Journal of Strategic Information Systems 25 (2016) 15–31

Contents lists available at ScienceDirect

Journal of Strategic Information Systems

journal homepage: www.elsevier.com/locate/jsis

Do different kinds of trust matter? An examination of the three trusting beliefs on satisfaction and purchase behavior in the buyer–seller context

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ARTICLE INFO

Article history:
Received 5 October 2014
Received in revised form 23 October 2015
Accepted 28 October 2015
Available online 16 November 2015

Keywords:
Trust
Integrity
Benevolence
Competence
Satisfaction
Purchase behavior

ABSTRACT

Trust has been extensively studied in the buyer–seller context and typically operationalized according to the McKnight tripartite conception of trusting beliefs. The McKnight model identifies three beliefs (integrity, benevolence, and competence) as the key components of trust. However, limited research has examined the relative effect of these three individual trusting beliefs on satisfaction and purchase behavior in the buyer–seller context. To address this gap, we posit that a buyer's beliefs in a seller's integrity and benevolence have stronger influences on satisfaction than a belief in a seller's competence. In contrast, a buyer's belief in a seller's competence has a stronger influence on purchase behavior as compared to beliefs in a seller's integrity and benevolence. The results from a buyer–broker simulation study support that (1) a buyer's belief in a seller's benevolence is a stronger predictor of satisfaction than the belief in a seller's competence; (2) a buyer's belief in a seller's competence is a stronger predictor of purchase behavior than are beliefs in a seller's integrity and benevolence. This research enhances our theoretical understanding about which dimensions of trust play more important roles in influencing satisfaction and purchase behavior, respectively. This research also provides guidance to practitioners enabling them to focus on the development and training foci that best prepare customer relationship employees on the diverse aspects of trust most salient to customer needs, such as, emphasizing competence over benevolence for infrequent purchases, or emphasizing benevolence for potentially frequent purchases.

Introduction

With the proliferation of communication technologies, more and more media, such as instant messaging and videoconferencing, have been adopted by online merchants to facilitate their online transactions. For example, online marketplaces such as eBay have encouraged sellers[3] to use richer media such as Skype to communicate with buyers. Trust is a central construct in the study of commercial transactions, and is extensively researched in the literature of information systems (Cyr, 2010; Gefen et al., 2003; He et al., 2009; Jarvenpaa et al., 2004; Kim, 2003; McKnight et al., 2002; Sun, 2010), marketing (e.g., Milne and Boza, 1999), and organizational behavior (e.g., Mayer et al., 1995). Trust matters between buyers and sellers because trust

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[3] We use the term sellers interchangeably with brokers in this paper, as in this study the brokers' role is to sell shares of stock for a company.

http://dx.doi.org/10.1016/j.jsis.2015.10.004
0963-8687/

plays a vital role in almost any commerce involving monetary transactions (Kim et al., 2009a,b; Sun, 2010; Koh et al., 2012), and trust helps buyers overcome perceptions of transactional uncertainty and risk and so engage in "trust-related behaviors" with vendors, such as making purchases (Horst et al., 2007; Kim et al., 2009a,b; Pavlou and Dimoka, 2006; Dimoka et al., 2012). The inherent temporal and physical separation between buyers and sellers in impersonal online marketplaces poses additional risks for buyers – compared to other contexts – because buyers often make transactions with new and unknown sellers with no brand name (Kim et al., 2009a,b; Pavlou and Dimoka, 2006).

But trust is a broad concept, and has frequently been conceptualized as being composed of several specific beliefs. The trusting beliefs most utilized in the initial trust literature are based on the McKnight tripartite conception (e.g., McKnight et al., 2002) of initial trust consisting of the beliefs of integrity, benevolence, and competence that the trustor has in the trustee.

Although trust has different facets (McKnight and Chervany, 2002), most of the previous research in the Information Systems (IS) literature has focused on how *overall trust* has influenced intention to purchase (Gefen et al., 2003), satisfaction (Kim et al., 2009a,b), and e-loyalty (Cyr et al., 2007). Thus, a theoretical gap that exists in the literature is examining how different facets of trust might influence transaction outcomes. Due to the limited research regarding the effects of the three individual trusting beliefs, it is not clear which of the trusting belief(s) is most critical for explaining transaction outcomes or, more likely perhaps, whether each facet of trust is related to some outcomes but not others. As noted by various scholars (McKnight et al., 2002; Cheung and Lee, 2006), the distinctions among these three beliefs are important because a trustor might place different emphases on these three trusting beliefs. For example, although a trustor evaluates a trustee highly in all three trusting beliefs, the trustor may place more significant weight on benevolence in determining their level of satisfaction with the trustee. As such, it is important to understand how different facets of trust influence transaction outcomes. This leads to the objective of our study to examine the relative effects of the three trusting beliefs on the two types of transaction outcomes: buyer's satisfaction with the transaction and purchase behavior.

Studying the effects of three trusting beliefs independently would be significant theoretically and practically. First, these trusting beliefs are distinct. What consumers think about a seller's benevolence and what they think about a seller's competence are not always related. Indeed, a competent seller does not necessarily have good integrity or care about a customer's interests. That is why many companies such as Porsche stand by the statement that, in order to succeed, a company must "hire character" and "train skill."[4] Since the three trust beliefs each have different features, they may therefore differ in their substantive implications. Thus, it is important to study these three beliefs separately rather than lump them into an overall trust construct for better theoretical understanding. Second, explanations differ for why each of the three trusting beliefs is related to satisfaction or purchase behavior. For example, the effect of competence beliefs on satisfaction could be due to a customer's practical consideration (i.e., experts' knowledge in understating product attributes), while the effect of benevolence beliefs may be based on an affective reaction. Third, the three-beliefs distinction is important because the three types of trusting beliefs may have differing outcomes (e.g., one may lead to satisfaction and the other leads to purchase behavior) or because the amount of impact each has upon a certain outcome may vary.

The examination of these relationships among the three trusting beliefs and two transaction outcomes also has strategic implications. Many researchers and organizations have recognized the long-term and strategic value of moving from transactional exchanges to relational ones, with the goal of developing trust and building relationships between buyers and sellers (Kanagal, 2009; Starr-Glass, 2011). As put by Wilson (1995, page 335), "these relationships have become 'strategic'" and the process of relationship development is accelerated as organizations strive to create relationships to achieve their goals. Trust building and relationship marketing has been considered as an important and strategic way of doing business because it is more cost effective to keep current customers rather than win new ones (Cruceru and Moise, 2014; Zeithaml and Bitner, 2000). Although it is well known that organizations must increase customer trust of their front-end employees (e.g., sales forces) and increase customer satisfaction and long-term relationships, managers must be made aware of the specific role of each trust dimension. For instance, managers may choose to focus training opportunities on the development of employee competence, if such an antecedent is found to be the most salient to developing a long-term relationship with customers.

In this study, we examine the differential impact of the three trusting beliefs in a stock buying–selling context through a variety of commonly used e-business communication media including video, audio, and text, which were conducted over the Internet (via MSN chat software). These media together represent a broad scenario of how individuals trade stock online through brokers and can enhance the generalization of the study results.

In the next section, we review the literature about the three trusting beliefs, and the difference between satisfaction and purchase behavior. We then develop the hypotheses for how integrity, benevolence, and competence can have different effects on satisfaction and purchase behavior. In the methodology section, we describe the simulation, data analysis, and present the results. Finally, we discuss the theoretical and practical implications of the study followed by the conclusions.

Literature review and theoretical foundations

Trust

Trust can be defined as the "willingness to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other

[4] http://www.corporateculturepros.com/2013/07/cultural-fit-assessment-in-hiring/.

party" (Jarvenpaa et al., 2004, p. 250; Mayer et al., 1995, p. 712). The importance of trust has been emphasized in a wide variety of domains, such as in interpersonal communication, leadership, negotiation, performance appraisal, and teamwork (see Mayer et al., 1995 for a review). Trust is not only important in offline settings (Schurr and Ozanne, 1985; Yoon, 2002), but also in the online context (e.g., Gefen et al., 2003; Kim and Benbasat, 2006; Pavlou and Dimoka, 2006). Evidence suggests that buyers often hesitate to transact online because of uncertainty about sellers' behavior, and that trust plays a critical role in helping buyers overcome perceptions of uncertainty and risk (McKnight et al., 2002). These risks and uncertainty can be thought of as transaction costs, which can range from minor inconveniences to being defrauded (Citera et al., 2005). Trust can reduce such transaction costs (Cummings and Bromley, 1996; Winter and Gaglio, 2001). If a buyer is certain about a seller's behavior, there is no fear regarding the seller's intentions, making the need for trust irrelevant (Dasgupta, 1988). Trust is a crucial enabler affecting purchase intentions (Warkentin et al., 2002) and e-loyalty (Cyr et al., 2007) in B2C relationships (McKnight et al., 2002) as well as business-to-business (B2B) marketplaces (Pavlou and Dimoka, 2006).

Three trusting beliefs

As noted earlier, trusting beliefs consist of three dimensions: integrity, benevolence, and competence (McKnight et al., 2002; Schlosser et al., 2006; Gefen, 2004; Wang and Benbasat, 2005). According to the trust literature, integrity is the belief that a trustee adheres to a set of principles (e.g., honesty and keeping promises) that are generally accepted by trustors. Benevolence is a trustor's belief that a trustee cares about the trustor and acts in the trustor's interests. Competence is a trustor's belief that a trustee has the ability, skills, and expertise to perform effectively in specific domains.

There is evidence that these three trusting beliefs are related, yet distinct (McKnight et al., 2002; Pavlou and Dimoka, 2006; Schlosser et al., 2006; Schoorman et al., 2007; Wang and Benbasat, 2007). While a belief about a seller's integrity may focus on meeting objective standards of professional principles, a belief about a seller's benevolence may focus on buyer welfare (Schlosser et al., 2006). For example, despite a buyer's belief that a seller follows a professional code of conduct and meets objective standards of trade principles (i.e., has integrity), the buyer may still question the seller's genuine concern for its buyers and whether it acts in the buyer's best interests (i.e., its benevolence). Furthermore, a buyer may believe that a seller cares about its clients (i.e., the seller is benevolent), but the buyer may also believe that the seller lacks the competence to do so. As one final example, a buyer may believe that the seller has the competence to make a good-quality product, but they may also believe that the seller does not uphold the highest level of integrity.

Another important difference between the three components of trust is judgments of integrity and benevolence pertain to the moral dimensions of trust, whereas competence is a judgment of ability. This distinction is important because research suggests that morality judgments are given more weight than ability judgments when people form impressions of others (Goodwin, 2015). One reason being that moral traits offer the most reliable guide to whether a person's intentions are fundamentally good. Also relevant for understanding how different trust judgments can influence subsequent responses is that moral judgments are often affectively charged. In fact, some writers (e.g., Haidt et al., 1993) have argued that affect rather than sophisticated reasoning is the basis for moral judgments. As we explain below, the tight connection between the affect that accompanies moral judgments, has implications for how trust beliefs influence the outcomes of economic exchanges.

Outcomes of the trusting beliefs: Satisfaction and purchase behavior

In this study, we focus on two possible outcomes of trust in a buyer–seller transaction: satisfaction and purchase behavior. Satisfaction is an affective reaction to the appraisal of a specific referent (Parasuraman et al., 1988). In the buyer–seller context, it is the extent to which a buyer is satisfied with his/her transactions (i.e., making a purchase or not, and the amount of purchase). Satisfaction is an ex-post evaluation of a buyer's experience with the transaction and ranges from a positive feeling, to indifference, or to a negative feeling (Anderson, 1973; Cenfetelli et al., 2008). Satisfaction is an important construct in studying buyer–seller relationships (Cheung and Lee, 2005) because it is the key for building and retaining a loyal base of long-term buyers (Bhattacherjee, 2001; Brady et al., 2005; Hallowell, 1996), fostering an intention to return to a website (Cenfetelli et al., 2008; Xu et al., 2010), and strengthening the intention to repurchase (Mittal et al., 1998). In particular, satisfaction has been identified as the most important subjective variable used in empirical negotiation support systems research (e.g., Delaney et al., 1997; Foroughi et al., 1995; Lim and Yang, 2007; Oliver et al., 1994; Perkins et al., 1996) and is predictive of a buyer's desire for future relationships with sellers (Oliver et al., 1994).

Purchase behavior is obviously an important outcome variable in buyer–seller transactions because it determines the seller's financial performance. Purchase behavior is a more direct measure of the economic effect of the transaction than self-reported intentions, which are widely used as proxies for purchase behavior (Chandon et al., 2005). For example, most academic studies use potential buyer intentions as the criterion variable (e.g., Gefen et al., 2003; Kim et al., 2009a,b; Schlosser et al., 2006; Wang and Benbasat, 2005; Xu et al., 2014a). The problem with using intention is that potential buyers' self-reported purchase intentions do not perfectly predict their future purchase behavior (Chandon et al., 2005; Lim et al., 2006; Morwitz et al., 2007; Wright and MacRae, 2007). Indeed, the majority of buyers are "non-intenders" in that actual compliance with stated intention is low (Wright and MacRae, 2007). One meta-analysis even found that the relation between intention and purchase behavior was negative (−0.177) for new products (Morwitz et al., 2007).

Given that intention to purchase might not necessarily lead to purchase behavior, a few scholars have investigated the effect of trust on purchase behavior. For example, Lim et al. (2006) found that trusting beliefs of a book store positively affect

user attitude, and lead to purchase behavior. Pavlou et al. (2007) found that trusting beliefs of the sellers increases buyers' intentions to transact with sellers and positively influence purchase behavior. However, despite the acknowledged importance of the relationship between trust and purchase behavior, and between trust and satisfaction, as we reviewed in Table 1, no study has directly examined the relationship between the *three individual* trusting beliefs and purchase behavior, nor between the three individual trusting beliefs and satisfaction. Thus, it is unclear which trusting belief(s) might play a more significant role in influencing these two consequent variables.

Hypothesis development

In this section, we propose several hypotheses based on the research model depicted in Fig. 1.

The effect of trusting beliefs on satisfaction

Considerable research has studied the relationship between trust and satisfaction. In the marketing literature, Dwyer et al. (1987) found a positive indirect relationship between trust and satisfaction in the offline context. Prior research (Balasubramanian et al., 2003; Flavian et al., 2006; Kim et al., 2009a,b) has also identified Internet buyer trust and/or satisfaction as vital factors for the success of partner relationships. For example, trust is an essential ingredient in creating very satisfied buyers (Balasubramanian et al., 2003). However, no study has directly examined the relationship between the three individual trusting beliefs and satisfaction. Thus, it is not clear about which individual trusting beliefs are the driving forces for satisfaction.

As theorized by McKnight et al. (2002) and others (e.g., Schlosser et al., 2006), the distinctions among the three trusting beliefs are important because a buyer might place different emphasis on these three beliefs. In the buyer–seller context, we predict that the effect of a buyer's belief in a seller's integrity will carry more weight in influencing satisfaction than a buyer's belief in a seller's competence. There are three reasons why.

First, as online fraud has become a concern for many buyers (Root, 2004; Grazioli and Jarvenpaa, 2000), a seller with greater perceived integrity is more likely to alleviate a buyer's concerns regarding potential fraud, thereby enabling that buyer to experience a higher level of satisfaction with the transaction. In a commercial setting, sellers are likely to behave in an opportunistic manner (Reichheld and Schefter, 2000). A buyer's interaction with a seller requires the buyer to deal with the social complexity embedded in the interaction and to take psychological steps to reduce it (Gefen et al., 2003). A buyer's belief in a seller's integrity indicates that buyer's perception that the seller is guided by ethical principles and standards that, presumably, will lead them to act less opportunistically. This type of reassurance is especially important when buyers find themselves in a situation where monitoring or legal guarantees are impractical (Gefen et al., 2003).

Second, a perceived lack of integrity can generate more negative emotions (e.g., dissatisfaction) than a lack of competence (Tranfinow et al., 2005) because integrity violations are more likely to be viewed as intentional. In contrast, a lack of competence can be viewed by buyers as occurring due to deficiencies in skill, knowledge or experience on the part of seller. As a result, buyers may be more willing to pardon or tolerate sellers for their incompetence than for their lack of integrity. However, because attributions of intentionality are more certain, they will find it much harder to tolerate. Violations of integrity, such as occurs with misrepresentations of product features, or failing to keep a promise, because of their intentional nature, will be much harder to tolerate.

Third, as noted earlier, satisfaction is a buyer's affective (vs. cognitive) reaction to the appraisal of a transaction. Recall that judgments of morality, of which the benevolence and integrity dimensions of trust are arguably based, are often accompanied by affect. Thus, we expect these two dimensions of trust to be more predictive of outcome variables that are affective rather than cognitive for buyers. Thus, we hypothesize the following:

H1. As compared to the belief about a seller's competence, a buyer's belief about a seller's integrity is a stronger predictor of satisfaction.

Having made the case for why both the integrity and benevolence dimensions of trust should be more closely related to satisfaction than competence, we now consider what the nature of the relationship will be for benevolence, in particular. A seller demonstrating benevolence indicates that s/he is genuinely concerned about a buyer's interests (Pavlou and Dimoka, 2006). A seller's benevolence can act as a signal to a buyer that a seller is likely to refrain from opportunism, even if the seller has the opportunity to do so, because he or she is concerned about the buyer's welfare (McKnight et al., 2002). If buyers perceive that sellers are genuinely concerned about their interests, and will act with goodwill toward buyers beyond mere short-term profit expectations, then buyers are also more likely to be satisfied with their interaction. Given the personal aspects of the nature of trust, a buyer's belief about a seller's benevolence will more likely have a greater effect on satisfaction than a belief about a seller's competence. For example, when using service quality (SERVQUAL) to predict satisfaction with online shopping channel, Devaraj et al. (2002) found that empathy (somewhat similar to benevolence) is the significant determinant in explaining satisfaction, while reliability (somewhat similar to competence) is not. This indicates that when a seller empathizes with a buyer's needs and exhibits benevolence, the buyer will experience more positive affect toward the seller which can translate into satisfaction with the overall transaction.

Table 1
Literature review on three trusting beliefs and transaction outcomes.

	Trusting beliefs				Satisfaction	Purchase behavior	Intention
	Competence	Benevolence	Integrity	Trust			
McKnight et al. (2002)	X	X	X				X
Shankar et al. (2002)	X	X	X		X (review paper)		X
Pavlou and Dimoka (2006)	X	X					
Schlosser et al. (2006)	X	X	X				X
Gefen (2004)	X	X	X				
Ridings et al. (2002)	X	X					X
Wang and Benbasat (2005)	X	X	X				X
Pavlou and Gefen (2004)				X		X	X
Jarvenpaa et al. (2004)				X	X		
Kim et al. (2009a,b)				X			X
Gefen et al. (2003)				X			X
Koh et al. (2012)				X			X
Kim (2008)				X			X
Serino et al. (2005)				X			
Bélanger and Carter (2008)				X			X
Kim (2010)				X	X		X
Andaleeb (1996)				X	X		
Driscoll (1978)				X	X		
Razzaque and Boon (2003)				X	X		
Hansen (2012)				X	X		

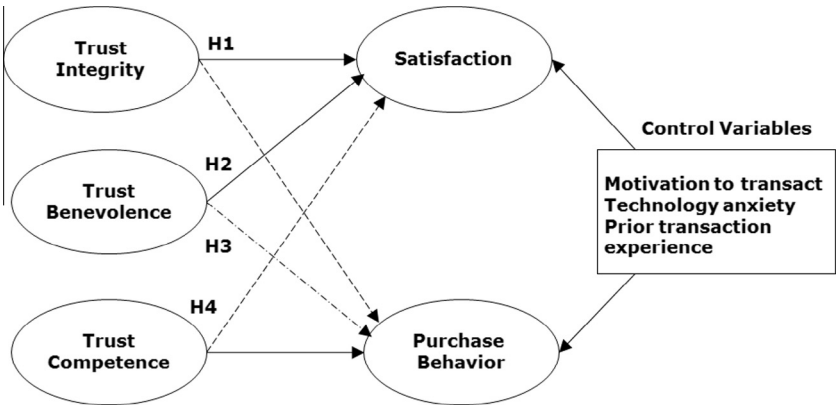

Fig. 1. Research model.

As another study found, managers tend to hire the "lovable fool" rather than the "competent jerk" (Casciaro and Lobo, 2005). One of the reasons that people opt for likeability over ability is because we like people who are considerate and cheerful (character-based), and we have reciprocal positive feelings about them (Casciaro and Lobo, 2005). Although competence might also positively influence buyer satisfaction, we expect that as compared to the character-related dimensions of trust such as benevolence, the ability-related dimension of trust (i.e., competence) has a lesser effect in influencing the affective consequence – satisfaction. In addition, trust in competence may require more complex and sophisticated information processing. Trust in integrity and benevolence is more closely related to system 1 or intuitive processing (Kahneman, 2003), of which we argue that satisfaction is one result. Therefore, we hypothesize:

H2. As compared to the belief about a seller's competence, a buyer's belief about a seller's benevolence is a stronger predictor of satisfaction.

The effect of trusting beliefs on purchase behavior

The previous hypotheses focus on buyer satisfaction; now we turn to another consequential variable salient to online transactions: purchase behavior. Intentions to purchase do not necessarily translate into purchases (Chandon et al., 2005; Lim et al., 2006; Morwitz et al., 2007; Wright and MacRae, 2007), thus making the study of purchase behavior an important variable to consider. As argued earlier, the ability-related dimension of trust (i.e., competence) is less important in influencing the affective consequence (i.e., satisfaction) as compared to the character dimension of trust (i.e., integrity and benevolence).

In contrast, when it comes down to purchase behavior, we expect that a buyer's belief in a seller's competence is more important than beliefs in that seller's benevolence and integrity. Buying entails a cost and the surrendering of a resource. Thus, people are likely to engage in more effortful processing, which can make the judgment of competence much more likely to inform decision making.

Sales transactions frequently involve a high degree of product uncertainty, which arises from the buyers' concern about the product's potential defects (Dimoka et al., 2012) and originating from buyers that cannot easily assess whether the products features match their product preferences (Hong and Pavlou, 2010). Buyers might be uncertain about the performance and fit of the purchased product or service, as well as the overall outcome of the transaction (Dimoka et al., 2012; Wu and Liu, 2007). A buyer must evaluate the competence of the seller as a prerequisite to assessing his/her purchase behavior. If a buyer perceives that the seller is incompetent, the buyer will be more concerned about the performance and fit of the product and so less likely to transact with that seller. For example, if a seller does not have a strong ability to assess a buyer's needs and requirements, the seller is not able to provide relevant product advice (Komiak and Benbasat, 2006). As a result, a buyer might not be able to successfully accomplish his or her tasks (e.g., search for product information and place an order), or will have less confidence doing so. In contrast, when a seller is more competent, s/he is more likely to help a buyer understand products/services and so be able to resolve a buyer's concerns. As a buyer risks suffering financial loss from a product purchase, a buyer is more willing to purchase products from a seller who is perceived as being able to competently fulfill transaction requirements.

Prior research found that the purchase intentions of online searchers depended upon their beliefs regarding the firm's competence rather than their beliefs about the firm's benevolence (Schlosser et al., 2006). The reason is that online product searching is a purposive, task-specific behavior. Online searchers are likely motivated to find the right answer efficiently. Given their performance orientation, online searchers tend to focus on the trusting belief that is most relevant to such performance – competence – when considering online purchase intentions. In contrast, prior empirical research has confirmed that an online searcher's belief about a firm's trustworthiness on non-performance-related dimensions (i.e., benevolence and integrity) had relatively less effect on their online purchase intentions (Schlosser et al., 2006). This is because online searchers' fact-gathering and knowledge-seeking motivation is outcome-oriented and impersonal (Rosenblatt, 1978), and thus they are likely to disengage from having a personal experience with a website, yet the most personal aspect of trust is benevolence and integrity (Schlosser et al., 2006). Extending this theorization and empirical result to our study's context, purchase is a purposeful behavior, and a buyer is motivated to find the right product efficiently. Thus, a competent seller can meet this need by providing valid product information and recommending good-quality products. Therefore, we hypothesize:

H3. As compared to the belief about a seller's integrity, a buyer's belief about a seller's competence is a stronger predictor of purchase behavior.

H4. As compared to the belief about a seller's benevolence, a buyer's belief about a seller's competence is a stronger predictor of purchase behavior.

Method

Design and procedures

We tested our hypotheses in a simulation with a between-subjects design. From prior studies (e.g., Handy, 1995; Whittaker and O'Conaill, 1997; Winston et al., 2002), we are aware that an individual's trust in a partner might vary when using different communication media, such as communicating face-to-face versus communicating via an audio channel (e.g., telephone). In particular, several empirical studies have investigated the extent to which different communication media affect an individual's trusting beliefs and collaborative behavior (Citera et al., 2005; Hill et al., 2009; Rockmann and Northcraft, 2008).[5] Therefore, participants in our study were assigned to one of four treatments: face-to-face, video, audio, and text. These treatments described the communication medium by which the participants interacted with one another. We adopted four types of communication media to create variations in buyers' perceptions of trusting beliefs.

In the face-to-face condition, participants sat physically together in the same room and performed their tasks by directly interacting with one another in person. In the video condition, the two participants were physically separated into two different rooms so that they could not see each other except through a computer display using videoconferencing software (MSN Chat with video communication enabled). The audio and text conditions were similar to that of the video condition in that each individual in the pair was physically separated from one another with only the respective technology (MSN Chat with audio communication enabled or MSN Chat with instant messaging) medium as a communication conduit.

[5] The idea is that interpersonal cues (e.g., appearance, facial expressions and audio cues) can play an important role in trust formation, because they give information about an individual's intrinsic states such as sincerity and confidence (Whittaker and O'Conaill, 1997). Some interpersonal cues might be lost when the interactions are computer-mediated. For example, there are no visual and audio cues in text chat. It has been assumed that a lean channel will result in lower trust, as many interpersonal cues that are important for building trust are not present (Handy, 1995). Visual interpersonal cues (e.g. smiles), which are not available in text or audio, have been considered as useful in inducing favorable responses (Winston et al., 2002).

Participants were asked to play a role in a sales transaction environment involving the buying and selling of shares of stock in a fictitious company. One participant in the pair was randomly assigned as a seller or buyer and the other assigned to the opposing role. Each participant received separate confidential instructions about the nature of their role and their task (see Appendix A for the instructions provided to the buyer). Essentially, buyers were asked to discuss with the brokers the possibility of buying shares in a particular company (PATCO), and if so, how many shares. Buyers were told to rely on the broker to provide information about the price of shares in PATCO and what the anticipated performance of the stock will be. Buyers were informed that the broker's job is to provide them information about risk so as to help them decide whether to invest in PATCO and, if so, how much money to invest. We expect that buyers were motivated to solicit information from their brokers because a buyer's gain or loss depended upon the information regarding stock risk as provided by the brokers.

A pre-exercise questionnaire was administered to assure understanding of the instructions. The participants were provided time to communicate with one another via the assigned communication media and to determine a mutually agreed-upon number of shares to sell or purchase. Note that the task was designed to mirror a real-world shopping experience involving a certain amount of risk on the part of the buyers, who have to use their own money (from the honorarium) to make purchase decisions. In addition, sellers can potentially exploit the asymmetrical information provided to sellers (see Appendix B for the instructions provided to the broker) to take advantage of the buyers. After buyers reached an agreement on the number of shares that they would buy from the broker, they answered questions related to the model constructs, such as the three trusting beliefs (see Table 2). At the conclusion of the simulation, participants were debriefed. A final stock "price" was determined at random from a probability distribution matching that described in the task instructions, with subsequent disbursement of base and incentive compensations.

Sample and incentives

We recruited participants through flyers and other advertisements on a North American university campus. One hundred and seventy university students participated in the study. Participants' ages ranged from 19 to 34 years, with a mean of 21.4 years. Thirty-seven percent (37%) of the participants were male. There was no significant difference in gender and age distribution for participants across the treatment conditions or between assignments in roles of either buyer or seller.

In exchange for their participation and to enhance realism in these scenarios, participants were provided with performance incentives beyond a base remuneration of $10 for participation (see Table 3 for details). As in many other studies (e.g., Mao and Benbasat, 2000), supplying extra performance-based incentives are very useful techniques in motivating participants to view the simulation as a serious sales transaction session and thus increase their involvement.

Measures

Unless otherwise indicated, all measures were based on five-point Likert scales ranging from "strongly disagree" (1) to "strongly agree" (5). Table 2 provides the items used in the questionnaire. Although satisfaction was measured with a single item, a meta-analysis on the construct of overall satisfaction has concluded that the single-item measures are more robust than multi-item scales of overall satisfaction (Wanous et al., 1997). Recent marketing research also found that no difference in predictive validity exists between the multiple-item and single-item measures on variables such as attitude and satisfaction (Bergkvist and Rossiter, 2007; Van Doorn and Verhoef, 2008).

To assess the realism of the simulation task, we asked questions regarding participant motivation. Participants in the seller role were strongly motivated to sell as many shares as possible, reporting a mean Likert response of 3.80 out of 5, which was significantly different from the 3.00 midpoint ($p < 0.001$). Participants in the buyer role were strongly motivated to earn as much money in the exercise as possible, reporting a mean Likert response of 3.96 out of 5, which was significantly different from the 3.00 midpoint ($p < 0.001$). This result indicates that there was a high level of participant involvement with the simulation task. In addition, participants felt a low level of technology anxiety (1.04 out of 5).[6] There were no significant differences in these measures across the four communication media conditions.

Model validation

The research model was tested using Partial Least Squares (PLS) with PLS-Graph 3.0. Given our objective to examine the relative effects of competence, benevolence, and integrity, each of them were modeled separately as an individual construct. Since half of the participants played the role of a buyer, the model was tested with a sample size of 85. We follow the suggestions from Ringle et al. (2012) and Chin (2010), using the power tables for multiple regressions (e.g., Cohen, 1992) to calculate the required sample size. Assuming a medium effect size (0.15) with alpha of 0.05, it would need a minimum sample size of 76 to obtain a power of 0.80 (Cohen, 1992). Our sample size of 85 is adequate to test the proposed model.

Assessments of measurement models should examine: (1) individual item reliability, (2) internal consistency, and (3) discriminant validity (Barclay et al., 1995). A general method for checking individual item reliability involves seeing whether individual item loadings are above 0.60 or, ideally, 0.70 (Barclay et al., 1995; Chin, 1998). The measurement items in the

[6] Perceived technology anxiety was measured with the following items: (1) Technology scares me; (2) Technology makes me feel uncomfortable; and (3) I get a sinking feeling when I think of trying to use technology.

Table 2
Measurment items and sources.

Constructs	Measurement items	Sources
Trust-integrity	The seller was honest I thought the seller had integrity	McKnight et al. (2002), Wang and Benbasat (2005)
Trust-benevolence	The seller put my interests first The seller had my interests in mind The seller wanted to understand my needs and preferences	McKnight et al. (2002), Wang and Benbasat (2005)
Trust-competence	The seller had the expertise to understand purchasing and selling stock The seller had good knowledge about purchasing and selling stocks The seller considered all the important attributes of buying or selling a stock	McKnight et al. (2002), Wang and Benbasat (2005)
Satisfaction	Overall I was satisfied with the outcome of the negotiation	Van Doorn and Verhoef (2008), Medvec et al. (2005)
Purchase behavior	We measured purchase behavior based on the transaction agreement (i.e., the number of shares purchased) reached between buyers and sellers. As the buyer needs to use real money to purchase the shares, such a measure is more realistic as compared to asking their purchase intention	Developed for this study

Table 3
Incentives for the participants.

	Perceived incentives (what the seller and buyer were led to believe in the scenario)	Actual incentives
Seller	$10 starting "bonus" (honorarium) plus commission for the number of shares sold or no bonus if no shares sold (range of $0.00–$12.50); *Plus* $50 prize for seller selling the most shares throughout the study	Minimum: $10; *Plus* commission of any shares sold (max $2.50); *Plus* $50 prize for seller selling the most shares throughout the study
Buyer	$10 (honorarium) plus or minus gain/loss from final share price (range of $0.00–$20.00). *Plus* $50 prize for buyer who earns the most money	Minimum: $10; *Plus* any share gains from *upward* movement (no penalty for downward movement); *Plus* $50 prize for buyer who earns the most money

present study's model generally loaded heavily on their respective constructs (see Table 4), with loadings above 0.70, thus demonstrating adequate reliability. Composite reliability and Cronbach's alpha scores are reported in Table 5. Because all reliability scores are above 0.70, the internal consistency criteria are met.

To assess discriminant validity, Fornell and Larcker (1981) pointed out that the AVE should be greater than the variance shared between the construct and other constructs in the model (i.e., the squared correlation between two constructs). The diagonal elements in Table 5 represented the square roots of the average variance extracted (AVE) from latent variables, while the off-diagonal elements are the correlations between latent variables. For adequate discriminant validity, the square root of the AVE of any latent variable should be greater than the correlation between this particular latent variable and other latent variables (Barclay et al., 1995). All construct pairs met this requirement. In addition, the fact that none of the construct correlations (Table 5) were above 0.80, and indeed were no more than 0.60, also supports discriminant validity (Fornell and Larcker, 1981).

Discriminant validity is further confirmed when the loadings for the items on its targeted construct are higher than loadings on other constructs in the model (Chin, 1998). Gefen and Straub (2005) provided a restrictive guideline stating that the minimum difference between item loadings and cross loadings should be greater than 0.10 to establish discriminant validity in addition to the AVE analysis showed above. This restrictive guideline has been widely adopted in the IS literature to assess discriminant validity (Gefen and Straub, 2005; Wixom and Todd, 2005; Zhang and Sun, 2009; Xu et al., 2013). Table 4 contains the loadings and cross-loadings for items used in this study; all items load higher on their constructs than they load on any other constructs, and in all cases, the differences are greater than 0.20 with most of them being greater than 0.30. These results, therefore, confirm that each construct is unidimensional, factorially distinct, and that all items used to operationalize a particular construct are loaded onto a single factor.

Since all of our items (except purchase behavior) were measured with the same method, we tested for multi-collinearity among the constructs to address the potential concern for common method bias. To formally test for the presence of collinearity, we calculated the variable inflation factor (VIF) for the constructs in the model. The results indicated that all of the VIFs were lower than 2.00 with the highest VIF being 1.99. Tabachnick and Fidell (1996), and Thatcher and Perrewé (2002) suggest that when VIFs exceed 10, collinearity biases the result. Because the VIFs did not exceed 2.00, our analysis indicated that collinearity did not influence the results. This test suggests that common method bias is not a major concern in this study.

Table 4
Loading and cross loading of measures.

	Trust-integrity	Trust benevolence	Trust-competence	Satisfaction	Purchase behavior
Trust-integrity 1	**0.84**	0.49	0.22	0.28	0.06
Trust-integrity 2	**0.95**	0.58	0.37	0.44	0.27
Trust-benevolence 1	0.62	**0.86**	0.39	0.42	0.22
Trust-benevolence 2	0.60	**0.89**	0.47	0.42	0.24
Trust-benevolence 3	0.42	**0.87**	0.30	0.44	0.24
Trust-competence 1	0.29	0.27	**0.90**	0.19	0.45
Trust-competence 2	0.41	0.47	**0.94**	0.29	0.41
Trust-competence 3	0.32	0.45	**0.90**	0.32	0.37
Satisfaction	0.42	0.50	0.28	**1.00**	0.31
Purchase behavior	0.22	0.27	0.46	0.31	**1.00**

Table 5
Descriptive statistics and correlations.

	Mean	SD	CR	CA	TI	TB	TC	SAT	PB
TI	3.38	0.79	0.89	0.78	**0.89**				
TB	2.74	0.90	0.89	0.82	0.60**	**0.86**			
TC	2.39	0.73	0.92	0.88	0.35**	0.40**	**0.89**		
SAT	3.62	0.63	1.0	–	0.42**	0.50**	0.28**	n/a	
PB	$5.92	3.23	1.0	–	0.22*	0.27*	0.46**	0.31**	n/a

Note#1: Except purchase behavior (PB), all measures were based on five-point Likert scales ranging from "strongly disagree" (1) to "strongly agree" (5).
Note#2: SD: Standard Deviations; CR: Composite Reliability; CA: Cronbach's Alpha; TI: Buyer's Trust-Integrity; TB: Buyer's Trust-Benevolence; TC: Buyer's Trust-Competence; SAT: Buyer Satisfaction; PB: Purchase Behavior (Share Purchased).
* $p < .05$.
** $p < .01$.

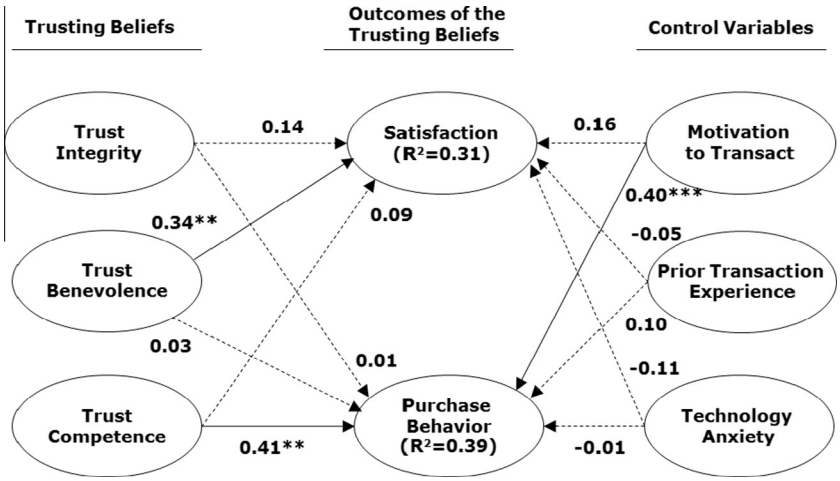

Fig. 2. Results of the research model. Note: $^{**}p < .01$, $^{***}p < .001$.

Test of the hypotheses

We analyzed the structural model to examine the significance and strength of relationships of each of our hypothesized effects. The following variables that might influence buyer satisfaction and purchase behavior were controlled for in this study: motivation to conduct a transaction, prior experience in buying or selling stocks, and technology anxiety. Results of the analysis including standardized path coefficients, path significances, and variance explained (R^2) for each dependent variable, are presented in Fig. 2. Regarding the effect of the three control variables on satisfaction and purchase behavior, only the motivation to conduct a transaction had a significant effect on purchase behavior ($p < 0.001$), while other links were not significant (see Fig. 2).

The results showed that benevolence belief significantly influenced satisfaction ($\beta = 0.34$, $p < 0.01$). Integrity belief did not significantly influence satisfaction ($\beta = 0.14$, $p > 0.05$), neither did the competence belief ($\beta = 0.09$, $p > 0.05$). Regarding the

trusting beliefs on purchase behavior, competence belief was found to significantly influence purchase behavior ($\beta = 0.41$, $p < 0.01$). However, neither integrity ($\beta = 0.01$, $p > 0.05$) nor benevolence ($\beta = 0.03$, $p > 0.05$) influenced purchase behavior.

To test the comparative effect of the three trusting beliefs as hypothesized in H1–H4, we used the Meng et al. (1992) *Z*-test[7] for comparing correlated bivariate correlation coefficients (Table 5). This test has been recently adopted in the IS literature (e.g., Gwee and Chang, 2014; Parboteeah et al., 2009). Based on the correlation coefficients and the *Z*-test, we found that the relationship between benevolence and satisfaction was stronger ($p < 0.05$) than the relationship between competence and satisfaction, supporting H2, the relationship between integrity and satisfaction was not stronger ($p > 0.05$) than the relationship between competence and satisfaction, failing to support H1. In addition, we found that the relationship between competence and purchase behavior was stronger ($p < 0.05$) than the relationship between benevolence and purchase behavior, and was stronger ($p < 0.05$) than the relationship between integrity and purchase behavior, thereby lending support to both H3 and H4. Table 6 summarizes the hypotheses testing results.

Post-hoc analysis

Based on prior research regarding the established effect of media richness on trust (e.g., Handy, 1995; Rockmann and Northcraft, 2008; Whittaker and O'Conaill, 1997; Winston et al., 2002), we utilized four communication media to create variance in the perceived trusting beliefs. To examine whether we obtained the intended results, we did the following analysis. We first explored the treatment effects on perceived media richness[8] through a post-hoc contrast analysis. The results showed that the face-to-face medium was perceived to be richer than the video ($p < 0.001$); the video medium was perceived to be richer than audio ($p < 0.05$) and text media ($p < 0.05$). However, no significant difference was found between audio and text medium ($p > 0.05$). This is likely due to the high degree of familiarity individuals have increasingly gained in recent years with textual media, especially among the younger generation. All of us may be progressively adapting to Instant Messaging, SMS, web forums, and other forms of textual communication. The familiarity might compensate for the absence of cues available in the audio medium.

In addition, we examined the correlation between perceived media richness and the three trusting beliefs. Perceived media richness significantly correlates with integrity belief ($r = 0.24$, $p < 0.05$) and competence belief ($r = 0.20$, $p < 0.05$), but not benevolence belief ($r = 0.15$, $p > 0.05$). However, Table 5 indicates that the construct of benevolence belief has the highest variance among the three trusting beliefs. From the perspective of creating variance for the three trusting beliefs, we believe the adoption of the four communication media have largely achieved this purpose.

Discussion

The objective of this study was to investigate how the trusting beliefs (integrity, benevolence, and competence) affect a buyer's purchase behavior and satisfaction differently. We found support for our hypotheses regarding the stronger effects of benevolence in influencing satisfaction as compared to competence. This is consistent with past findings showing that empathy (i.e. emphasize with buyers' needs) is the only dimension of SERVQUAL that significantly influences satisfaction (Devaraj et al., 2002). We interpret these findings as indicating that judgments about whether the seller is concerned about the buyer's welfare appear to be more consequential for determining affective reactions to the interaction.

However, as predicted, competence had a stronger effect than benevolence and integrity in influencing purchase behavior. This supports our reasoning that ultimately buyers are motivated to benefit materially in the transactions (i.e., they have a performance orientation) and so they place more importance on the seller's competence than on aspects of his or her moral or personal character. Apparently, when it comes to paying money, competence trumps perceived kindness or ethicality. Taken together, benevolence and competence beliefs have diverse effects on satisfaction and purchase behavior, which indicates the importance of examining both satisfaction and purchase behavior resulting from the trusting beliefs.

We did not find that integrity had a stronger influence than competence in influencing satisfaction, which failed to support Hypothesis 1. A review of the literature regarding the effect of integrity suggests that this null result could be explained by the prevalence of truth bias (Bond and DePaulo, 2006). Truth-bias refers to the tendency people have for believing others, independent of actual honesty (Levine et al., 1999). In other words, people exchange messages with an implied mutual agreement to be honest with one another (Grice, 1989; Burgoon et al., 1996; Buller and Burgoon, 1996). This truth bias can be seen in the legal concept of the presumption of innocence captured by the phrase "innocent until proven guilty." It is conceivable that buyers would expect a seller to follow a professional code of conduct, consistent with the truth bias assumption that the messages that people exchange should be reflective of reality (Burgoon et al., 1996). Since buyers assume sellers perform with integrity, buyers are not particularly satisfied when they find that sellers have integrity alone.

[7] This particular test allows one to determine if one variable (e.g., a) correlates with the criterion variable (stronger or weaker) as compared to another variable (e.g., b). Using correlation coefficients from Table 5, the following formula was used to calculate the *Z*-statistic: $Z = (Zy, a - Zy, b) * SQRT((N-3)/(2(1-r_{a,b})h))$, where Zy, a and Zy, b are Fisher's *Z*-transformations, N is the sample size, h is $(1 - fR)/(1 - R)$, f is $(1 - r_{a,b})/2/(1 - R)$, R is $(r^2_{y,a} + r^2_{y,b})/2$ (Meng et al., 1992).

[8] Perceived media richness was measured by asking the subjects the following two questions: To what extent would you characterize the [medium] as having the ability to (a) transmit a variety of different cues beyond the explicit message (e.g., nonverbal cues); (b) convey multiple types of information (verbal and nonverbal) (Webster and Trevino, 1995).

Table 6
Hypotheses testing results.

Hypotheses	Supported?
H1: Integrity belief is more important than competence belief → satisfaction	No
H2: Benevolence belief is more important than competence belief → satisfaction	Yes
H3: Competence belief is more important than integrity belief → purchase behavior	Yes
H4: Competence belief is more important than benevolence belief → purchase behavior	Yes

Satisfaction was measured after the negotiation and transaction was completed but before the stock price was released. Thus, the buyers would not be able to know the actual performance outcome when they reported their level of satisfaction with the transaction outcome (e.g., amount of shares purchased). This is consistent with the real-world situation in that, as with any stock price, no one can determine exactly what a share price will be in the future. The fall of a stock price on a certain day does not mean it will not rise in the long run. Similarly, the rise of a stock price on a certain day does not guarantee that it will not fall in the future. However, it will be necessary in future research to measure a buyer's satisfaction at multiple points of time in a manner that coincides with the rise and fall of the stock performance in order to determine whether the relative effects of competence and benevolence beliefs on a buyer's satisfaction will hold.

Contributions and conclusions

Theoretical contributions

The results of the study make several important theoretical contributions. First, unlike most previous studies that have mainly examined the effect of overall trust, we simultaneously analyze the role of the three trust beliefs in predicting two distinct outcomes: satisfaction and purchase behavior. Trust is a broad concept, encompassing the many situations where individuals put themselves at risk (Bos et al., 2002). Considerable research has been done to study positive relationship between trust and satisfaction, including offline context (Dwyer et al., 1987) and online research (Balasubramanian et al., 2003; Flavian et al., 2006; Kim et al., 2009a,b). While the relationship between overall trust and satisfaction is established, it remains unclear whether the three individual trusting beliefs have the same effect on satisfaction and which individual trusting beliefs are the key contributors of satisfaction. In this study, we shed light on the diverse effects of the three trusting beliefs on satisfaction.

It is well-known that trust supports exchange and helps partners project their exchange relationships into the future. However, the extent to which an individual's trusting beliefs in a seller's integrity, benevolence, and competence could be translated into purchase behavior has not been investigated in the literature. Therefore, another contribution of the present research is to clearly link individual trusting beliefs toward sellers with purchase behavior. The use of an objective measure of purchase behavior (rather than purchase intention) also served to enhance the internal validity of the results.

Taken together, we found that these three trusting beliefs have different effects on purchase behavior and satisfaction. We found that satisfaction and purchase behavior are two different constructs, since they are only moderately correlated (see the Section of Measurement Validation). We also provide empirical support for the position that trusting beliefs should be considered separately (McKnight et al., 2002). Without separating the dimensions of overall trust, we might only know that trust leads to satisfaction and purchase behavior without knowing which dimensions of trust play more important roles in influencing different consequential variables. Our integration of both satisfaction and purchase behavior into one study reveals that the effects of benevolence and competence on these two consequences are not the same. It indicates that it is important to include both satisfaction and purchase behavior in future trust research.

Practical contributions

In addition to the theoretical contribution, the results of this study have important implications for practitioners. Sellers should be aware that buyers place different emphases on the seller's competence, integrity, and benevolence: purchase behavior is more influenced by competence belief, while satisfaction is more influenced by benevolence belief. These findings suggest that it is important for sellers to identify the most influential trusting belief contingent on the business goals (e.g., purchase behavior or satisfaction) they want to achieve. On one hand, merchants selling one-time purchase products (e.g., piano, ice skates, tuxedos) should focus more on building up their competence to encourage an immediate transaction from buyers. A belief in competence could be enabled by demonstrating a thorough understanding about a given product being sold and the product's various attributes. Sellers should demonstrate such competence and expertise to the buyers to form a favorable impression. On the other hand, merchants selling frequently-purchased products should particularly demonstrate their benevolence to satisfy buyers toward building long-term relationships. To do so, sellers need to have buyers' best interests in mind as well as understand buyers' product needs and requirements.

Our findings also have strategic implications for organizations. Customer relationship philosophy is a key to obtaining a competitive advantage in the financial services marketplace (Crittenden et al., 2014). Contact personnel are considered a

crucial element determining the success of the service delivery process (Berry, 2000). The performance of contact personnel helps to attract customers and define corporate reputation, and so is a key element in a firm's positioning strategy (Nguyen, 2010). Financial services companies need to incorporate the relationship strategies used by many companies in the B2B marketplace in order to build trust with consumers and develop long-lasting business relationships in the B2C marketplace (Crittenden et al., 2014). Given our empirical findings, managers are encouraged to provide professional training and continuing education improving their contact personnel's competence in product and service features, so that they have the ability to demonstrate their expertise when interacting with customers. Meanwhile, managers should not underestimate the role of benevolence. As benevolence is more difficult to train, managers should place a greater emphasis in hiring contact personnel that consider and are sensitive to the needs and the interests of clients, so that firms can develop better relationship with customers, increase their satisfaction, and enhance corporate reputation.

Limitation and future research

There are several limitations to this study that open possibilities for future research. One potential limitation of our study is that it was conducted in a laboratory setting with undergraduate students. Though research evidence suggests that naïve and experienced negotiators behave very similarly in terms of their psychological processes (Bazerman and Neale, 1992), future research might explore with a broader population in a field setting. In addition, we investigate the relative roles of the three beliefs in a stock buying–selling context. The findings may not apply to other contexts, such as the role of the three trusting beliefs in a team setting, a romantic couple relationship, or other contexts with buying and selling consumer products such as health and insurance products. We call for future research to expand and refine our research findings in different contexts. Furthermore, although the measures for competence belief were drawn from the well-established trust-competence scale (e.g., McKnight et al., 2002; Wang and Benbasat, 2005), the scale is somewhat general and may not cover sellers' multi-faceted abilities in meeting the buyers' needs in aspects of price, quality, quantity, delivery speed, and so on. We call for future research to adopt a more fine-grained measure of competence belief in the buyer–seller context.

We focused on the initial trust beliefs between buyers and sellers. With multiple interactions, buyers' trusting beliefs might evolve over time. Thus, it is possible that both initial trust and post-trust beliefs determine satisfaction (based on expectation dis-confirmation theory). Further research could investigate those situations where participants have repeated interactions over a longer time frame. To test the proposed hypotheses, we manipulated different provisions of communication media to create variance on perceptions of the three trusting beliefs, given that prior research has supported the effect of media richness on trust (Rockmann and Northcraft, 2008). To further increase the variation in trusting beliefs, a full factorial design directly manipulating each of the three trusting beliefs might be desirable to ensure that each trusting belief had sufficient variance. By doing so, it is possible that the significance of quality dimensions within the model will change. We call for future research to explore this possibility by manipulating low and high trusting beliefs, and examining whether it will change the significance of the results found in our model.

Another potential stream of research would be to utilize our proposed model as a framework to explore how the model could be augmented with other possible moderators. When the task is highly complicated, competence may play a more important role than benevolence in determining satisfaction. When the task is relatively simple, competence might be less important (Xu et al., 2014b). In countries that value integrity less, integrity might carry more weight in influencing satisfaction. As compared to males, females might value benevolence over competence in influencing satisfaction. We call for research to examine whether the relative weights of the three trusting beliefs might change contingent on the task complexity, culture, user demographics, and other situational factors.

Conclusion

In conclusion, while trust has been an extensively studied construct in IS literature, it is still unclear as to how exactly the three trusting beliefs (integrity, benevolence and competence) have different effects on purchase behavior and satisfaction. In this study, we address how a buyer's three trusting beliefs contribute to purchase behavior and satisfaction differently. Our findings support the conclusion that a buyer's trusting beliefs toward the seller operate differently on different outcomes: competence is more influential of the buyer's purchase than benevolence and integrity, and benevolence is more influential on buyers' satisfaction than competence. Overall, this study bridges the gap in contemporary literature by demonstrating how the three trusting beliefs contribute to purchase behavior and satisfaction.

Appendix A. Confidential instructions for buyer

You have recently earned some money, $10 to be exact, and you are thinking about two immediate options of what to do with this money. One option is to do nothing and simply keep the $10. The other option is to invest some or all of that money in the stock market by purchasing shares of a company's stock. These shares would give you partial ownership of that company. If the company succeeds, the shares increase in value and you *make a profit*. However, if the company does poorly, the shares decrease in value and you *lose money*. **In a moment, you will be meeting a broker to discuss the possibility of**

buying shares in a particular company called PATCO Inc. You must decide today whether to buy some number of shares (and potentially make or lose money) or simply keep the money you have.

You are certainly interested in making more money if it is possible, but you also want to understand the risks. In other words, if you do decide to buy the shares, what are the chances you might make money and what are the chances you might lose money? You would be more willing to invest money if you had some assurance the risk of losing money was low and the chance of making money was high.

Today, you will discuss with the broker whether you will be buying shares and if so, how many shares. For the purposes of the exercise, you are to negotiate only on the number of shares to be purchased. **You are not to negotiate over any other issues**. You can only buy shares that you can afford with the $10 that you have been given. In other words, $10 is the maximum amount that you can spend.

At the end of the study, a final "closing" price of PATCO stock will be announced and all shares will be liquidated (converted to cash). The difference between the final closing price and what you paid for the stock will determine whether you made or lost money (assuming you purchased any shares). For example, if the price of PATCO stock goes *up* $1.00 from what you paid, and you purchased 5 shares, you would make $5 in profit. Of course, if the price of PATCO goes *down* by the same amount, you would lose $5.

You will be relying on your broker to tell you about the price of shares in PATCO and what the anticipated performance of the stock will be. The broker's job is to provide you with information about risk to help you decide whether you want to invest in PATCO and how much money you want to invest.

Your decisions can personally affect you in two ways. One, you have already earned $10 by agreeing to participate in the study. You can decide to keep that money and not purchase any shares.

You can also decide to purchase shares and potentially gain additional money should the share price increase. Of course, you can also lose money if the share price decreases. The second way your decision can affect you is that at the end of the study, the buyer who earns the most money will earn an additional $50 cash prize. In the event of a tie, the winner of the prize will be randomly selected.

You will have 15 min to interact with the broker. If you reach an agreement on the number of shares, you should sign the contract in front of you. If you fail to reach agreement after 15 min, you have impassed. If you reach an impasse, you will simply keep your $10 but you will **not** be eligible for the $50 cash prize mentioned above.

Appendix B. Confidential instructions for broker

You are a broker responsible for selling shares of stock for various companies. You sell shares to individual buyers, such as the person you will be interacting with in a moment. These shares give the buyer partial ownership of a particular company. If the company succeeds, the shares increase in value and the buyer *makes a profit*. If the company does poorly, the shares decrease in value and the buyer *loses money*.

At the current time, there are shares available from only one particular company; PATCO Inc. PATCO is currently priced at $1.00 per share. You should know that the buyer is *not* aware of this share price. In the past six months, the share price has been as low as $0.90 but also as high as $2.00. At the end of the study, a final "closing" price of PATCO stock will be announced and all shares will be liquidated (converted to cash). To help forecast this future price of PATCO stock, you have available to you a report prepared by analysts working for your brokerage firm. This report is only available to brokers and is not made publicly available. Thus, potential buyers will not have this information. This analysis projects the possible prices of one share of PATCO at the end of the study. As with any stock price, no one can tell exactly what a share price will be in the future, but the analysis gives an idea of possible outcomes, as shown in the following table. The left column indicates a possible ending share price and the right column indicates the probability of that share price occurring. For example, there is a 1 in 4 that the share price will be $0.50 (25 out of 100) and there is a 1 in 100 chance of the price being $2.00. There is some chance that the share price will *increase* in price. However, this is *not as likely* to happen as compared to the chance that the price will *decrease* in price. From the following table, it appears that the expected share price will *decrease* from $1.00 at present to $0.50 at the end of the simulation. That is, if you were to add up all of the possible share prices weighted by their probabilities, the most likely share price *on average* would be $0.50. Put another way, a person purchasing the PATCO stock would likely lose about half of the money that they invest. But again, that's only an estimate and *any of the following outcomes are possible*.

Another way to think of this possible price outcome is that it is similar to randomly choosing a labeled ping-pong ball out of a container filled with ping-pong balls. Each ball is labeled with one of the prices below ($0.00, $0.25, $0.50, etc.). There are 100 balls and the number of balls labeled with a particular price is according to the table below. So there would be 22 ping-pong balls labeled "$0.00", 2 balls labeled "$1.75", and so on. At the end of the simulation, we will determine the final share price by randomly drawing one ping-pong ball out of the container. The more balls associated with a particular price, the more likely it will be drawn.

You have learned from various sources that the PATCO Company is going through some difficult times at the moment. The possible outcomes shown in the table above reflect the fact that PATCO sales have been down and there is a good chance they will lose some important clients. You are pretty sure that prospective buyers do not yet have this information. As a result, anyone who buys shares in PATCO stands a good chance of losing money at the end of the simulation.

Possible ending share price	Probability of that price occurring
$0.00	22 out of 100
$0.25	24 out of 100
$0.50	25 out of 100
$0.75	12 out of 100
$1.00	6 out of 100
$1.25	5 out of 100
$1.50	3 out of 100
$1.75	2 out of 100
$2.00	1 out of 100

Note: Your analysts have assured you that the above outcomes are complete; no other share prices are possible.

To repeat, for the purposes of determining the final PATCO stock price at the end of the simulation, we will perform a random draw today immediately at the end of the simulation. The chances associated with the draw will be according to the above table (we won't use ping-pong balls but we will use a similar random technique weighted by the probabilities above). The result will determine the final price of the PATCO stock and thus whether the buyer makes or loses money assuming he or she has purchased shares of PATCO stock. **The buyer is *not* aware of the current share price, the possible outcome prices or probabilities, or how the final price will be determined**.

As a broker, you are compensated based upon the number of shares that you sell. The more shares you sell, the more money you make. PATCO is anxious to sell its shares in the marketplace as soon as possible. As an incentive to try and sell its shares, it is providing a generous commission of 25% for each share that you sell. So if you sold 10 shares at $1.00/share you would make an additional $2.50 above your base salary. Of course, your bonus will be higher the more shares you sell.

So far, you have been unsuccessful in finding buyers for the PATCO stock shares. Your boss has made it clear that if you do not sell some shares soon, it will negatively impact your yearly performance evaluation. Obviously, if you do not sell any shares you will not receive your bonus of $10. The buyer you will be interacting with today is the only one available in the current pool of potential buyers. This means that you have **no alternative buyers** available right now if this buyer decides not to buy any shares. You need to move quickly because PATCO wants to sell their shares at the current price before its financial difficulties become widely known and its share price falls.

You should be aware that the buyer will be using his or her OWN money to buy shares. This money will be the amount they received for participating in today's experiment. Consequently, the buyer will be deciding whether to put his or her own money at risk and will actually make or lose this money depending on the PATCO share price at the end of the study. As mentioned earlier, the *most likely* outcome is that the buyer will lose money, but there is also a chance the buyer will make money.

To help you understand the PATCO Company and to provide information to your client, a brief prospectus of PATCO is provided in this information packet.

Your boss has told you that he expects you to sell at least 5 (five) shares to the current buyer. Of course, the more shares you sell, the happier your boss will be and the more money you will make. For the purposes of this negotiation, assume that you are only authorized to discuss the number of shares to be sold. **You are not to negotiate over any other issues**. For example, you cannot offer to lend your own money or make promises outside of the scope of this simulation. If you decide to offer the buyer anything other than shares, your offer will be considered unauthorized and will result in your being terminated by your boss.

Successfully selling shares benefits you personally in two ways in this study. The first benefit is in the 25% commission explained above. The second benefit is that the person in the broker's role who sells the *most shares* at the end of this study will earn a $50 cash prize. In the event of a tie, the winner of the prize will be randomly selected. Of course, if you do not sell any shares, you will not receive the starting $10 bonus.

You will have 15 min to negotiate. If you reach an agreement on the number of shares, you should sign the contract in front of you. If you fail to reach agreement after 15 min, you have impassed. If you reach an impasse, you will not be eligible for the $50 cash prize.

B.1. Information about the PATCO Company

PATCO is a 20 year old company with an extensive history of manufacturing and customer service. PATCO is run by John Smith. Mr. Smith has run the company from the time it was founded and is a well-respected and highly regarded manager. PATCO had revenues of $20 million last year. However, projected revenues for this year are down to $15 million. Three clients generate most of PATCO's revenues. Sources close to the company have told you that these clients are known to be considering switching to a competitor's product.

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