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Khaled Hassanein
McMaster University, hassank@mcmaster.ca

Milena Head
McMaster University, headm@mcmaster.ca

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Khaled Hassanein
McMaster University
hassank@mcmaster.ca

Milena Head
McMaster University
headm@mcmaster.ca

ABSTRACT

Electronic commerce is more impersonal, anonymous and automated than traditional person-to-person commerce, and as such, typically lacks human warmth and sociability. This paper explores how human warmth and sociability can be integrated through the Web interface to positively impact consumer attitudes towards online shopping. An empirical study was undertaken to investigate the impact of various levels of socially-rich text and picture design elements on the perception of online social presence and its subsequent effect on antecedents of Website attitude. Higher levels of social presence are shown to positively impact the perceived usefulness, trust and enjoyment of shopping Websites, leading to more favourable consumer attitudes. Implications of these finding for practitioners and future research are outlined.

Keywords

e-Commerce, social presence, Web interface, online trust, TAM, enjoyment.

INTRODUCTION

This study explores how human warmth and sociability can be integrated through the Web interface to positively impact consumer attitudes towards online shopping. Prior research (Gefen et al. 1997; Gefen et al. 2003; Karahanna et al. 1999; Kumar et al. 2002; Straub 1994) has suggested that the perception of social presence (SP) can positively influence user trust and intentions in an online context (e-mail and e-Sevices). However, to date, no studies have systematically examined how features of the Web interface can be manipulated to instill a feeling of SP. As such, this paper specifically focuses on empirically investigating the effects of manipulating SP through the Web interface on antecedents to online shopping attitude.

SOCIAL PRESENCE

Social presence (SP) has been defined as the extent to which a medium allows users to experience others as being psychologically present (Fulk et al. 1987). Here we adopt the perspective of SP that focuses on "warmth", where a medium is perceived to be warm if it conveys a feeling of human contact, sociability, and sensitivity (Rice et al. 1983).

A significant difference between online and offline shopping environments is that the latter encompasses a wide range of emotions involving various types of social interactions with humans through multiple sensory channels. Kumar and Benbasat (2002) stress that in this era of new retail, "shoppers have become guests, shopping has become an experience and malls have become entertainment centers with communities". The online shopping experience, on the other hand, is primarily geared towards reducing the user's cognitive burden through functional and performance based Website design heuristics (Nielsen 2000). As such, e-Commerce may be viewed as lacking human warmth and sociability, since it is more impersonal, anonymous and automated than traditional person-to-person commerce.

Gefen and Straub (2003) suggest that pictures and text content can convey a personal presence in the same way as personal photographs and letters can. Choice of language can help create a sense of psychological closeness and warmth (Weiner et al. 1968). The use of natural and informal language can impact perceived SP (Nass et al. 1993). Advertising research suggests that text that stimulates the imagination may evoke elaborate, pleasurable fantasies involving the use of the product, which in turn can enhance liking and purchase intention toward the product (Oliver et al. 1993). The effect of pictures may be even more pronounced. According to Short et al. (1976), our visual senses dominate our perception and visual media have more SP than written media. Advertising has long relied on imagery of "friendly faces" to build a positive attitude towards products (Riegelsberger 2003). Dormann (2001) suggests that paying attention to picture effectiveness, via emotional or social display, can be a key factor to the success of electronic commerce. Additionally, these Website features (text and pictures) are common across most commercial Websites. Hence, this paper focuses on investigating the effects of manipulating SP through these Web interface features on online shopping attitude.

RESEARCH MODEL AND HYPOTHESES

To investigate the impact of various levels of socially-rich Website design elements (socially-rich text and pictures) on the perception of SP within an online shopping environment and to examine its subsequent effect on antecedents to Website attitude, we propose the research model depicted in Figure 1. This model incorporates several constructs that have been shown to impact users' attitudes towards Websites. Support for these constructs

and the hypotheses shown in the model are developed below. It is important to note that our main objective is to study the impact of manipulating SP through the Web interface on consumer attitude toward online shopping. As such, we do not attempt to incorporate all possible antecedents to the various model constructs.
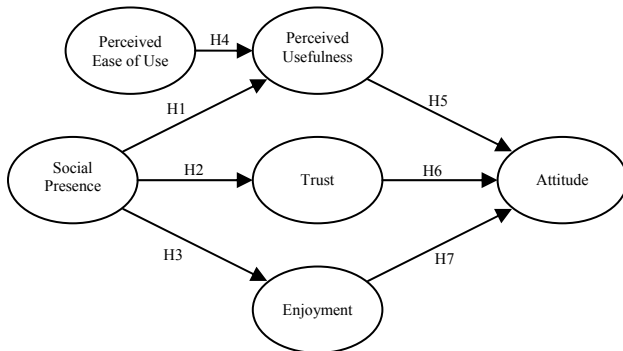

Figure 1. Research Model

Attitude and its Determinants

Attitude has been described as predispositions to respond in a particular way towards a particular object or class of objects in a consistently favourable or unfavourable way (Rosenberg 1960). From an information systems perspective, attitude is derived by the strength of a user's beliefs that adopting (or continuing to use) the system will lead to certain consequences (Ajzen et al. 1980). Prior research has shown that positive attitude towards information systems can increase the actual use of the system (Klobas 1995). Jeong and Lambert (2001) show that customers' attitudes towards using a Website is a strong indicator for predicting their purchasing behaviour.

A number of IS studies have examined various determinants of attitude. Here we focus on three commonly cited determinants of attitude within the Web context: (i) Technology Acceptance Model (TAM) constructs (perceived usefulness and perceived ease of use); (ii) Trust; and (iii) Enjoyment.

Social Presence and TAM

There is a psychological connection between perceiving that a medium is warm and its usefulness across a range of communications tasks (Rice et al. 1983). Therefore, when a Website serves as a communication interface between an online vendor and a customer, it is expected that SP will be positively related to perceived usefulness. This relationship between SP and perceived usefulness has been investigated and established by Straub (1994), Karahanna and Straub (1999) and Gefen and Straub (1997). While Gefen and Straub (2003) were not able to show a link between SP and perceived usefulness in an e-Services context, there is enough evidence to suggest the following hypotheses:

H1: Increased levels of SP will result in greater perceived usefulness in online shopping Websites

Subsequently, based on extensive prior TAM research linking TAM constructs to attitude we hypothesize that:

H4: Higher perceived ease of use will result in higher perceived usefulness in online shopping Websites

H5: Higher perceived usefulness will result in a more positive attitude towards online shopping Websites

Social Presence and Trust

Trust is especially important in the online environment to positively impact consumers' attitudes and purchasing intentions (Corritore et al. 2003). In particular, business-to-consumer (B2C) online trust is more difficult to establish than business-to-business (B2B) online trust. B2C relationships are inherently more transaction-focused and short-term than B2B relationships, and consumers typically expect the Internet to support a level of trust they do not observe in their everyday lives. For example, most people do not hesitate to pass credit card information to unknown waiters, store clerks, or even on the phone. However, they are very skeptical about passing this information through electronic means on the Internet even when encryption is used.

Trust is created within the context of a social environment (Blau 1964). As such, SP is a necessary condition for the development of trust (Gefen et al. 2003). It is easier to hide information and engage in untrustworthy behaviour in a lean SP environment than in a high SP environment. Thus, more trust can be developed in a situation that displays greater SP (Gefen et al. 2003). We, therefore, hypothesize that:

H2: Increased levels of SP will result in greater trust in online shopping Websites

Subsequently, based on prior online trust research, we hypothesize that:

H6: Higher trust will result in a more positive attitude towards online shopping Websites

Social Presence and Enjoyment

Enjoyment is an important experiential aspect in offline shopping (Morris 1987). Likewise, enjoyment has emerged as an essential factor in online shopping with significant impact on attitude towards online shopping (Koufaris et al. 2001/02). Perhaps the most prominent psychological impact of SP is enjoyment (Lombard et al. 1997). However, there is remarkably little research linking SP to enjoyment, perhaps because this effect is taken for granted (Lombard et al. 1997). Therefore, we hypothesize:

H3: Increased levels of SP will result in greater enjoyment in online shopping Websites

Subsequently, based on prior Website enjoyment research, we hypothesize that:

H7: Higher enjoyment will result in a more positive attitude towards online shopping Websites

METHODOLOGY

Task and Design

An empirical study was conducted to validate the proposed research model and test our proposed hypotheses. The study was designed as a one-factorial experiment manipulating three levels of Website SP with three independent groups. There were 26 participants in each of the three groups. Subjects were given the task of purchasing a shirt/top as a gift for a female friend. Clothing was selected as the online product to sell on the Websites for this study as it is a product that all consumers would be familiar with. Several studies have also identified clothing among the top selling online products (King et al. 2000), making it a product that has the potential for mass online appeal. To increase the realism of the task, subjects were told they had a chance of winning the top they selected from the Website, in a random draw conducted at the end of the study.

In order to isolate the impact of SP on our model constructs, multiple Websites were created for a fictitious clothing company. The manipulated levels of SP were offered incrementally, as shown in Table 1. With this approach, differences between the three groups could be directly attributed to the increasing levels of SP. This incremental design has been adopted in similar studies, such as Teo et al. (2003).

Textual descriptions ranged from point-form, functional descriptions, such as "*cotton blended Lycra*" and "*designed to fall at hip*", to descriptions aimed at evoking positive emotions, such as "*You're stylish. You're confident. Our hooded cardigan tells the world that you are sporty yet elegant with a flair for fashion. As you pose for a photo, you smile and fell like the whole world is smiling back at you. You're as star!*". Low social presence pictures depicted the product in a solitary format, whereas high social presence pictures showed the product being worn by an a person that is interacting with others in an emotional and dynamic setting. Hassanein and Head (2004) provides a detailed description of the experimental Websites with corresponding screen shots.

SP Level	Available Features
Low (SP-1)	*Products are shown in a solitary format point form, functional descriptions*
Medium (SP-2)	*all features of SP-1 socially-rich text: descriptions aimed at evoking positive emotions*
High (SP-3)	*all features of SP-2 socially-rich pictures: products are shown worn by people in emotional, dynamic settings*

Table 1. SP Manipulations of the Experimental Websites

Subjects

A total of 78 subjects participated in this study and were randomly assigned to three groups corresponding to the three SP levels to control for confounding effects due to possible variations in individual characteristics. Subjects were largely MBA students at a major Canadian University. Based on the answers to the demographics questionnaire, this group was Internet-savvy where over 60% of the respondents spent more than 10 hours online per week. On average, they made 7 previous online purchases and the majority of the respondents (87%) spent over $25 per online purchase. ANOVA tests found no significant differences for subjects in the various treatment groups in terms of Internet and online shopping experience. Similarly, there were no significant differences in the proportion of male-to-female subjects across the three groups. Therefore, randomization of assignment across groups was successful in terms of subject characteristics.

Validity

Content validity In this research, definitions for PEOU, PU, trust, enjoyment and attitude came from existing literature, where they had been repeatedly shown to exhibit strong content validity (for details, see Hassanein and Head 2004).

Construct validity A varimax rotation on the original 19 items resulted in eliminating two items due to high cross-loadings on other constructs. Cronbach α-values were satisfactory for our constructs (ranging from 0.821 to 0.900) and the average variance extracted from each construct exceeded Fornell and Larcker's (1981) 0.5 benchmark. Additionally, the square root of the variance shared between a construct and its items was greater than the correlations between the construct and any other construct in the model, satisfying Fornell and Larker's (1981) criteria for discriminant validity.

Manipulation validity Subjects assessed the SP of the fictitious Websites using items that were adapted from a validated construct developed by Gefen and Straub (1997; 2003) for Perceived SP. An ANOVA test indicated that the three subject groups were significantly different in terms of their perceived SP ($F(2,75)=70.75, p<.000$).

RESULTS

A structural equation modeling (SEM) approach was adopted for our data analysis, as it possesses many advantages over traditional methods, such as multiple regression (Gefen et al. 2000). The variance-based Partial Least Square (PLS) SEM method was chosen over covariance-based methods because: (i) PLS is relatively robust to deviations from a multivariate distribution (Gefen et al. 2000); (ii) PLS can be applied to relatively small sample sizes (Fornell et al. 1982; Gefen et al. 2000); and (iii) PLS is appropriate for testing theories in the early stages of development (Fornell et al. 1982). Examining the impact of varying levels of SP on Website attitudinal constructs is a new research topic. With regards to sample size, Gefen et al. (2000) advise that the minimum sample size for a PLS analysis should be the larger of (i)

10 times the number of items for the most complex construct; or (ii) 10 times the largest number of independent variables impacting a dependent variable. In our model, the most complex construct has 4 items and the largest number of independent variables estimated for a dependent variable is only two. Thus, our sample size of 78 is more than adequate for PLS estimation procedures.

The results of the PLS analysis of the research model shown in Figure 1, are presented in Figure 2. All path coefficients of the causal links in our hypothesized model are significant. These findings support all our hypotheses at a minimum p<0.05 level. Approximately 46% of the variance in the attitude towards Web sites was accounted for by the variables in the model (R²=0.463). All the R² of the endogenous constructs in the model exceed the 10% benchmark recommended by Falk and Miller (1992).
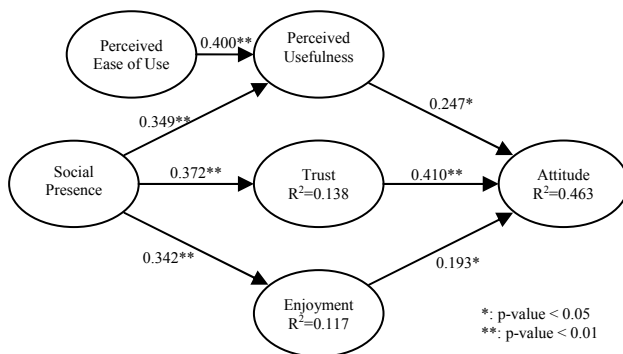

Figure 2: PLS Structural Model

Results from our PLS model show that SP level of a commercial Website appears to have a positive significant effect on perceived usefulness (*b*=.349), trust (*b*=.372) and enjoyment (*b*=.342). The effect on trust supports earlier work by Gefen et al. (2003) in an e-Services context. While the effect on perceived usefulness disagrees with earlier research by Gefen et al. (2003), it supports earlier work by Straub (1994), Gefen and Straub (1997), Karahanna and Straub (1999) in an e-mail context. This disagreement with earlier findings by Gefen could be attributed to the different nature of the product being studied (e.g. airline tickets vs. clothing). Further, our results provide empirical support for Lombard et al.'s (1997) proposition that SP has a prominent psychological impact on enjoyment. SP level appears to have equally important impacts on PU, trust and enjoyment, as the path coefficients are comparable. However, the three outcomes of SP have varying path coefficients toward attitude. The path coefficient of trust to attitude is the highest (*b*=.410), suggesting that trust may be the largest contributing factor in forming consumers' attitudes towards online shopping.

CONCLUSIONS

From a theoretical point of view, this study extends social presence (SP) research in the e-Commerce domain.

Previous studies have explored the impact of SP for online digital products (i.e. airline tickets) (Gefen et al. 2003) and email (Gefen et al. 1997; Karahanna et al. 1999; Straub 1994). Findings from this study suggest that SP is also important in forming positive consumer attitudes towards Websites selling physical products (i.e. clothing). Additionally, our research model is an extension of previous models used to study the impact of SP in the online environment, as it incorporated the enjoyment construct. Our analysis showed that enjoyment, in addition to perceived usefulness and trust, is an important consequence of SP.

Most notably, this work examined specific interface features that impact the perception of SP. Previous work has suggested that perceived SP could play an important role in the online environment, but did not empirically investigate how SP can be manipulated through the interface. In particular, we have demonstrated the positive impact of socially-rich design elements (i.e. socially-rich text and pictures) on various constructs leading to online consumer attitude.

From a practitioner point of view, results from this study can have direct implications for designers of online shopping Websites. We have shown that SP can be infused through these elements by including descriptions aimed at evoking positive emotions and pictures that depict products with people in emotional and dynamic settings. Text and pictures are standard elements in Webpages, not requiring advanced technologies from the designers' or users' points of view. Therefore, inducing a sense of SP on a commercial Website can be an immediate and attainable goal for e-vendors.

Future research needs to determine the extent to which the findings presented in this paper can be expanded to include other persons, settings, products and times. Other areas for future research include: (i) Examining other product types; (ii) Examining other socially-rich design elements (such as virtual communities, chats, message boards, human Web assistants, etc.); (iii) Examining other cultures; (iv) Examining B2B and C2C applications; and (v) Examining m-Commerce applications (although the usability issues are quite different in the m-Commerce environment where display size is very limited, socially-rich design should also be explored in this context).

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