
Trust-Assuring Arguments in B2C E-commerce: Impact of Content, Source, and Price on Trust

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ABSTRACT: The research question examined in this paper is whether or not product price can be used as a proxy to predict how customers' trust will be influenced by different trust-assuring arguments displayed on a business-to-consumer e-commerce Web site. Drawing from the elaboration likelihood model (ELM) and Toulmin's model of argumentation, we examine the effects on consumer trust of two levels of source and two levels of content factors, under two levels of product price, in a laboratory experiment with 128 subjects. Product price was predicted as a moderating factor that would influence the customer's motivation to scrutinize more closely the content of the trust-assuring arguments. The results suggest that customers are more influenced by the *content* of trust-assuring arguments when the price of a product is relatively high than when it is relatively low. Presumably, Internet stores employ a third party's trust-assuring arguments because customers are less likely to trust an unknown Internet store's own trust-assuring arguments. However, the results paradoxically may imply that when customers have more at stake (e.g., buying a high-price product), they do not necessarily have to rely only on an independent third-party source to form high trust beliefs about the store. When customers purchase a high-price product, they seem to form trusting beliefs by scrutinizing argument *content* rather than by depending on heuristic cues (e.g., an independent party's opinion) as the ELM would predict.

KEY WORDS AND PHRASES: elaboration likelihood model (ELM), price, third-party certification, Toulmin argumentation model, trust, trust-assuring arguments, trust in e-commerce.

CONSUMER TRUST IN AN INTERNET STORE refers to consumers' willingness to engage in an Internet shopping transaction with that Internet store [39, p. 358]. Many scholars agree that consumer trust is one of the key factors influencing various desirable outcomes for Internet stores, such as a positive influence on intentions to purchase [2, 36], actual buying decisions [34], and intentions to reuse e-services [69]. Given the importance of consumer trust in business-to-consumer (B2C) electronic commerce, it is worth examining the factors that have the potential to increase such trust.

One of the ways to increase consumer trust in the context of B2C e-commerce is to provide trust-assuring arguments, which are "statements of a *claim* and its supporting statements used in an Internet store to address trust-related concerns" [25, p. 287]. According to Kim and Benbasat [26], the average Internet store uses 5.3 trust-assuring arguments.

The effects of trust-assuring arguments on consumer trust were examined from several aspects, such as the content and the source of a trust-assuring argument. The content aspect has already been examined by Kim and Benbasat [25]. They proposed Toulmin's model of argumentation [68] as a way to develop more persuasive content of trust-assuring arguments. Toulmin analyzed arguments made in law courts and suggested a hierarchy of argument elements—namely, Toulmin's model of argumentation—which could be used to make the content of an argument more persuasive. Kim and Benbasat [25] found that trust-assuring arguments that closely conform to Toulmin's model increase consumer trust while trust-assuring arguments that do not closely conform to Toulmin's model do not increase trust.

The source aspect was examined by Nöteberg et al. [45]. They compared two sources of trust-assuring arguments: (1) a third party's assurance (e.g., e-commerce assurance made by an independent third party, such as an accountant or consumer's organization), and (2) a store's self-proclaimed assurance (e.g., e-commerce assurance made by an Internet store itself). They found that a third party's assurance was more effective in increasing the likelihood of a purchase than a store's self-proclaimed assurance, while both a third party's assurance and a store's self-proclaimed assurance were more effective than having no assurance [45].

Although both Kim and Benbasat [25] and Nöteberg et al. [45] provided meaningful findings, their focus was only on the presence of main effects (i.e., whether or not each factor has a significant effect). Gefen et al. [20] suggest that specific context should be considered to understand which stimuli are more or less effective in people's assessment of a store's trustworthiness. Similarly, according to O'Keefe [47], the effects of communications on persuasion outcomes, such as the effects of trust-assuring arguments on consumer trust, are determined by three factors: content of an argument (e.g., as examined in [25]), source of an argument (e.g., as examined in [45]), and the contextual

factors (from the point of view of the shoppers who receive the arguments). However, there has been no empirical investigation of the last of these in B2C e-commerce, that is, contextual factors under which certain types of trust-assuring arguments are more or less effective. This study intends to contribute to filling this knowledge gap. The specific contextual detail (or the moderator) investigated here is the *price of a product* to be purchased (i.e., intended dollar amount of purchase), which, as we will discuss later, is a factor that influences the customer's motivation to scrutinize more closely the content of the trust-assuring arguments. From a theoretical point of view, this will provide a test of the predictive power of the elaboration likelihood model (ELM) [58] in the context of B2C e-commerce and also perform a test of ELM with theoretically developed content. From a practical point of view, the price of a product is an important factor that influences the profits of online merchants; hence, they would like to know how to allay the trust concerns of their customers associated with buying from their stores when the price of a product that customers intend to buy is high.

Literature Review and Development of Hypotheses

Trust

TRUST HAS BEEN STUDIED IN MANY DISCIPLINES, such as psychology, economics, marketing, and organizational behavior, in addition to the information systems discipline [63]. As a result, the definition of trust varies depending on the discipline and the context, but the most frequently cited one is "willingness to be vulnerable," as proposed by Mayer et al. [38], according to Rousseau et al.'s review [63]. This was termed *trusting intentions* by McKnight et al. [39] because willingness is a kind of behavioral intention. One of the key antecedents of trusting intentions is *trusting beliefs* (i.e., trustworthiness of a store), which refers to the perception that an Internet store has positive attributes that are beneficial to the truster [31, 39, 48, 65]. While many positive attributes (e.g., ability, benevolence, integrity, predictability, fairness, and attractiveness) have been suggested as representative attributes of trusting beliefs, ability, integrity, and benevolence are among the more frequently selected ones in previous studies, according to Bhattacharjee's [9] and McKnight et al.'s [39] reviews.

The present study focuses on consumers' trusting beliefs as a dependent variable because the positive influence of trusting beliefs on trusting intentions has already been confirmed in many studies [28, 31, 39].

In regard to the stages of trust building, we are interested in initial trust, which refers to the trust in an unfamiliar trustee (e.g., an unknown Internet store), a relationship in which customers do not yet have reliable, meaningful information about an Internet store [36, 39, 40]. Initial trust is similar to swift trust [42], which refers to "trust formed quickly in a new or temporary system, without traditional sources of trust such as familiarity, past experience, and fulfilled promises" [33, p. 91]. We regard swift trust as a special kind of initial trust because swift trust is developed in an early stage of interacting with another party like initial trust, but under special contexts, such as under temporary systems [72] or under time constraints due to environmental

pressures [33]. In initial relationships, customers use whatever information they have (e.g., trust-assuring arguments displayed on an Internet store) to make trust inferences [39]. This initial trust perception in an Internet store may change as customers gain meaningful experiences with the Internet store (e.g., by engaging in transactions with the store and observing the consequences of these transactions) [39].

Elaboration Likelihood Model

Broadly speaking, ELM [58, p. 30] posits that persuasion outcomes (e.g., changes in consumers' trusting beliefs) are a function of (1) strength of content, (2) peripheral cues (e.g., heuristic cues, which are noncontent stimuli that influence persuasion, such as the source of trust-assuring arguments), and (3) elaboration likelihood.

Elaboration in ELM refers to "the extent to which a person scrutinizes the issue-relevant arguments contained in the persuasive communication" [58, p. 7]. Sometimes people carefully scrutinize arguments received and assess the veracity of the arguments seriously [47, p. 138], but no one can reasonably put so much effort into reading every argument or topic received in daily communication; hence, sometimes people judge arguments with relatively little elaboration [47, p. 138].

ELM suggests that "persuasion can occur at any point along the elaboration continuum" [47, p. 139]. When the likelihood of elaboration is relatively high, people are more likely to carefully examine the content and consider other issue-relevant material (e.g., arguments recalled from memory, arguments devised by themselves) [47, p. 139]. As a result, people are influenced more by *argument content*. When the likelihood of elaboration is relatively low, people tend to attempt to minimize their cognitive efforts; hence, they are more likely to be influenced by heuristic cues, such as the *source factor* (e.g., an independent party's information should be more believable), without careful consideration of the *argument content* [47, p. 150].

ELM also suggests the two main factors influencing elaboration—motivation and ability to process the content. According to ELM, the likelihood of elaboration will be high when people are highly *motivated* to process the arguments and when they have a high level of *ability* to do so. When either one of these two factors is at a low level, the likelihood of elaboration is expected to be low [46, p. 103].

Assuming that a consumer generally has the *ability* to process the content displayed in an Internet store (e.g., since an Internet store's trust-assuring arguments are conveyed in plain written English), a consumer's *motivation* to process the content would be the primary factor determining the likelihood of elaboration. Personal relevance, which refers to the "intrinsic importance" of the topics to oneself, is generally viewed as the most important factor affecting the *motivation* to process the arguments [58, p. 81]. Thus, if the degree of personal relevance is relatively high, the likelihood of elaboration increases; hence, the content of arguments will have an important role in persuasion [47, p. 162]. By the same token, if the degree of personal relevance is relatively low, the likelihood of elaboration decreases; hence, the source of arguments will have the predominant effects in persuasion [47, p. 162]. According to O'Keefe's review [47, p. 141], this expectation has been confirmed in many studies [55, 56, 57, 59, 60].

Content of Trust-Assuring Argument

Although ELM is useful to identify variables under which the content factor is more or less influential, it provides little guidance on how to make the content of arguments convincing. *Strength of content* (or argument quality) was defined in an empirical manner (not based on a theory) in ELM as follows [58, p. 32]. Given that one is instructed to read content carefully (i.e., under high likelihood of elaboration), *strong content* is defined as content that elicits predominantly favorable thoughts, *weak content* is defined as content that elicits predominantly unfavorable thoughts, and *mixed content* is defined as content that elicits a roughly even mixture of favorable and unfavorable thoughts [58, p. 32]. Because strength of argument is defined in an empirical manner, ELM is unable to answer either what makes content strong or how to develop strong content to elicit favorable thoughts. In fact, this limitation of ELM was explicitly discussed by Petty and Cacioppo, who commented, “We have postponed the question of what specific qualities make an argument persuasive” [58, p. 32]. In addition, most of the studies that tested ELM used arbitrarily developed content, and furthermore the same arbitrarily developed content was used repeatedly in many ELM studies [47, pp. 175–176]. Therefore, there is a need to test and validate ELM again with content developed from theory.

Kim and Benbasat [25] proposed applying Toulmin’s model of argumentation as a formal mechanism to make the content of trust-assuring arguments persuasive. Kim and Benbasat tested the influences of claim, data, and backing as specified in Toulmin’s model. *Claim* is a conclusion of an argument, *data* are grounds of a claim, and *backings* are reasons one should accept *data* [25]. It was found that trust-assuring arguments that included claim plus data and backing (hereafter *claim-data-backing*) effectively increased consumers’ trusting beliefs, while trust-assuring arguments that consisted of claim only (hereafter *claim-only*) did not increase consumers’ trusting beliefs [25]. The results in Kim and Benbasat [25] imply that *claim-data-backing* content can be considered as *strong* content, or convincing argument, in the context of ELM.

The present study applies Toulmin’s model of argumentation and ELM together to predict the relative influence of trust-assuring arguments according to price in the context of B2C e-commerce. To our knowledge, there has been no study that tested ELM and Toulmin’s model of argumentation together.

Sources of Arguments

Trust-assuring arguments that are displayed or provided on a store’s Web site may come from different sources, such as the store itself (e.g., self-proclaimed assurance [45]), its customers (e.g., satisfied customer endorsements in an Internet store [34] and customers’ feedback comments in online marketplaces [49]), or independent third parties (e.g., third-party assurance [45]).

In regard to the effects of source of arguments, several studies reported that both highly unbiased and expert sources are more persuasive. For example, highly unbiased and expert sources increased respondents’ perceptions of the usefulness of the

advice received through e-mail in an international consulting organization [67] and knowledge adoption in online communities of practice [76]. Similarly, the reputation of a source is suggested as a key criterion used to judge information quality on the Internet [21, 61].

Several studies examined the effects of third-party certifications (e.g., TRUSTe, WebTrust, BBBOnLine, etc.) on consumers' trusting beliefs in e-commerce; their results are mixed. A group of studies demonstrated significant effects of third-party certifications on consumers' trusting beliefs [1, 32, 62, 73] and the ending prices of auctions [44], while another group of studies reported insignificant effects of third-party certifications on consumers' trusting beliefs [28, 41] and actual disclosure of personal information [22]. Given the mixed results of the previous studies, we believe that identifying the conditions under which third-party certifications can be more or less effective will enhance our understanding of the effects of third-party certifications. ELM is expected to be useful in identifying such conditions.

Price

According to O'Keefe [47], the influences of the content and the source of an argument need to be understood in the particular context of the argument receiver—that is, in this study, price (or the dollar amount of purchase). If all other conditions are equal, customers who intend to buy relatively high-price products (high-price group) would be a more important and profitable customer group for Internet stores than those who intend to purchase relatively low-price products (low-price group). To give an example, assume that there are two watches, watch A and watch B, and their prices are \$90 and \$10, respectively. In general, customers who intend to buy watch A would be a more important and profitable customer group for an Internet store than those who intend to buy watch B. In this regard, Internet stores would be interested in knowing if the high-price group responds differently to the same trust-assuring arguments than the low-price group.

Price is one of the main factors positively influencing perceived value, which refers to “consumer's overall assessment of the utility of a product” [75, p. 14; see also 67]. Several studies reported that price influences customers to behave in a particular manner. For example, customers tend to *search for more information* when price is relatively high [7]. Under high levels of trust, customers are willing to pay a higher price premium to a store for an expensive product than for an inexpensive product [3]. In a decision-making context, one invests more effort when the decision accuracy is deemed to be more important (e.g., in the high-price group) [23]. Overpricing—that is, pricing moderately higher than customers are willing to pay—leads customers to deliberate further, because product price works as a stimulus for customers to think [71].

Price is closely related to perceived risk, which refers to customers' perception of the uncertainty and the adverse consequences of purchasing a product and/or service [16]. The adverse consequences in online shopping come both from choosing the wrong product and/or from choosing the wrong seller. Once a consumer makes a decision concerning what to buy (e.g., choosing the right product), the next step is to

decide where to buy from (i.e., choosing the right seller) [37]. The higher the price a consumer has to pay for a product, the higher risk a consumer perceives from the purchase [3, 8]. All other things being equal, the cost of picking the wrong store (e.g., one that is less trustworthy) to purchase a given product from would be higher for high-price than low-price products. Furthermore, a store's benefits from deceiving customers are greater for high-price products; hence, a consumer's potential for loss is higher in cases of high-price than low-price products [3]. Therefore, choosing a more trustworthy store is a more important concern for customers. In other words, under relatively higher (lower) price one considers the topics related to the trustworthiness of a store to be more (less) *personally relevant*. Thus, consumers collect and consider more information about stores' trustworthiness when price is relatively high compared to when price is relatively low.

Interactions Between Content and Price

In an extreme case, no matter how persuasive it is, content would have little influence on one's beliefs if one does not read it at all. By the same token, no matter how *unconvincing* it is, content would have little influence on one's beliefs if one does not read it. The positive or negative effect of content occurs only when one reads the content. The more carefully one reads the content, the more clearly one should be able to judge whether the content is more or less convincing, influencing the extent of changes in one's beliefs. In the previous section, we discussed that high price (low price) would lead to relatively high (low) personal relevance. ELM predicts that if the degree of personal relevance is relatively high (low), the elaboration likelihood increases (decreases); one is more (less) likely to read the content carefully.

Figure 1 shows the expected pattern of trusting beliefs at two levels of price (our focus is on the lengths of the bidirectional arrows). The lengths of the bidirectional arrows are the effects of claim-data-backing content (i.e., strong content) over claim-only content (i.e., mixed content). Under low price (i.e., under relatively low personal relevance as discussed in the previous section), one is less likely to carefully read the content because it is of lower personal relevance; hence, the strength of content would have limited influence (i.e., the shorter bidirectional arrow on the right in Figure 1). Even strong (weak) content would have little positive (negative) effect on one's beliefs. In contrast, under high price (i.e., under high personal relevance as discussed in the previous section), one is more likely to carefully read the content; hence, the strength of the content would have a larger influence on consumers' trusting beliefs (i.e., the longer bidirectional arrow on the left in Figure 1). Strong (weak) content would have strong positive (negative) effect on one's beliefs.

This means that the magnitude of the effect of claim-data-backing content over claim-only content is not the same across all price levels, which implies an interaction between content and price. Thus, we predict:

Hypothesis 1: The effect of claim-data-backing content over claim-only content on trusting beliefs will be larger for high-price products than for low-price products.

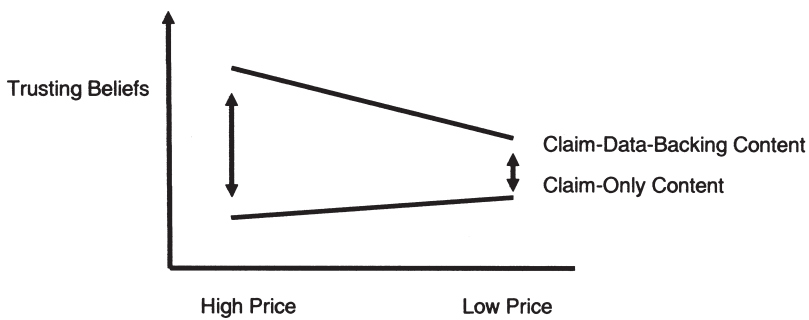


Figure 1. Expected Pattern: Interaction Between Content and Price

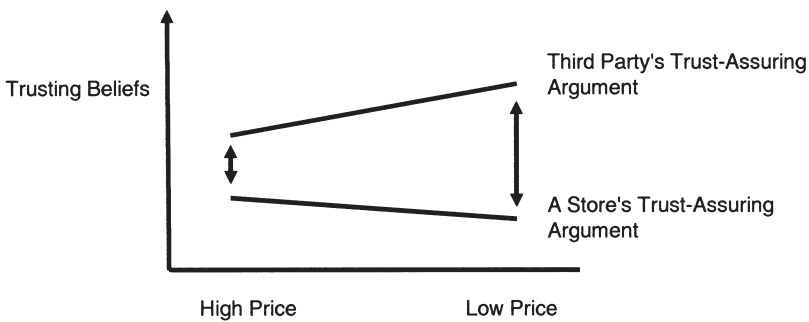


Figure 2. Expected Pattern: Interaction Between Source and Price

Interactions Between Source and Price

Figure 2 shows the expected pattern of trusting beliefs at two levels of price (our focus is on the lengths of the bidirectional arrows). The lengths of the bidirectional arrows are the effects of a third party's arguments over a store's arguments, for the same content, on trusting beliefs.

ELM predicts that if the degree of personal relevance is relatively high (low), the elaboration likelihood increases (decreases); one is more (less) likely to read the content carefully. Under low price (i.e., under relatively low personal relevance as discussed earlier), one is less likely to read the content carefully. Instead, in order to save one's cognitive effort, one is more likely to use heuristics, such as "claims made by credible sources can be trusted" [47, p. 162]. Thus, under low price, the change in one's beliefs would be mainly due to source. In contrast, under high price (i.e., under relatively high personal relevance as discussed earlier), one is more willing to invest one's cognitive effort; hence, one would pay attention to content in addition to source. As a result, the greater proportion of the decision would be based on content (i.e., the smaller proportion of the decision would be based on source). This suggests that the magnitude of the effect of strong source (e.g., a third party) over weak source (e.g., a store itself) would not be the same across all price levels, which implies an interaction between source and price. Thus, we predict:

Table 1. Expected Impact of Types of Arguments on Trusting Beliefs at High and Low Price

| Type of argument | Characteristics | | Strength of the effect on trusting beliefs | |
|----------------------------------|-----------------|--------|--|-----------------|
| | Content | Source | Under high price | Under low price |
| Third party's claim-data-backing | Strong | Strong | Strong | Strong |
| Third party's claim-only | Weak | Strong | Weak | Strong |
| Store's claim-data-backing | Strong | Weak | Strong | Weak |
| Store's claim-only | Weak | Weak | Weak | Weak |

Notes: The upper circle part indicates that the expected effect due to a third party's claim-only on trusting beliefs will be higher for low price than for high price. The lower circle part indicates that the expected effect due to a store's claim-data-backing on trusting beliefs will be lower for low price than for high price.

Hypothesis 2: The effect of a third party's arguments over a store's arguments on trusting beliefs will be larger for low-price products than for high-price products.

Interactions Between Two Types of Arguments and Price

Among the three factors under consideration in this study (i.e., content, source, and price), the first two factors (i.e., content and source) are controllable by an Internet store, while the third factor (i.e., price) is less controllable by an Internet store. In other words, an Internet store decides to select the type of content and source for its trust-assuring arguments.

Unlike Nöteberg et al. [45], who investigated only the source effects, and Kim and Benbasat [25], who investigated only content effects, this study makes a novel contribution by considering both source and content jointly. By combining two levels of source (e.g., a store versus a third party) and two levels of content factors (e.g., claim-only versus claim-data-backing), Internet stores have a choice of displaying the following four types of trust-assuring arguments (hereinafter "types of argument"): (1) a store's claim-only, (2) a store's claim-data-backing, (3) a third party's claim-only, and (4) a third party's claim-data-backing.

Among these four types of trust-assuring arguments, *a store's claim-data-backing* and *a third party's claim-only* especially are expected to vary in opposite directions in terms of their effect on consumers' trusting beliefs, depending on price (see Table 1 and Figure 3). As shown in Figure 3, the effect of *a third party's claim-only* would increase while the effect of *a store's claim-data-backing* would decrease, if the price condition changes from high price to low price.¹

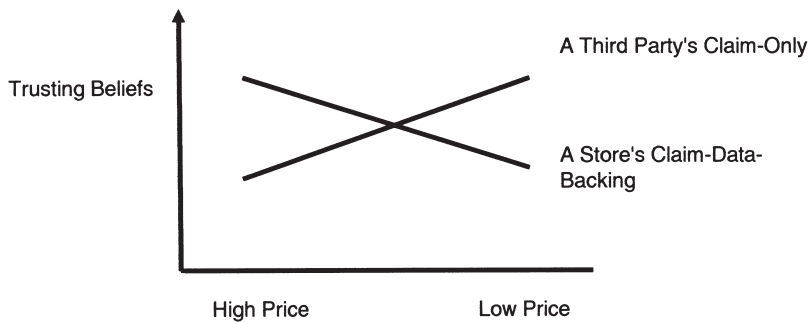


Figure 3. Expected Pattern: Interaction Between Two Types of Arguments and Prices

A store's claim-data-backing will lead to higher trusting beliefs for high price than for low price (see the lower circle in Table 1). This is because, according to ELM, the content (e.g., claim-data-backing) is more influential, and the source factor (e.g., a store itself) is less influential, under high price than under low price.

In contrast, the effect due to a *third party's* claim-only on trusting beliefs will be higher for low price than for high price (see the upper circle in Table 1). This is because, according to ELM, the source factor (e.g., a third party) is more influential, and the content factor (e.g., claim-only) is less influential, under low price than high price.

As a result, the two lines in Figure 3 are not likely to be parallel indicating the potential for an interaction effect [29, p. 358] between the two types of arguments and price. Thus, we hypothesize:

Hypothesis 3: The effects of a store's claim-data-backing over a third party's claim-only on trusting beliefs will differ by levels of price.

Method

Participants

ONE HUNDRED AND TWENTY-EIGHT PARTICIPANTS WERE RECRUITED from a university by posting advertisements around a university campus. All subjects received \$10 as an honorarium for participation, plus an incentive (described later). The experiment was conducted with one participant at a time in a laboratory.

Experimental Procedures

Initial Briefing

Upon arrival, participants were assigned randomly² to a treatment condition. Participants were told that their tasks were to visit and evaluate two Internet stores and to decide from which of the two stores they would prefer to buy a sports watch. They were told that the two Internet stores were chosen randomly to study consumers' online

shopping experiences. They were reminded that transactions with the stores were at their own risk because the researchers had no business relationships with the stores and hence no control over the stores' behavior.

After completing a consent form, all of the participants completed a prequestionnaire regarding their preexisting levels of trust in Internet stores in general and their demographic characteristics.

Practice and Selection of a Favorite Watch

A research assistant demonstrated to the participants the key steps necessary to place an order with the Internet stores. Next, the participants were given pictures and descriptions of four watches in printed form. They were asked to review the four watches and to choose the one they liked best.

Incentives

The price condition was manipulated by the instructions shown below. Participants were instructed that they had a one in three chance of ordering a watch (\$10 for low-price conditions and \$90 for high-price conditions), which they had selected in the previous step, at no charge using a gift certificate issued from their preferred store out of the two stores that they would evaluate in this study.

Because we want you evaluate the two stores as seriously as you do in your actual shopping, we offer the following incentive.

You will have a one in three (i.e., 33 percent) chance of winning a \$90 (or \$10 in case of low-price conditions) gift certificate to buy the sports watch from the store you choose in this study.

Comparative Evaluation of Baseline and Treatment Stores

Participants were asked to explore two Internet stores one at a time, for the watch they had selected, observing the home pages, checkout processes, policies, and information for customers in which the trust-assuring arguments were included, when available. To ensure that participants were exposed to the treatments, participants were told to check out all of the hyperlinks of the two stores during their navigation in order to compare the two stores' policies. After exploring the two stores, the participants completed a questionnaire including the dependent variable—namely, consumers' trusting beliefs—and questions for manipulation checks.

Debriefing

About two months later, subjects received an e-mail regarding the specific purpose of the study. Those who won the incentive had the option to collect \$90 in cash or the watch they had chosen.

Experimental Web Shopping Sites

Participants visited two Internet stores one at a time. The first store (hereafter, baseline Web sites) was intended as a baseline (i.e., no trust-assuring arguments are provided on the store's site) and then the second store (hereafter, treatment Web sites) as the treatment (i.e., trust-assuring arguments are provided on the store's site).

Two different stores—store A and store B—were developed (see Figures 4 and 5 to see the home pages of store A and store B).

To counterbalance the two stores' differences, the order of visit was controlled; that is, half of the participants in each group visited store A as a baseline Web site and the other half of the group visited store B as a baseline Web site (see Table 2 for the group assignment).

Design

A 2 (*content of arguments*: claim-only and claim-data-backing) \times 2 (*sources of arguments*: a store itself and a third-party) \times 2 (*price*: high and low) \times 2 (*order of visit*: store A as a baseline Web site and store B as a baseline Web site) between-subjects design was used.

Independent Variables

Content of Trust-Assuring Arguments Based on Toulmin's Model. Two types of content are developed based on Toulmin's model of argumentation. One type is content that closely conforms to Toulmin's model of argumentation (i.e., claim-data-backing content, which consists of claim, data, and backing), and the other type is content that does not closely conform to Toulmin's model of argumentation (i.e., claim-only content). The effect of the two types of content has already been examined in Kim and Benbasat [25], where claim-data-backing content showed a significant effect in increasing consumers' trusting beliefs, while claim-only content showed an insignificant effect (see Tables 3 and 4 for actual argument content used in this study).

These arguments were included in the treatment store that subjects visited. The checkout process of the treatment store included a page entitled "information for customers" (see Figure 6 for a store's arguments and Figure 7 for a third party's arguments) that listed hyperlinks to access claims (in the case of claim-only conditions) or claims plus corresponding data and backing (in the case of claim-data-backing conditions). Participants accessed the trust-assuring arguments provided during the checkout processes by clicking on the hyperlinks.

Sources of Arguments. Two sources of arguments were examined as in Nöteberg et al. [45]: a *store itself* and a *third party* (an accounting firm that has a license to provide WebTrust seals). To show the sources of the arguments, each argument of a third party was enclosed in quotation marks, and the sources of the arguments were explicitly described below, such as "Evaluation by Bennet Gold Chartered Accountants, a licensed

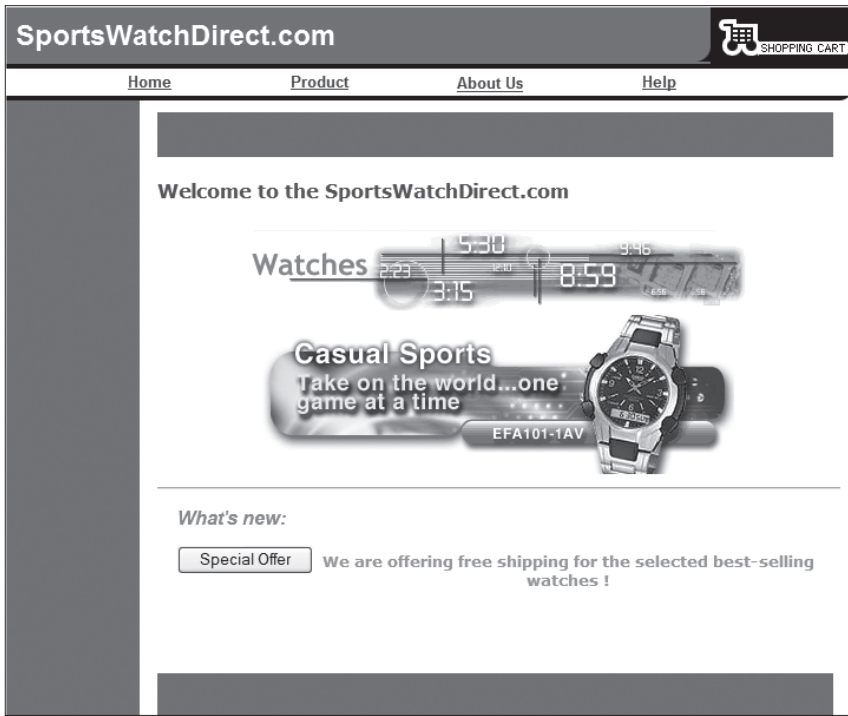


Figure 4. Home Page (Store A)

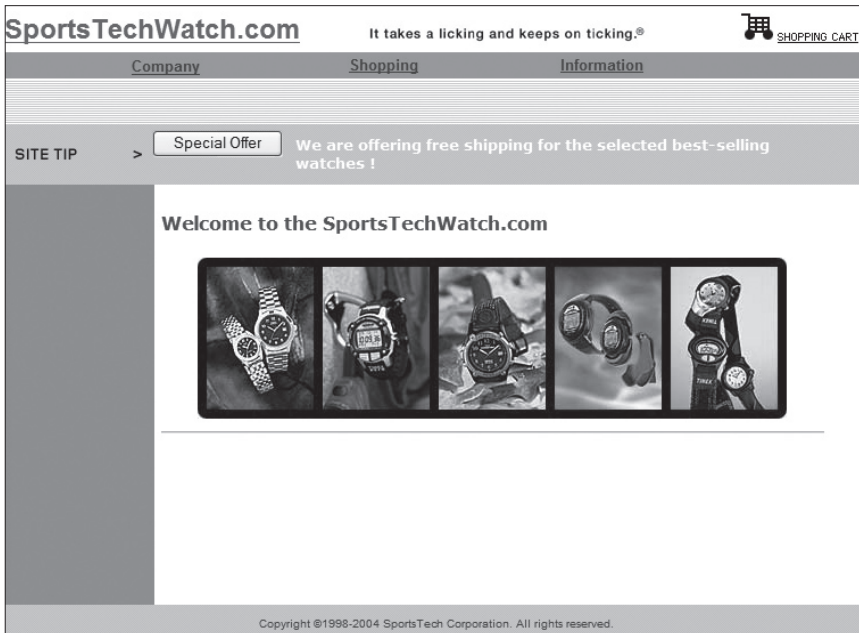


Figure 5. Home Page (Store B)

Table 2. Group Assignment

| Order of visit | Store | | | Third party | | |
|-----------------------|---------------------------------|---|---------------------------------------|---------------------------------------|---|---|
| | Claim-only | Claim-data-backing | Claim-only | Claim-only | Claim-data-backing | Claim-data-backing |
| Low-price conditions | | | | | | |
| First store | Store A without arguments | Store B without arguments | Store A without arguments | Store B without arguments | Store A without arguments | Store B without arguments |
| Second store | Store B with store's claim-only | Store A with store's claim-data-backing | Store B with third party's claim-only | Store A with third party's claim-only | Store B with third party's claim-data-backing | Store A with third party's claim-data-backing |
| High-price conditions | | | | | | |
| First store | Store A without arguments | Store B without arguments | Store A without arguments | Store B without arguments | Store A without arguments | Store B without arguments |
| Second store | Store B with store's claim-only | Store A with store's claim-data-backing | Store B with third party's claim-only | Store A with third party's claim-only | Store B with third party's claim-data-backing | Store A with third party's claim-data-backing |

Table 3. Trust-Assuring Arguments (Store's Arguments)

| Number | Argument |
|--------|--|
| 1 | <i>Credit card shopping with us is safe</i> because in general you pay nothing due to the unauthorized use of a credit card. Most credit card providers limit your liability up to C\$50 and cover all charges resulting from unauthorized use of your credit card. If those credit card companies ask you to pay your liability, we will reimburse you that amount (up to the C\$50) for you if it is a result of shopping with us using our secure server. |
| 2 | <i>You can be assured that your privacy is respected</i> because our privacy practices are held to a high industry standard. (1) We do not sell or rent our customer information. (2) We do not share identifiable information with a partner unless it is required to fulfill your order. (3) Without your consent, we will never send you an e-mail about our products. |
| 3 | The secure server software (SSL) encrypts all of your personal information. So <i>your personal information cannot be read as the information travels</i> because the encrypted messages can be decrypted only by keys and because SSL is among the best software available today for secure commerce transactions. |
| 4 | <i>You can be assured of no-hassle returns</i> because we provide an easy return process. You may return any item that you buy from us within 30 days from receiving for a full refund. No questions asked! |
| 5 | <i>You can expect on time delivery</i> because we ship your orders using well-known shipping companies. We ship your order using Xpresspost, FedEx, and UPS. |
| 6 | <i>We sell high-quality products!</i> All products are name-brand products. We sell Casio, Timex, Sportline, and FreeStyle. |
| 7 | <i>We offer products at discount prices</i> because our cost is lower than that of physical stores. We save on average 20% of cost by reducing most of the fixed costs such as rent for the store and other overhead. |

Note: Claims are shown in italics.

provider of WebTrust services" (Figure 8). In addition, the participants who were exposed to a third party's trust-assuring arguments were asked to read an introduction to WebTrust at the start of the experiment before they visited the two stores.

The arguments provided by a store itself did not have quotation marks, and the source was not mentioned (Figure 9).

Price. Price was manipulated by varying the prices of the watches that the participants could receive. An incentive of a *one in three* chance of getting a \$90 (\$10 in case of low price) gift certificate to buy the chosen watch for free from one of the two stores under evaluation was presented at the beginning of the experiment. Thus,

Table 4. Trust-Assuring Arguments (Third Party's Arguments)

| Number | Argument |
|--------|--|
| 1 | <p><i>Credit card shopping with this store is safe</i> because in general you pay nothing due to the unauthorized use of a credit card. Most credit card providers limit your liability up to C\$50 and cover all charges resulting from unauthorized use of your credit card. If those credit card companies ask you to pay your liability, this store will reimburse you that amount (up to the C\$50) for you if it is a result of shopping with this store using its secure server.</p> <p>Evaluation by Bennet Gold Chartered Accountants, a licensed provider of WebTrust services</p> |
| 2 | <p><i>You can be assured that your privacy is respected</i> because the privacy practices of this store are held to a high industry standard. (1) This store does not sell or rent its customer information. (2) This store does not share identifiable information with a partner unless it is required to fulfill your order. (3) Without your consent, this store will never send you an e-mail about its products.</p> <p>Evaluation by Bennet Gold Chartered Accountants, a licensed provider of WebTrust services</p> |
| 3 | <p>The secure server software (SSL) encrypts all of your personal information. <i>So your personal information cannot be read</i> as the information travels because the encrypted messages can be decrypted only by keys and because SSL is among the best software available today for secure commerce transactions.</p> <p>Evaluation by Bennet Gold Chartered Accountants, a licensed provider of WebTrust services</p> |
| 4 | <p><i>You can be assured of no-hassle returns</i> because this store provides an easy return process. You may return any item that you buy from this store within 30 days from receiving for a full refund. No questions asked!</p> <p>Evaluation by Bennet Gold Chartered Accountants, a licensed provider of WebTrust services</p> |
| 5 | <p><i>You can expect on time delivery</i> because this store ships your orders using well-known shipping companies. This store ships your order using Xpresspost, FedEx, and UPS.</p> <p>Evaluation by Bennet Gold Chartered Accountants, a licensed provider of WebTrust services</p> |
| 6 | <p><i>This store sells high-quality products!</i> All products are name-brand products. This store sells Casio, Timex, Sportline, and FreeStyle.</p> <p>Evaluation by Bennet Gold Chartered Accountants, a licensed provider of WebTrust services</p> |
| 7 | <p><i>This store offers products at discount prices</i> because the cost of this store is lower than that of physical stores. It saves on average 20% of cost by reducing most of the fixed costs such as rent for the store and other overhead.</p> <p>Evaluation by Bennet Gold Chartered Accountants, a licensed provider of WebTrust services</p> |

Note: Claims are shown in italics.

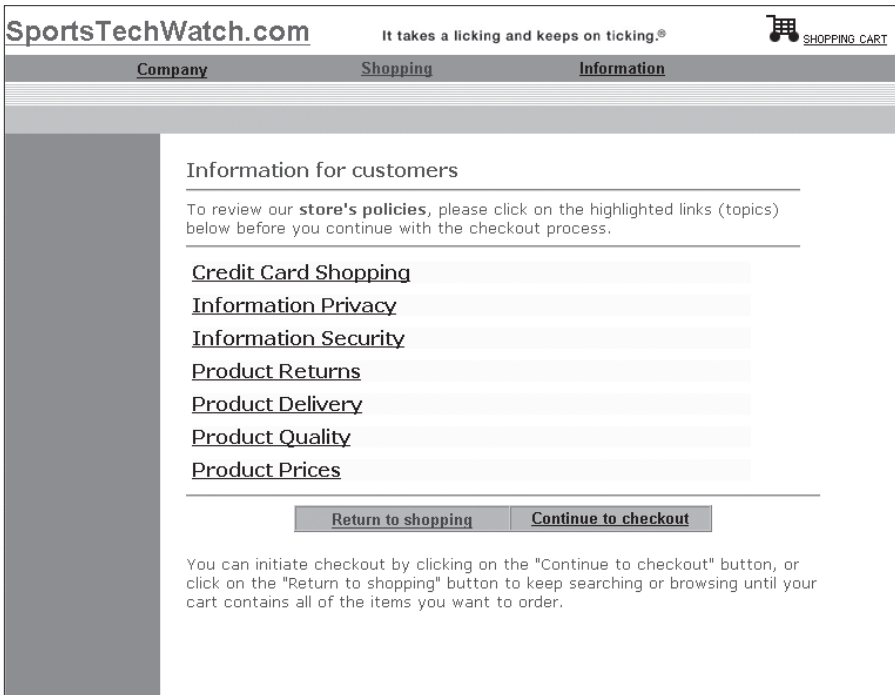


Figure 6. Information for Customers (Store’s Arguments)

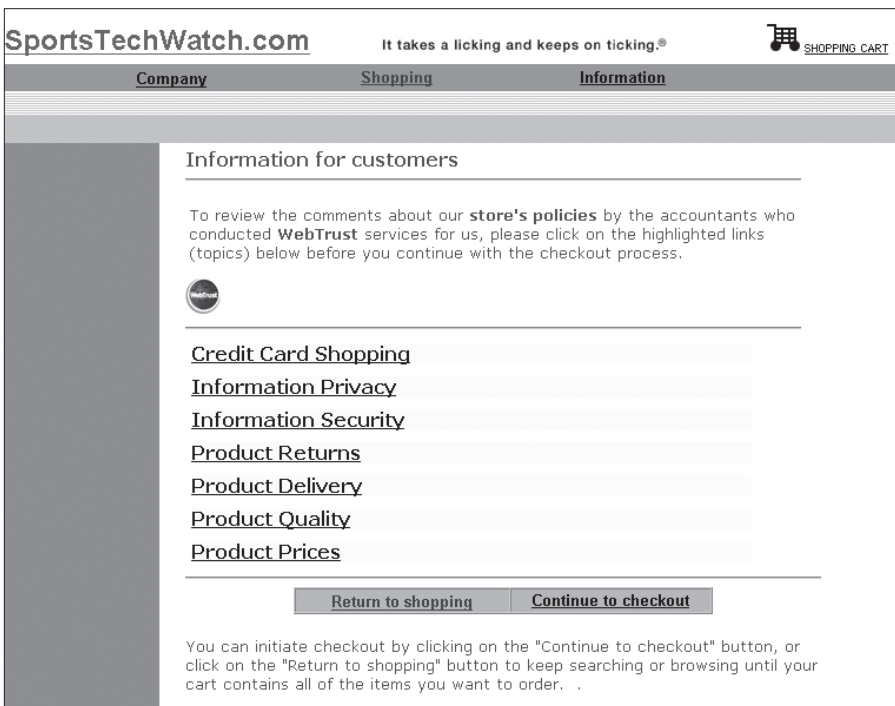


Figure 7. Information for Customers (Third Party’s Arguments)

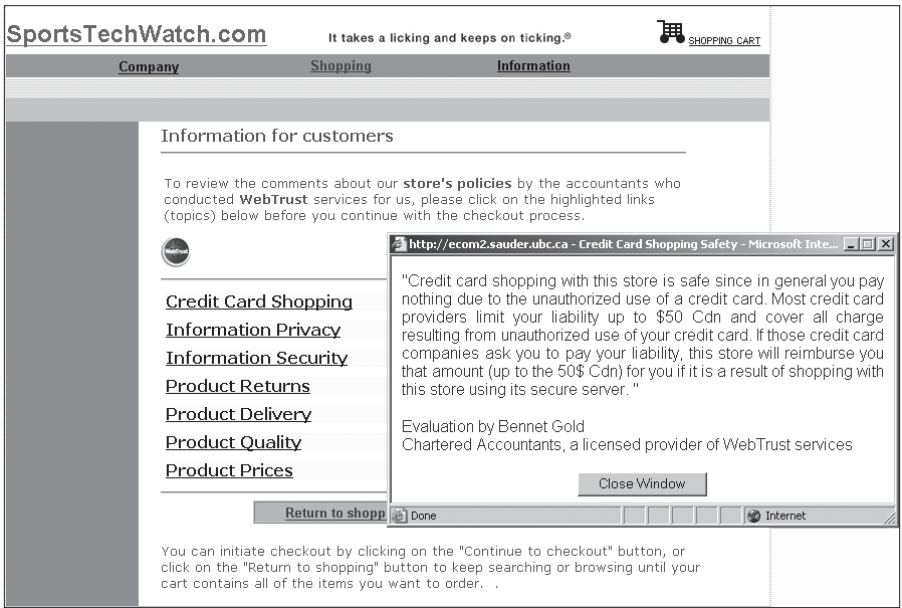


Figure 8. Trust-Assuring Arguments in Pop-Up (Third Party’s Arguments)

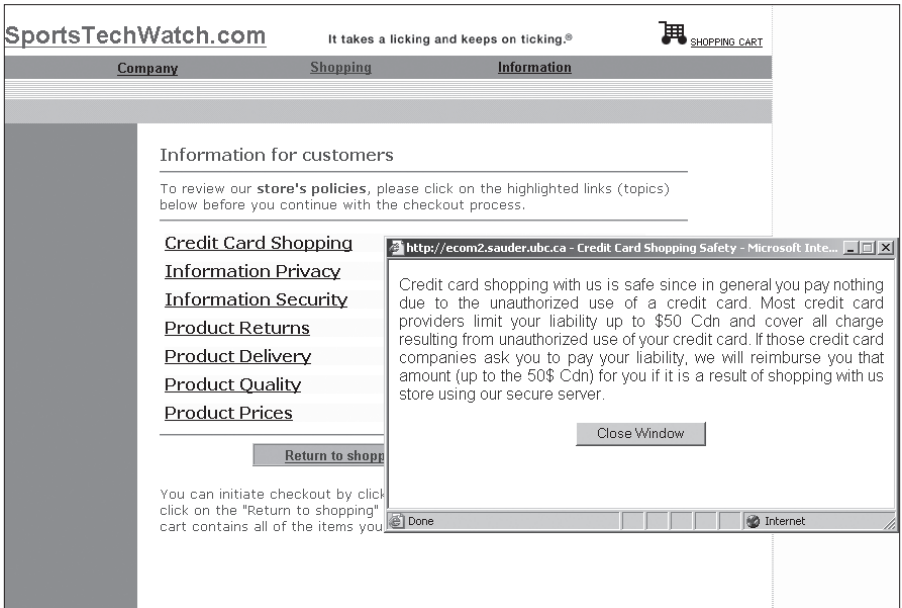


Figure 9. Trust-Assuring Arguments in Pop-Up (Store’s Arguments)

the intended dollar amount of purchase was \$90 in the high-price group and \$10 in the low-price group.

Participants were told that the certificate would be issued from either one of the two stores under evaluation depending on their preference. Participants were asked

to choose the store with which they would transact in the event that they won the incentive.

Our underlying assumption was that price differences would lead to differing levels of personal relevance concerning the trustworthiness of an Internet store (as discussed earlier). In order to check that the price difference would indeed lead to different levels of personal relevance in the topics related to trustworthiness of an Internet store, *prior* to the experiment, a paper-based survey, which included a scenario without showing a Web shopping site and a product, was conducted in three sections of a management information systems (MIS) course. From about 150 students in the classes, 128 of them participated in the survey voluntarily.³ The levels of personal relevance concerning the trustworthiness of an Internet store were significantly higher for high-price as compared to low-price groups ($p < 0.05$).

Dependent Variables

Consumers' trusting beliefs in an Internet store is the dependent variable. The scale for consumers' trusting beliefs is adapted from Bhattacharjee [9], who measured the construct with a seven-item scale (two items for ability, two for benevolence, two for integrity, and one for overall trustworthiness; see Table 5). Trusting beliefs are considered to be a formative construct [51, 54, 64, 70]. Partial least squares (PLS) was used to determine the weights of each of the seven items by running SmartPLS 2.0.⁴ Then we multiplied each item's weight by the score recorded by each participant in order to calculate the formative score of trusting beliefs [4, 35].

Results

Measurement Characteristics

THE CONSTRUCT VALIDITY AND RELIABILITY OF TRUSTING BELIEFS were examined based on Petter et al.'s [54] suggestions. The construct validity for formative constructs is assessed by examining the item weights for formative measures. If there are items with nonsignificant weights in a scale, researchers may choose to remove the items (one at a time) so that the weights for the rest of items are significant [54]. Alternatively, researchers may choose to retain nonsignificant items to maintain content validity [54].

The seven items for trusting beliefs included a few items the weights of which were not significant. Following Petter et al.'s [54] suggestions, we deleted three least significant items (in terms of the t -value of the weight) one at a time to improve the significance of the weights. Table 6 shows the weights and t -values of the final four items used in this study.⁵ Note that the t -values of the three items in the final four items in Table 6 are not significant but they were retained⁶ to maintain content validity [6, 54] (e.g., each insignificant item taps its own unique dimension: ability, integrity, and benevolence).

The reliability of formative constructs is evaluated by examining the nonexistence of excessive multicollinearity [54]. The variance inflation factor (VIF) statistics, an indicator of multicollinearity, for the four items of trusting beliefs were between 1.77

Table 5. Scale for Trusting Beliefs

| | To which of the two stores does the following statement apply more? |
|-----------------------|--|
| TB1 (Ability) | The Internet store has the skills and expertise to perform transactions in an expected manner. |
| TB2* (Ability) | The Internet store has access to the information needed to handle transactions appropriately. |
| TB3 (Integrity) | The Internet store is fair in its conduct of customer transactions. |
| TB4* (Integrity) | The Internet store is fair in its customer service policies following a transaction. |
| TB5 (Benevolence) | The Internet store is open and receptive to customer needs. |
| TB6* (Benevolence) | The Internet store makes good-faith efforts to address most customer concerns. |
| TB7 (Overall) | Overall, the Internet store is trustworthy. |

Notes: 11-point scale from -5 to +5, where +4 indicates that the statement applies to the second store (treatment) much more and -2 indicates that the statement applies to the first store (baseline) a little more.) * Item excluded in the final analyses.

Table 6. Weights and *t*-Values of Trusting Beliefs

| Items | Weights | <i>t</i> -Statistics |
|-------------------|---------|----------------------|
| TB1 (Ability) | 0.11 | 1.72 |
| TB3 (Integrity) | 0.09 | 1.28 |
| TB5 (Benevolence) | -0.06 | 1.35 |
| TB7 (Overall) | 0.39 | 8.25 |

and 2.14, which are lower than 3.3 (the suggested maximum value for reliability of formative measures) [54], indicating satisfactory reliability of the scale. All of these results suggest that measurement characteristics are satisfactory.

Manipulation Checks

No missing data were found in the data sets, with the exception of one subject whose responses for demographic information were lost. Therefore, the sample size was 127 when demographic information was included in the analyses, and 128 for all other analyses.

No significant differences were found between the subjects randomly assigned to each of the treatments (price: $F = 1.48$, $p > 0.1$; content: $F = 0.78$, $p > 0.1$; source: $F = 1.42$, $p > 0.1$; and order: $F = 0.17$, $p > 0.1$ in Wilks's lambda) with respect to

hours per week of a personal computer use, hours per week of Internet use, levels of comfort with using a personal computer, levels of comfort with browsing the Internet, preexisting levels of trust in Internet stores in general, familiarity with WebTrust assurance, gender, and age. These results indicate that participants' characteristics are not the cause of differences in consumers' trusting beliefs among the groups.

Several manipulation checks were performed. Among the 128 subjects, 124 clicked on at least one hyperlink to access the trust-assuring arguments, indicating that 97 percent of subjects were exposed to the content and source treatments.⁷ One hundred percent of the participants assigned to the high-price groups and 97 percent of those in the low-price groups recalled the price of the gift certificate correctly on the postexperimental questionnaire.

To check participants' perceived personal value of their selected watch, the price level at which participants would buy their selected watch immediately, without hesitation, was asked before they visited experimental Web shopping sites. The price levels were significantly different between the high-price and the low-price conditions (mean [M] = \$37.44 versus \$8.92, $F = 94.1$, $p < 0.01$), indicating that differences in prices led to substantial differences in subjective valuation (or importance) of the product that participants had the possibility of purchasing. The postexperimental questionnaire measured the levels of the personal relevance of topics of trust-assuring arguments (i.e., personal relevance of topics related to trustworthiness of a store) through the use of four items on a seven-point semantic scale⁸ adapted from Barki and Hartwick [5]. The levels differed significantly between high- and low-price groups ($M = 6.24$ versus 5.70, effect size = 0.48; $F = 7.6$, $p < 0.01$). All of these results indicate that the treatments were successful in general.

Test of Hypotheses

The trusting beliefs measure (Table 5) is based on an 11-point scale (i.e., -5 to +5) and based on perceptions of the treatment store (i.e., treatments) as compared with the baseline store (i.e., no trust-assuring arguments are provided). Hence, the term *trusting beliefs* is used hereafter to describe the *additional change* in consumers' trusting beliefs due to treatments as compared to a baseline (i.e., no treatment).

To test whether or not there were any significant interactions between price and content (Hypothesis 1) and between price and source (Hypothesis 2) for consumers' trusting beliefs, analysis of variance (ANOVA) was run with three factors (i.e., price, content of arguments, and sources of arguments) in regard to consumers' trusting beliefs. Order of visit was not included as a factor in the reported analyses because preliminary analyses revealed no significant differences in trusting beliefs by order of visit ($p > 0.1$).

Because another ANOVA was run to test Hypothesis 3, the alpha level has been set to 0.05/2 according to Dunn's multiple comparison procedure to control the inflated alpha levels [30, p. 137].

There was a significant interaction effect between price and content of arguments (Figure 10, Table 7: $F = 7.20$, $p < 0.025$); Hypothesis 1 is supported.

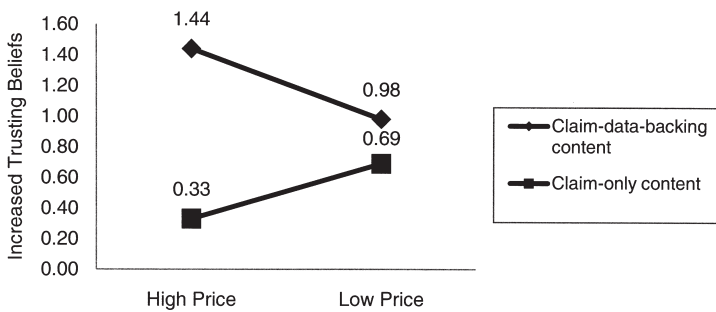


Figure 10. Interaction Between Content of Arguments and Price

Table 7. Results of the ANOVA for Consumers' Trusting Beliefs (Test of Interactions Between Content and Price, and Between Source and Price)

| Factor | Degrees of freedom | Mean | <i>F</i> | <i>p</i> -Value |
|--------------------------|--------------------|-------|----------|-----------------|
| Price | 1 | 0.09 | 0.12 | 0.727 |
| Content | 1 | 15.59 | 20.72 | 0.000 |
| Source | 1 | 14.12 | 18.77 | 0.000 |
| Price * Content | 1 | 5.41 | 7.20 | 0.008 |
| Price * Source | 1 | 1.08 | 1.44 | 0.233 |
| Content * Source | 1 | 1.37 | 1.82 | 0.180 |
| Price * Content * Source | 1 | 0.05 | 0.07 | 0.792 |
| Error | 120 | 0.75 | | |
| Total | 128 | | | |

Note: The boldface figures indicate the *p*-values assessed to test Hypotheses 1 (price * content) and 2 (price * source).

This result suggests that the strength of the effect of the content factor on consumers' trusting beliefs differs according to price level. As shown in Figure 10, the effect of claim-data-backing content over claim-only content on trusting beliefs was significantly larger under high price than under low price. This indicates that customers' trust in an Internet store is influenced more by the content factor when they intend to buy high-price products than when they intend to buy low-price products.

The interaction between price and sources of arguments was not significant (Figure 11, Table 7: $F = 1.44$, $p > 0.1$); Hypothesis 2 is not supported. The effect of a third party's arguments over a store's arguments on trusting beliefs was not significantly larger under low price than under high price.

To test Hypothesis 3 concerning the interaction between price and two types of trust-assuring arguments, ANOVA was run with two groups—namely, *third party's claim-only* and *store's claim-data-backing*—that are specified in Hypothesis 3 as the potential cause for the interaction; the interaction effect was significant (Table 8: $F = 5.67$, $p < 0.025$); Hypothesis 3 is supported. This result suggests that the effects

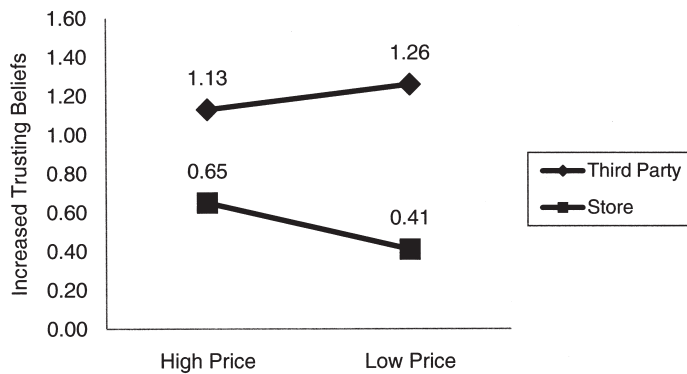


Figure 11. Interaction Between Sources of Arguments and Prices

Table 8. Results of the ANOVA for Consumers' Trusting Beliefs (Test of Interaction Between Price and Two Types of Arguments: Third Party's Claim-Only and Store's Claim-Data-Backing)

| Factor | Degrees of freedom | Mean | <i>F</i> | <i>p</i> -Value |
|--------------------------|--------------------|------|----------|-----------------|
| Type of argument | 1 | 0.02 | 0.02 | 0.893 |
| Price | 1 | 0.14 | 0.14 | 0.708 |
| Price * Type of argument | 1 | 5.67 | 5.67 | 0.020 |
| Error | 60 | 1.00 | | |
| Total | 64 | | | |

Note: The boldface figure indicates the *p*-value assessed to test Hypotheses 3 (price * two types of arguments).

of a store's claim-data-backing over a third party's claim-only on trusting beliefs significantly differed by levels of price (i.e., the mean difference (0.63) between a store's claim-data-backing and a third party's claim-only under high price was significantly different from the mean difference (−0.56) under low price).

When cell means are plotted, a disordinal interaction was observed as shown in Figure 12, indicating that the rank order of the effects of the two types of trust-assuring arguments changes depending on levels of price [53, p. 548].

Supplementary Analyses

Consumers' trusting beliefs due to the four types of trust-assuring arguments at each level of price were examined in order to identify the practical design implications of the results.

Table 9 shows descriptive statistics for consumers' trusting beliefs for four types of trust-assuring arguments at each level of price. Multiple comparisons of trusting

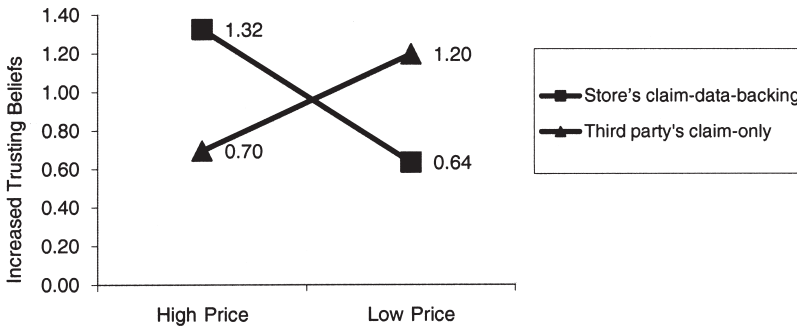


Figure 12. Interaction Between Price and Two Types of Arguments by Content and Source

Table 9. Descriptive Statistics: Trusting Beliefs

| Price | Type of argument | Mean | Standard deviation | Sample |
|-------|----------------------------------|-------|--------------------|--------|
| High | Store's claim-only | -0.03 | 0.78 | 16 |
| | Store's claim-data-backing | 1.32 | 0.70 | 16 |
| | Third party's claim-only | 0.70 | 1.33 | 16 |
| | Third party's claim-data-backing | 1.56 | 0.57 | 16 |
| Low | Store's claim-only | 0.18 | 0.75 | 16 |
| | Store's claim-data-backing | 0.64 | 0.93 | 16 |
| | Third party's claim-only | 1.20 | 0.92 | 16 |
| | Third party's claim-data-backing | 1.32 | 0.73 | 16 |

beliefs scores among the four types of arguments were conducted at each level of price using Tukey's honestly significant difference (HSD) multiple comparison tests [30, p. 134] in order to compare the four types of trust-assuring arguments in terms of their effects at each level of price (Table 10).

When customers purchased a high-price product, a store's claim-data-backing was almost as effective in increasing consumers' trusting beliefs as a third party's claim-data-backing is in spite of the source difference (trusting beliefs: 1.56 versus 1.32, see the circle on the left in Figure 13, *p*-value: 0.882, effect size: 0.36). When customers purchased a low-price product, a third party's claim-only was almost as effective in increasing consumers' trusting beliefs as a third party's claim-data-backing in spite of the content difference (trusting beliefs: 1.32 versus 1.20, see the circle on the right in Figure 13, *p*-value: 0.977, effect size: 0.14).

Discussion and Concluding Comments

IN AN ONLINE ENVIRONMENT, PEOPLE ARE EXPOSED to a wide range of stimuli that might trigger trust building, such as institutional- and knowledge-based trust mechanisms [19, 39, 50], to assess the trustworthiness of a store. In this study, we examined price as a potential moderator. The results are as follows:

Table 10. Comparisons Between High- and Low-Price Conditions: Differences in Trusting Beliefs

| Dependent variable: Trusting beliefs Tukey HSD | | Type of argument (I) | Type of argument (J) | Mean difference (I - J) | | p-Value | | Effect size* | |
|---|------------------------------------|------------------------------------|----------------------|-------------------------|-----------|------------|-----------|--------------|-----------|
| | | | | High price | Low price | High price | Low price | High price | Low price |
| A store's claim-only | A store's claim-data-backing | A store's claim-data-backing | -1.36 | -0.45 | 0.000 | 0.428 | -1.83 | -0.54 | |
| | | A third party's claim-only | -0.73 | -1.01 | 0.109 | 0.006 | -0.67 | -1.21 | |
| | | A third party's claim-data-backing | -1.59 | -1.13 | 0.000 | 0.002 | -2.34 | -1.53 | |
| A store's claim-data-backing | A third party's claim-data-backing | A store's claim-only | 1.36 | 0.45 | 0.000 | 0.428 | 1.83 | 0.54 | |
| | | A third party's claim-only | 0.63 | -0.56 | 0.203 | 0.243 | 0.59 | -0.60 | |
| | | A third party's claim-data-backing | -0.23 | -0.68 | 0.882 | 0.110 | -0.36 | -0.82 | |
| A third party's claim-only | A third party's claim-data-backing | A store's claim-only | 0.73 | 1.01 | 0.109 | 0.006 | 0.67 | 1.21 | |
| | | A store's claim-data-backing | -0.63 | 0.56 | 0.203 | 0.243 | -0.59 | 0.60 | |
| | | A third party's claim-data-backing | -0.86 | -0.12 | 0.041 | 0.977 | -0.84 | -0.14 | |
| A third party's claim-data-backing | A third party's claim-only | A store's claim-only | 1.59 | 1.13 | 0.000 | 0.002 | 2.34 | 1.53 | |
| | | A store's claim-data-backing | 0.23 | 0.68 | 0.882 | 0.110 | 0.36 | 0.82 | |
| | | A third party's claim-only | 0.86 | 0.12 | 0.041 | 0.977 | 0.84 | 0.14 | |

* Effect size (Cohen's d) = $M_1 - M_2 / \sigma_{\text{pooled}}$ where $\sigma_{\text{pooled}} = \sqrt{[(\sigma_1^2 + \sigma_2^2)/2]}$, M = mean, σ = variance [43, p. 136]. Cohen [13, pp. 25-27], with caution of interpretation, labeled 0.2 to 0.3 as "small," around 0.5 as "medium," and 0.8 to 1 as "large" effect size in terms of practical significance in behavioral research.

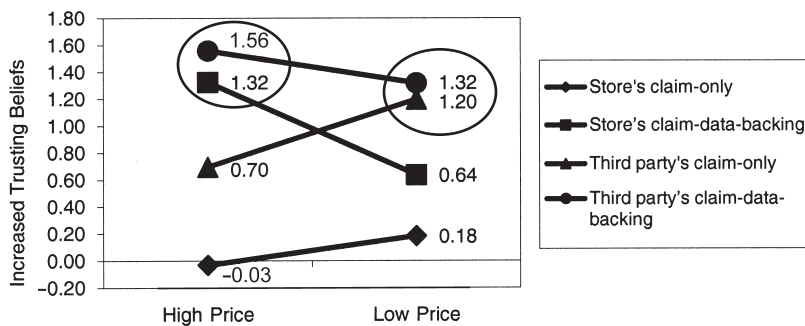


Figure 13. Trusting Beliefs Due to Types of Arguments by Content and Source

1. The first hypothesis predicted an interaction between the content factor and price. Given that the source factor was controlled, the *content* factor (the difference between claim-data-backing content and claim-only content) was more influential when customers purchase a high-price product than when customers purchase a low-price product (i.e., Hypothesis 1 is supported).
2. The second hypothesis predicted an interaction between the source factor and price. The interaction was not significant. After the content factor was controlled, the source factor (the difference between a third party and a store) did not show a significant change across levels of price (i.e., Hypothesis 2 is not supported). One of the plausible reasons would be that for the participants in this study a product price of \$10 might have still some degree of importance. It seems that while the elaboration likelihood increases highly when a high-price product is under consideration, it does not decrease as sharply under the low-price condition in this experiment.
3. The third hypothesis predicted an interaction between two types of arguments (a store's claim-data-backing and a third party's claim-only) and price. The interaction was significant (i.e., Hypothesis 3 is supported), indicating that the effects of the two types of arguments are not the same across levels of price. When customers purchase a high-price product, a store's claim-data-backing is *more* effective (in terms of the rank order) than a third party's claim-only in increasing consumers' trusting beliefs. In contrast, when customers purchase a low-price product, a store's claim-data-backing is *less* effective (in terms of the rank order) than a third party's claim-only in increasing consumers' trusting beliefs.
4. Although we did not hypothesize in these areas, there were significant main effects of the content factor ($M = 1.21$ versus 0.51 , $F = 20.73$, $p < 0.01$) and the source factor ($M = 1.19$ versus 0.53 , $F = 18.77$, $p < 0.01$), which are consistent with results in Kim and Benbasat [25] and Nöteberg et al. [45].

Presumably, Internet stores employ a third party's trust-assuring arguments because customers are less likely to trust an unknown Internet store's own trust-assuring arguments. However, the results (1 and 3 above) paradoxically may imply that when

customers have more at stake (e.g., buying a high-price product) they do not necessarily have to rely only on an independent third-party source to form high trust beliefs about the store. When customers purchase a high-price product, they seem to form trusting beliefs by scrutinizing argument contents rather than by depending on heuristic cues (e.g., an independent party's opinion) as the ELM would predict. Therefore, in the case of relatively high-price products, which, all other things being equal, is of more importance to store management, it is evident that a store's claim-data-backing is a very good and cheaper alternative, as we explain in the contributions section, for providing trust-assuring arguments.

Note that we are not arguing that a third party's trust-assuring argument is not useful. A third party's claim-data-backing was always the best. What we are arguing is that customers process the same trust-assuring argument in a different manner (or customers are influenced by different factors of the same trust-assuring argument) depending on the price of a product.

Limitations

There are several limitations that readers should have in mind when interpreting the results of this study. First, the results were taken from a relatively homogeneous group (i.e., most of them were university students) and with a single type of product (i.e., sports watch). Although a homogeneous group is desirable for theory testing [10, 11, 12], it is not certain whether the results of this study are generalizable to more heterogeneous populations. More empirical tests with various groups of samples and with multiple types of products need to be conducted to determine if the results of this study can be generalized.

Second, the study's findings might be applicable only to a certain level of high-price products. When the product price is extremely high (e.g., car), customers might want to collect more information by visiting or calling a physical store of a Web vendor in addition to exploring a Web vendor's Web site. In such a case, their direct experiences with a Web vendor might have more influence on consumers' assessment of trusting beliefs.

Third, it should be noted that there are circumstances where price may not work as a proxy of personal relevance levels. For example, high price is less likely to generate high levels of personal relevance if one is not interested in a product at all or if one has no intentions to transact with the store. In this regard, it would be interesting to find another proxy that can be used to predict levels of personal relevance. We are currently testing the likelihood of transacting with a store as another important proxy.

Fourth, our scale for trusting beliefs, which was adapted from Bhattacharjee's [9], was developed originally as a reflective scale, not as a formative scale. As a result, three out of four items used in this study were not significant in terms of their weights. In addition, recently it was reported that fairness differs from trust [69] while fairness was regarded as a similar concept of integrity in Bhattacharjee [9]. In these regards, there is a need to develop a new formative scale for trusting beliefs that can resolve these concerns.

Contributions

To our knowledge, this is the first empirical study that compares the effects of the source and content factors—namely, the different levels of a store’s trust-assuring arguments and those of a third party’s certified arguments—under different levels of product price, on consumer trust using ELM and Toulmin’s model. The results contribute to trust theories in e-commerce. To date, the focus of most studies about Web vendor interventions, which refers to “actions a vendor may take to provide assurances about the vendor’s sites,” such as a third-party certification [39], has been on investigating the main effects of such interventions. A few studies have recently examined culture [15, 27] as a moderating variable. This study identified price as another moderating variable that influences the strength of the effect of Web vendor interventions, such as third-party certifications, increasing our understanding of the nature of the effect of third-party certifications and a store’s self-proclaimed assurances on consumers’ trusting beliefs.

Trust-building potential of *text-based* arguments, which increase Web site informativeness or customers’ understanding of a store, were investigated in several studies [17, 18, 24, 25, 34, 49, 52, 74]. This study is another effort to increase our understanding of such a trust-building mechanism. Kim and Benbasat [25] assumed, without an explicit empirical test, that the content factor would play a main role under high levels of personal relevance, based on ELM. The results of the present study provide empirical evidence that their assumption holds.

As discussed earlier, ELM provides little guidance about how to develop convincing arguments, while Toulmin’s model of argumentation provides a way to develop such arguments. Hence, integrating the two theories enables them to complement each other and makes the two theories more complete. To our knowledge, this is the first study that applied ELM and Toulmin’s model of argumentation together. In this regard, a further contribution of this study is the empirical confirmation of the combination of ELM and Toulmin’s model.

This study demonstrated, somewhat counterintuitively, that a store’s well-structured assurances can be almost as effective as third-party assurances in increasing consumer trust, especially for those customers who are buying relatively high-price products. This is an important finding for store management since a store’s expenses for acquiring third-party certification are much higher than those needed to implement a store’s own well-structured assurances. For example, in the case of WebTrust certification (a third-party certification issued by accounting firms) a company has to pass an audit conducted by a WebTrust-licensed accounting firm every six months to retain its certification [14]. In addition, Internet stores often need to develop their self-proclaimed assurances, because none of the third-party certification sources can cover *all* of customers’ trust-related concerns. Hence, it is important to understand the relative influence of trust-assuring arguments made by Internet stores on consumer trust when compared with similar claims that are certified by a reputable third party.

As shown in this study, a third party’s claim-only assurance was less effective than a store’s claim-data-backing in increasing consumers’ trusting beliefs in terms of the rank order when people intend to buy a relatively high-price product. The finding is

useful in designing a Web shopping site. Those Internet stores selling relatively high-price products need to pay more attention to developing more convincing content of assurances regardless of the source of content because people's assessment of trustworthiness of an Internet store is more influenced by the content rather than by the source when they intend to buy relatively high-price products.

It seems that the value of displaying a *store's* well-structured trust-assuring arguments is greater than is readily apparent because of its significant influence on a store's more important customers (e.g., those who are buying relatively high-price products). Because a store's well-structured trust-assuring arguments are less costly to implement than third-party certification, and since a method to develop well-structured trust-assuring arguments (e.g., Toulmin's model of argumentation) has been suggested by Kim and Benbasat [25], implementing a store's well-structured trust-assuring arguments is recommended as one of the viable options for Web store managers to increase consumers' trust.

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NOTES

1. Note that a crossover is not what we hypothesize. A crossover is just one of the possible patterns when our prediction holds.

2. Random assignment was made using randomized sequence numbers generated from www.random.org.

3. These were *not* the same 128 subjects who participated in the main experiment.

4. SmartPLS 2.0 (M3) beta, 2005, available at www.smartpls.de.

5. We also ran all of the analyses with the seven items without deletion. The results (i.e., the pattern of significance) did not change.

6. Barki et al. (2007) recommend retaining nonsignificant formative indicators (1) if elimination of an item results in the loss of the construct concept, (2) if there is the possibility of measurement errors due to the ambiguous wording of an item, and/or (3) if the relevance of each indicator differs by the particular context and sample.

7. A program routine was developed to record the number of clicks of the hyperlinks. All the analyses in this paper are based on all subjects in order to counterbalance differences between baseline and treatment stores. The same analyses were conducted after deleting the four subjects, and the significance patterns did not change.

8. Seven topics of arguments (credit card shopping, information privacy, information security, product returns, product delivery, product quality, product prices) were listed in the questionnaire. Then participants were asked, "To what extent did these topics (as a whole) actually matter to you in choosing the store that you would buy the sports watch from? Please rate your opinion in terms of the following." The four semantic phrases used here are (1) was relevant (irrelevant) to me, (2) was of concern (no concern) to me, (3) did (not) matter to me, and (4) meant a lot (nothing) to me.

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