



## Technology socialness and Web site satisfaction



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### ABSTRACT

This paper extends the use of expectation confirmation theory through the development of a “socialness” construct, modeled as an antecedent of satisfaction. Personalization is introduced as an antecedent of socialness and satisfaction. The model is developed and tested using the corporate Web site of a large European utility and two rounds of surveys ( $n = 3284$  and  $n = 2161$  respectively). The results show that socialness has a strong association with satisfaction, and personalization with both socialness and satisfaction. We found a weaker albeit significant relationship between satisfaction and continuance intention than in Bhattacharjee's original study. We argue that this variation in findings can be explained by the extent to which usage of the information system is optional and develop the idea of exclusive informational sites. In such situations satisfaction becomes a key outcome variable, making antecedents of satisfaction – such as socialness – particularly relevant and important to the Web site design process.

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### 1. Introduction

Many studies have taken an adoption approach to technology acceptance building on the work of Davis (1989) and many others. Bhattacharjee (2001a) argues that although initial acceptance is an important step eventual success depends on continued use (“continuance”). For many businesses, such as online retail sites and online banking sites continuance is absolutely essential. Al-Natour and Benbasat (2009) develop their theory of the adoption and use of artifacts on the principle that users perceive IT artifacts as social actors: users ascribe human traits to artifacts such as Web sites while knowing that they are inanimate (Nass et al., 1993, 1995; Moon and Nass, 1996; Nass and Moon, 2000). Al-Natour and Benbasat argue that users form beliefs about IT artifacts that relate to utilitarian, hedonic, and social outcomes. The expectation-confirmation theory (ECT) used by Bhattacharjee (2001a) takes a utilitarian view of the outcomes of technology use, as

represented by the construct “perceived usefulness”. While the ECT has been extended to include hedonic outcomes through the inclusion of a “playfulness/perceived enjoyment” construct (e.g., Lin et al., 2005; Thong et al., 2006; Kang et al., 2009), we are not aware of the social dimension being incorporated within the ECT, although the concept of “socialness” has been studied in the marketing literature (Venkatesh and Davis, 2000). In this paper we extend the ECT to include a “socialness” construct to reflect the social dimension of corporate Web site usage with the intention of building a deeper understanding of user satisfaction within the ECT.

The setting for the research is the corporate site of a large utility company (EuroUtility). For such sites the extent to which users engage in continued use is important as the site is a source of information for a range of interested parties including the media, environmentalists, investors, job seekers, and financial analysts – parties whom the company wants to communicate with, build relationships with, and project their corporate identity to (Melewar and Karaosmanoglu, 2006). An interaction-centric approach to the adoption and use of IT artifacts (Al-Natour and Benbasat, 2009), such as a corporate Web site, would suggest that user satisfaction will be influenced by hedonic and social outcomes as well as by utilitarian ones.

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For a corporate informational web site to be effective it needs to provide users with utility (e.g., by providing the information they want in an appropriate format) while creating an enjoyable and social experience for the user interacting with the Web site. These aspects of user satisfaction – the utilitarian and the social – have not been investigated jointly in the context of the ECT in prior information systems research. The aim of the paper is thus to introduce a social dimension to the ECT and to demonstrate the impact of socialness on satisfaction. In developing the concept of ‘socialness’ the paper also considers personalization, an established construct in the Web site evaluation literature that has been shown to be an antecedent of satisfaction. In this paper we further extend theory by arguing that personalization may also be an antecedent of socialness.

The structure of the paper is as follows. In the next section the theoretical model is developed from ECT and theories of technology socialness. The research design is described in the third section, the results are represented in the fourth section, and the implications of the findings are discussed in the fifth section. The conclusions are presented in the final section.

## 2. Theoretical model and hypotheses

### 2.1. Expectation-confirmation theory

Expectation-confirmation theory (ECT) has been used in consumer behavior research to study the process by which consumers form repurchase intentions (Oliver, 1976, 1980). The ECT assumes that: (1) prior to purchasing a product or service (at time  $t_1$ ) consumers form an initial expectation of that product or service, (2) following use of that product or service consumers develop perceptions of the performance of the product or service (at time  $t_2$ ), (3) the initial expectation is compared with perceived performance, (4) the level of consumer satisfaction depends on the extent to which the initial expectation is confirmed (or disconfirmed), and (5) satisfied customers are expected to repurchase and dissatisfied ones to discontinue use of the product or service. At the heart of the ECT is the concept of confirmation/disconfirmation: whether the actual use of the product or service exceeded expectations (positive disconfirmation) or whether it was below initial expectations (negative disconfirmation). ECT has been used widely in consumer behavior and marketing research to investigate issues such as customer satisfaction, post-purchase behavior, and services marketing (Diehl and Poyner, 2010; Oliver, 1993; Patterson et al., 1997; Spreng et al., 1996; Swan and Trawick, 1981; Tse and Wilton, 1988; Wirtz and Bateson, 1999).

While the TAM (Venkatesh and Davis, 2000) is a useful way to model the decision to use a technology it is not able to explain why, following initial acceptance, users may stop using a technology. Bhattacharjee (2001a) is one of the earliest studies in IS to use ECT to explain intention to continue using an information system. Whereas the ECT as posited by Oliver (1980) is a mixed model with pre- and post-consumption assertions (at times  $t_1$  and  $t_2$ ), the IS continuance model is a pure post-acceptance model. The IS continuance model allows initial acceptance and use to be compared with pre-acceptance expectations and to gauge whether these expectations are confirmed.

By focusing on positive disconfirmation and satisfaction (post-acceptance variables) the ECT can explain why users might continue to use an IS, while negative disconfirmation and dissatisfaction explain why users discontinue use of an IS despite positive pre-acceptance variables. The ECT has been widely used in studies of IS satisfaction in many domains and with a range of theoretical extensions. For example, Lin et al. (2005) investigated Web portals, Hong et al. (2006) mobile internet services, Bhattacharjee (2001b) loyalty incentives and online brokerage, Wu et al. (2007) open source developer intentions, Limayem et al. (2007) habit and web site usage, Chou and Chen (2009) enterprise resource planning systems, Kang et al. (2009) and Byoungsoo (2011) social networking sites, Chou et al. (2010) online communities, Shiau and Chau (2012) blogging, and Liao et al. (2009) and Limayem and Cheung (2008) e-learning.

A number of IS researchers have used the ECT with satisfaction as the dependent variable, i.e., the ECT is used without a continuance construct. For example, McKinney et al. (2002) consider information quality disconfirmation and service quality disconfirmation, Khalifa and Liu (2002) model desire and expectation disconfirmation, Susarla et al. (2003) assess application service providers, and Sørensen and Eikebrokk (2008) investigate mandatory usage. In summary, the information systems continuance model provides a suitable framework to investigate the role of socialness in web site usage and its potential for impact on satisfaction in particular.

### 2.2. Computer socialness

Our research focuses on the socialness of technology in its own right rather than the socialness of person-to-person communication afforded over the digital medium (such as the traditional stream of social presence research). Some of the definitions of computer socialness used in recent studies are provided in Appendix A. Here we focus on “technology socialness” and the more recent conceptualization of the medium as a social entity in its own right.

Social presence is an established concept that refers to the extent to which a medium facilitates a user to personally connect with other users of the medium (Short et al., 1976) and to experience other users as being psychologically present (Fulk et al., 1987). Originally, research into social presence theory focused on media characteristics and the extent to which a medium could convey social cues (Short et al., 1976), particularly given the requirements of particular tasks (Karahanna and Straub, 1999). Here, social presence is encapsulated by the richness, interactivity and feelings of warmth, human contact, sociability and sensitivity afforded by a medium (Gefen and Straub, 2003; Sproull and Kiesler, 1986; Straub, 1994; Straub and Karahanna, 1998; Yoo and Alavi, 2001). While this traditional body of social presence research is not directly relevant to our study, as we shall see below, its recent application to consider technology as a social actor is directly relevant to our conceptualization.

A more recent stream of research has considered computers and new media not only as conduits for social presence via communication with other humans but also as social artifacts in their own right. According to media equation theory (Reeves and Nass, 1996) or the “Computers Are Social Actors” (CASA) paradigm (Lombard and Ditton, 1997; Nass et al., 1994), users

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