

# Cognitive Antecedents of Trust in Electronic Commerce Among Chinese Internet Users

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## INTRODUCTION

The lack of trust in online companies is a main reason that hinders the growth of the population of online shoppers. In brick and mortar stores, customers develop trust through physical surroundings and face-to-face interaction with a salesperson. In the virtual world, that physical environment is replaced by the screen of a Web browser. Consumers' cognitive perceptions of this environment could potentially influence their trust in transacting with a vendor through this medium. This research proposes a new model of antecedents of trust based on existing consumer research in the Web environment. It argues that the cognitive perceptions of informativeness, entertainment, and irritation of the online shopping environment, coupled with an individual's trust propensity, predict his or her general trust in e-commerce. This model also tests the impact of these cognitive perceptions on an individual's trusting intention to use e-commerce sites for future shopping needs.

## BACKGROUND

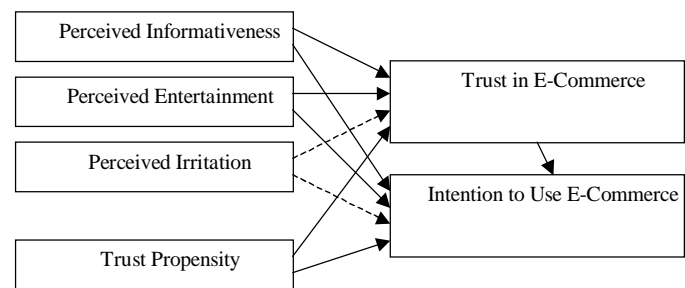
Past research has shown that the three cognitive antecedents of online consumer behavior, perceived informativeness, perceived entertainment, and perceived irritation, significantly influence perceived value of online shopping sites and a user's intention to return. These perceptions were found to consistently measure the effect on user attitude toward traditional media messages like TV commercials and magazines ads (Ducoffe, 1995), as well as perceived value of Websites (Ducoffe, 1996). Such attitudinal perceptions further influence behavioral intentions of the consumer in the online environment.

Literature has also shown that customer perceptions influence their trust beliefs (Jarvenpaa et al., 2000; Lee & Turban, 2001). Consumer trust in e-commerce may include four dimensions spanning from trust propensity, general trust of e-commerce, trust in specific companies, to a user's trusting intentions such as intention to return or to make a purchase online (McKnight et al., 2002). This research proposes a model that links consumer's cognitive perceptions of online shopping with two of the trust constructs: general trust in the institution of e-commerce, and an individual's trusting intentions. This paper sees an individual's trust propensity a personal trait that could significantly influence the formation of trust as well. Such an influence is especially strong in case of a relatively new institution or phenomenon (Mayer et al., 1995). Thus trust propensity is integrated with the three cognitive antecedents to form our model as shown in Figure 1. In the figure, a solid line indicates a positive relation while a dashed line indicates a negative relation.

## THE RESEARCH FRAMEWORK

This research framework proposes a series of hypotheses. It argues that both perceived informativeness and perceived entertainment of online shopping are positively associated with trust in e-commerce in general, while perceived irritation of online shopping is negatively associated with trust in e-commerce. It also argues that both perceived informa-

Figure 1. A cognitive model of trust in e-commerce



tiveness and perceived entertainment of online shopping are positively associated with the trusting intention of returning to e-commerce for future shopping needs, while perceived irritation of online shopping is negatively associated with intention to use e-commerce in the future. This model also proposes that trust propensity is positively associated with both trust variables.

Informative shopping sites inform consumers of product alternatives and enable them to make purchases yielding the greatest satisfaction (Ducoffe, 1996). Consumers consider information a major benefit of engaging in an exchange with any media (Bartos & Dunn, 1974). Both Information and entertainment are need-satisfying functions in the extended uses and gratifications theory (McQuail, 1983). A likable or pleasant interface impacts attitude positively (Mitchell & Olson, 1981), which may lead to trust formation. Conversely, irritating shopping sites lead to a negative attitude that could engender less trust in the consumer (Gao et al., 2004).

Study found that 54% of the variance in attitude toward websites was explained by perceived entertainment, informativeness, and organization (Chen & Wells, 1999). Entertainment value, amount of information and its accessibility, and approach used in site presentation accounted for over 50% of the variance in user perceptions of website effectiveness (Eighmey, 1997). Ducoffe (1996) finds a significant positive .73 correlation between perceived informativeness and perceived value of Web information, a significant positive .76 correlation between perceived entertainment and perceived value of Web information, and a significant negative .57 correlation between perceived irritation and value of the Web.

Summarily, the more informative product offerings through more entertaining style, and in the more organized format and thus less irritating presentation, the more resourceful the online shopping sites are perceived to be and more capabilities they seem to possess. This is similar to a customer's perception of a retail store with meaningfully laid out aisles and fully stocked shelves with the most appealing décor, or the lack thereof (Koufaris & Hampton-Sosa, 2004). Customers are

more likely to entrust in those they perceive to be informative, entertaining, and organized because these companies seem more capable of fulfilling the customers' needs and more likely to make good on the promises they make to their customers. Thus the overall perceptions in those three cognitive aspects will lead to the perceived trustworthiness of e-commerce in general, and consequently having an impact on a user's trusting intention of whether to consider shopping online for future needs.

## METHODOLOGY

This model was tested in a field study in China among likely Internet users. The cognitive antecedents of this model calls for a pool of population who are Internet users and may have occasionally searched for products and services online without necessarily having purchased anything online. An individual who has not been at least an occasional visitor of online shopping sites would be screened out anyway if we used a more general sample population. The investigators decided on sampling from the population of a large university in Beijing. The college campus provides the most likely subjects, i.e., Internet users, for the purpose of this study.

A questionnaire measuring all six variables as outlined in the model was partially adapted from existing literature (Ducoffe, 1996; Jarvenpaa et al., 2000; Koufaris & Hampton-Sosa, 2004), and partially developed for this study. The instrument was then translated into Chinese. Items were mixed and separated on the survey. One of the co-investigators of this study administered the survey with the help of several paid research assistants. The survey was staged at several outdoor locations around campus where foot traffic was relatively heavy. Participants voluntarily filled out questionnaires in response to a gift incentive provided. Sample demographics were also taken on the same instrument.

## RESULTS

Over a hundred questionnaires were distributed and 96 were collected, and 76 of them were significantly complete and used in subsequent analysis. Participants were roughly split between male and female, with age ranging from and 18 to over 30, and most were frequent Internet users. Educational background of the participants indicates that the sample was typical of a comprehensive university with undergraduate and graduate, including doctoral, students and those with significant number of years of full-time employment.

The hypotheses were tested through two linear regression models. In the first model, trust in e-commerce was treated as the dependent variable and the four independent variables include perceived informativeness, perceived entertainment, perceived irritation, and trust propensity. The second model treated intention to return to online shopping as the dependent variable with the same set of independent variables as in the first model.

In the first model, perceived informativeness is significantly positively associated with trust at  $p < .01$ , and perceived irritation is significantly negatively associated with trust at  $p < .01$ . Trust propensity is significantly positively associated with trust at  $p < .05$ . However, perceived entertainment is only marginally significant in predicting trust at  $p = .057$  in this study. Overall, the model explained 48.7% (R-squared value) of variance in trust.

The second model explained 56.5% of variance in a user's intention to use e-commerce in the future. All three cognitive perceptions were significantly associated with the dependent variable in the expected direction with both perceived informativeness and entertainment positively at  $p < .01$  and perceived irritation negatively at  $p < .05$ . However, trust propensity is marginally significant at  $p = .065$ .

In both models, the R-squared and F values indicate a good fit. VIFs were low (less than 2.0), indicating no multicollinearity problem. Standardized residuals were normal and scatter plots of standardized residuals showed no particular pattern that would indicate heteroscedasticity.

## DISCUSSION AND FUTURE RESEARCH

In this study, most of the proposed relations in the research model were supported. Perceived entertainment was a significant predictor of intention to use but not as strong in predicting trust. Some users may consider going back to the e-commerce websites to search for product information in the future because they perceive them to be fun and pleasing but they do not necessarily trust them fully in carrying out transactions. On the other hand, trust propensity had a stronger impact on trust in e-commerce than on intention to return, indicating a person's intention to use e-commerce may be more of the direct result of the perceptual dimensions from the stimuli, i.e., the e-commerce sites. Nonetheless, an expectedly strong correlation (0.694, significant at  $p < .01$ ) between trust and intention via Pearson correlation analysis suggested that the effect of trust propensity on intention occurred more likely through the mediation of the trust construct rather than directly.

This model could be similarly tested in the context of specific e-commerce companies in stead of the general phenomenon of e-commerce. That would require a lab setting of subjects visiting and reporting their impression of an e-commerce site or Web store. The result variable in that case would be a different construct — trust in a specific company. This was not tested due to our resource limitations and is certainly an avenue for future research.

Another limitation was the sampling population. Due to the concern that sampling from the general population may yield a large portion of unusable data for lack of experience with the Internet, let alone e-commerce sites or the concept thereof, we chose to sample from a population that contains a high percentage of Internet users. Even in this sample, roughly a quarter of the responses were not useable due to the subjects' lack of experience with the Internet or inadequate knowledge of e-commerce. Additionally, this research can be replicated among the U.S. or other populations to see if the proposed relationships still hold true, and to identify cultural differences that may impact trust differently.

In summary, this study adds a new model to existing research regarding consumer trust in the Web context. It showed that user perceptions influence trust and behavioral intentions. In order to reap the full benefits of doing business online, marketers and website designers alike should pay keen attention to elements that may influence a customer's cognitive dimensions such as the perceptions of online shopping being informative, entertaining, or irritating. These factors subsequently influence a user's trust and his or her trusting intentions, which may have a direct impact on the future of B2C commerce online.

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