2006). In the mobile commerce context, trust has been considered as a key predictor of customers' intention to use mobile websites (Cyr, Head, & Ivanov, 2006; Siau & Shen, 2003).

According to McAllister (1995), trust consists of cognitive and affective dimensions. Cognition-based trust relies on rational

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