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Risk assessment in e-commerce: How sellers' photos, reputation scores, and the stake of a transaction influence buyers' purchase behavior and information processing

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A B S T R A C T

Guided by Nickel's (2009) model of risk assessment and the literature on facial trustworthiness, this study investigates how the stake of a transaction interacts with information on buyers' profiles in influencing buyers' purchase decisions and information processing. Participants played buyers in a trust game and made purchase decisions based on a series of seller profiles while their eye movements on the stimuli were recorded. Results revealed that the three factors examined exerted influences on buyers' decision-making in a hierarchical fashion: Sellers' reputation exerted a primary influence on buyers' decision-making, followed by sellers' profile photos, which is further followed by the stake of a transaction. The results confirm Nickel's (2009) model of risk assessment and inform e-marketing strategies in terms of building consumers' trust.

1. Introduction

The internet has transformed the way business is performed. One important change has been the emergence of C2C (consumer-to-consumer) transactions, where one individual directly sells products or services to another individual on ecommerce platforms. In such commercial encounters, buyers face a series of risks regarding finance, product quality, delivery time, information security, and so forth (Harridge-March 2006; Masoud, 2013). Before committing to a transaction, the buyers need to estimate a seller's likelihood of fulfilling the order and make a decision on whether or not to make a purchase (Flanagin, 2007).

Although lacking the non-verbal cues typically available in face-to-face interactions for forming interpersonal impressions (Short, Williams, & Christie, 1976; Siegel, Dubrovsky, Kiesler, & McGuire, 1986; Sproull & Kiesler, 1986), text-based ecommerce environments still offer a variety of cues for buyers (i.e., the trustors) to form impressions of sellers (i.e., the trustees). These cues range from user- or system-generated reputation scores to visual representations of a seller, such as photos or avatars. Previous research showed that these static cues had a great impact on buyers' decision-making (e.g., Bente, Baptist, & Leuschner, 2012; Bente, Dratsch, Rehbach, Reyl, & Lushaj, 2014; Flanagin, 2007).

How individuals make decisions in risky situations has been the focus of much research in the fields of communication and media psychology (e.g., Bente et al., 2014; Bente et al., 2012), management (e.g., Jøsang & Presti, 2004), business (e.g., Thaw, Mahmood, & Dominic, 2009), and economics (e.g., Johansson-Stenman, Mahmud, & Martinsson, 2005). In the ecommerce literature, it has been widely recognized that perceived risk of online shopping constitutes a major factor that deters sales, and that creating situations where trust is stronger than perceived risk is imperative to increasing sales (Thakur & Srivastava, 2015; Vos et al., 2014). To this end, much scholarly attention has been devoted to examining how to build sufficient trust from customers in order to mitigate the negative effects of perceived risk on purchases (see for a review, Harridge-March 2006).

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As far as the research on risk assessment in ecommerce is concerned, prior studies tend to approach the topic by examining factors that influence a trustor's assessments of how likely a trustee is going to cooperate in the situation. They neglected to consider another factor that is theoretically important to the process of risk assessment: the stake a trustor bets on a decision to trust someone. Nickel (2009) proposes that people assess risks through two frames. In a predictive expectation frame, people assess risks by estimating how likely a trustee will fulfill an action. In a staking account frame, people assess risks by examining how much they are likely to lose if the trustee does not cooperate. In this sense, previous research only focused on factors pertaining to the predictive expectation frame, while neglecting the role of stake. Moreover, although offering insightful accounts of the risk assessment process, Nickel's (2009) model does not clearly describe how the two frames operate conjointly. Will buyers discount information related to one frame when they have gathered information that supports a decision-making through the other frame, or will they take information related to both frames into account when making decisions?

The present research extends the previous literature by empirically answering these questions. Specifically, it investigates how information on sellers' profiles influences buyers' decision-making, and explores how the stake of a transaction interacts with sellers' profile in influencing purchases. In addition, to gain insights into people's information processing in ecommerce beyond participants' self-reports, this research also explores participants' eye-movements during their decision-making process.

2. Literature review

2.1. Two frames of risk assessment

Hansson's (2004) conceptual definition of risk describes two aspects of risk: (1) the probability of the occurrence of an undesired event, as well as (2) the disutility of the event. Among the two core components of risk highlighted in this definition, the first has to do with uncertainty, and the second has to do with the seriousness of the consequence of an adverse event. Corresponding to this definition of risk, Nickel (2009) proposes two accounts of risk assessment: predictive expectation and staking accounts. Predictive expectation refers to one's expectation of how likely another person will cooperate in a situation. Staking accounts refer to how much one is likely to lose if the other person does not cooperate. Individuals can assess risks and make decisions based on either account (Nickel, 2009; Nickel & Vaesen, 2012). That is, in an event where A needs to make a decision of whether or not to collaborate with B, A can make the decision based on his or her assessment of how likely B is going to perform as expected (i.e., A's predictive expectation of B), or whether A could afford to lose what is at stake if B does not deliver the expected performance.

Applying the aforementioned conceptual and theoretical descriptions of risk assessment in an ecommerce context, one may argue that consumers could evaluate the risk of an online transaction based on (1) the likelihood of the seller fulfilling/not fulfilling an order and (2) the potential damage if the order is not fulfilled. The former could be assessed from various cues on a seller's profile that indicates the seller's trustworthiness; the later is most directly reflected by the price of a purchase.

2.2. Risk and trust in ecommerce: effects of sellers' reputation and photo

The ecommerce literature has long recognized that consumers encounter a variety of risks associated with online shopping. Empirical research on consumer behaviors in ecommerce repeatedly demonstrated that the perceived risk of online shopping negatively influences consumers' purchase intentions and actual purchase behaviors (Chang & Chen, 2008; D'Alessandro, Girardi, & Tiangsoongnern, 2012; Masoud, 2013).

Meanwhile, some propose that where there is a risk, there is room for trust. Trust reflects one's willingness to "rely on another person or entity to perform actions that benefit or protect oneself or one's interests in a given domain" (Nickel & Vaesen, 2012, p. 4). It has been recognized that one potential strategy to combat the negative effect of perceived risk on consumers' purchase behaviors is to increase consumers' trust (Harridge-March 2006).

Indeed, research on consumer psychology in ecommerce shows that consumers' perceived risk and trust are inversely related. For example, consumers' perceived risk toward a product and the web-vendor is negatively related to their trust and purchase decisions (D'Alessandro et al., 2012; Pappas, 2016). Similarly, consumers' trust toward an online retailer is negatively related to their perceived risk toward the retailer (Chang & Chen, 2008). Given that higher trust increase purchases (Corbitt, Thanasankit, & Yi, 2003), it is worthwhile to explore how consumers form trust judgments of sellers in ecommerce, in order to understand what factors e-marketers may leverage to increase consumers' trust.

In an online environment where buyers are unlikely to have prior interpersonal contacts with sellers, consumers need to rely on sellers' profile information to infer their likelihood of cooperation in transactions. Although early perspectives on computer-mediated communication (CMC) contend that mediated-communication contexts inhibit impression formation (see for a review, Culnan & Markus, 1987), a C2C website still offers some unique impression-bearing information that helps users reduce uncertainties about others (Walther & Jang, 2012; Walther et al., 2012).

One example of impression-bearing information is aggregated user representations, which refer to system-generated information that represents users' evaluations of a target (Walther & Jang, 2012). A type of commonly displayed aggregated user representation on a seller's profile is a seller's reputation rating, which indicates the seller's performance in the past transactions. Such reputation ratings provide buyers with information to assess the potential risk of a transaction based on Nickel's (2009) predictive expectation frame.

Indeed, research shows that a seller's reputation score plays a crucial role in helping buyers reduce uncertainties and form judgments about the seller's likelihood of cooperating in the transaction (Chevalier & Mayzlin, 2006; Flanagin, Metzger, Pure, Markov, & Hartsell, 2014; Willemsen, Neijens, Bronner, & de Ridder, 2011). In the research on ecommerce, positive word of mouth was identified as one of the top three factors in reducing consumers' perceived risk of ecommerce, along with money back warranty and partnerships with well-known companies (Corbitt et al., 2003). In multiple studies, a seller's reputation was found to positively influence the seller's perceived trustworthiness and the final sales outcomes (Houser & Wooders, 2006; Resnick, Zeckhauser, Swanson, & Lockwood, 2006; Tong, 2011). To replicate the findings from previous research regarding the effect of sellers' reputation on buyers' decision-making, the following hypothesis is proposed:

H1. The reputation score of a seller positively affects buyers' purchase decision, such that the higher the seller's reputation, the more likely buyers will purchase from him/her.

Other than reputation scores, many ecommerce platforms allow sellers to upload visual representations of themselves, creating the opportunities for buyers to form trustworthiness judgments of the sellers. Although the physical appearance of a seller does not