

Online Trust Production: Interactions among Trust Building Mechanisms

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Abstract

Lack of trust has been identified as a major obstacle to the adoption of online shopping. However, there is paucity of research that investigates the effectiveness of various trust building mechanisms, especially the interactions amongst these mechanisms. In this study, three trust building mechanisms (i.e., third-party certification, reputation, and return policy) were examined. Scenario survey method was used for data collection. 463 usable questionnaires were collected from respondents with diverse backgrounds. Regression results show that all three trust building mechanisms have significant positive effects on trust in the online vendor. Their effects are not simple ones; the different trust building mechanisms interact with one another to produce an overall effect on the level of trust. These results have both theoretical and practical implications.

1. Introduction

Business to Customer electronic commerce is here to stay, despite the recent downturn in the dot-com business. This is because it provides companies an additional channel through which to sell their products. However, because there is a lack of a physical presence of the products and there is a large physical distance between buyers and sellers, these characteristics create a unique situation in electronic commerce in which trust is of paramount importance [13]. Thus, it is important to understand how to engender customers' trust in online shopping, for this understanding can be used by online vendors to increase the level of trust of the customers and attract them to shop online. Information systems researchers have begun to address this issue recently [8,31]. They have proposed a number of online trust models that offer insights into the antecedents of online trust. However, only a few of these antecedents have been empirically tested and the findings on the effects of a number of important antecedents, such as third-party

certification and familiarity, are inconsistent with the predictions of the models or inconsistent among the studies.

As pointed out by Gefen [6], many researchers focused on trust that builds up gradually through ongoing interactions when actors gain more knowledge of the integrity and the ability of the counterparts. Consumers encounter new online merchants more often when they shop online. Initially, ongoing interaction may be lacking in the context of online shopping, it will be fruitful to investigate other means of building trust that may not require the initial extensive interaction. Another area neglected in the studies of online trust is the interaction among the trust building mechanisms. The effectiveness of one mechanism may depend on the presence or absence of other mechanisms. The design of the current study attempts to offer some answers in this area.

The objective of the current study is to investigate the effectiveness of various trust building mechanisms by extending our understanding of how they work in the context in which the parties involved in the transaction may not be familiar with each other. Moreover, the interaction among the trust building mechanisms will also be investigated. These understandings can provide insights to online vendors and assist them in designing better strategies to engender customers' trust and attract them to purchase online.

2. Theoretical Background and Hypotheses

2.1 Definition of Trust

Divergent meanings and operationalizations of trust have been used in the studies of trust in the area of electronic commerce. One study's trust is another study's antecedents to trust. Mayer et al. [19] summarize the problems of the study of trust as the lack of clarity in the relationship between risk and trust; confusion between trust, its antecedents and outcomes; lack of specificity of trust referents; and failure to consider both the trustee and

the trustor. Similar criticism has been raised in the area of electronic commerce studies involving trust. As pointed out by Shankar et al. [27], most of the studies on online trust do not make a clear distinction between the underlying dimensions and antecedents of online trust.

This study uses the definition of trust offered by Rousseau et al. [26] after an extensive cross-disciplinary review of the concept of trust. Trust is defined here as “a psychological state comprising the intention to accept vulnerability based upon positive expectations of the intentions or behavior of another”. This definition separates the construct of trust itself from its antecedents and its outcomes, and thus is more appropriate for the objective of the current study.

2.2 Modes of Trust Production

To systematically identify various trust building mechanisms that online vendors can use, the framework of trust production suggested by Zucker [32] will be employed here. She identified three modes through which trust can be produced. They are characteristic-based, process-based, and institutional-based trust building mechanisms. More specific trust building mechanisms were chosen because they can provide cues to engender the customer's initial trust in an online vendor, when the customer does not have a lot of credible information about, or affective bonds with, the vendor [2,20].

Characteristic-based trust is produced based on social similarity, such as family background, age, sex and ethnicity, between trustees and trustors. They serve as indicators of membership of a common cultural system. This membership serves as a rule that defines the boundaries of low-risk interpersonal trust, and, as a consequence, individuals may confer a sort of depersonalized trust to the in-group member [16]. This mode of trust production may not be very effective in the context of online shopping because the globally-oriented electronic marketplace is, by definition, an attempt to attract customers from diverse backgrounds.

Process-based trust is tied to past or expected exchanges. The record of prior exchanges is obtained indirectly (e.g., reputation, brands, warranties of quality) or directly from the outcomes of prior exchanges. There are different ways that a firm or an individual can build process-based trust. As direct measures of process-based trust would be costly to establish, so firms need to signal trust in transactions through the use of symbols, such as reputation, which are symbolic representations of a past exchange history [17,32]. Firms need to make investment in this more formal form of process-based trust, through advertising for example. In the context of electronic commerce, Quelch and Klein [25] have suggested that new Internet users tend to explore the sites of familiar

brands first and this enhances consumer trust at the early stage of commercial development. Thus, it was hypothesized that:

H1: Reputation will have a positive effect on the level of trust in online vendors.

Another way to build process-based trust is to make a commitment to the potential customers. Commitment, in this context, is defined as “the voluntary and conscious undertaking of an action that changes the incentive structure, and that is meant to reveal the consequences of the future actions” [29, p.13]. One example of a commitment that a company can make is a generous returns policy that will change the incentive structure of providing sub-standard goods to customers. A number of studies have examined return policy as a risk reliever for online shopping. Cases [4] and Van den Poel and Leunis [30] have found that a money back guarantee is among the top risk relievers, as assessed by online customers. Hence, it was hypothesized that:

H2: A favorable return policy will lead to higher levels of customer trust in online vendors.

The third mode of trust production is institutional-based trust, which is tied to broad societal institutions and on intermediary mechanisms. Individuals or firms need to rely on this form of impersonal trust that is tied to formal social structures, when they are not able to rely on common personal characteristics, i.e., characteristic-based trust, or a past history or guaranteed future of exchange, i.e., process-based trust [17]. There are two types of institutional-based trust. The first type is specific to persons or firms. This type of institutionally-based trust is engendered by acquiring such things as a professional credential, membership of an association, or third-party certification. The second type of institutional-based trust is produced through intermediary mechanisms, such as insurance, escrow, and legal rules [17,32]. Institutionally-based trust is likely to be required when there is an exchange across groups with significant social distance or an exchange across geographical distance [17]. This is an important kind of trust that needs to be established for online shopping, as online customers come from all over the world and they are performing faceless transactions with the online vendors. Thus, it is hypothesized that:

H3: Third-party certification will lead to higher levels of customer trust in the online vendor.

Figure 1 shows the research model for the current study.

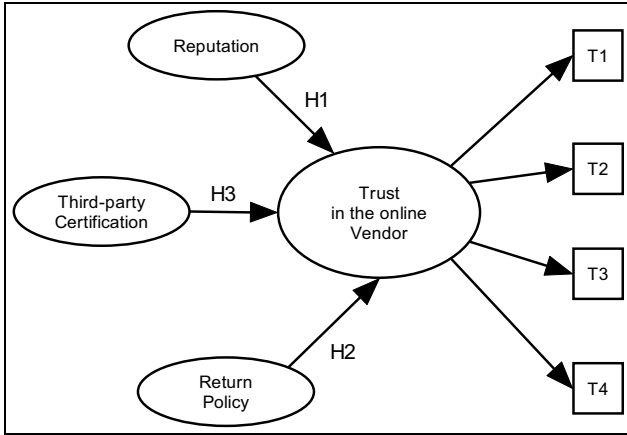


Figure 1 Research Model

3. Method

3.1 The Scenario Method and Manipulations

The current study employed a scenario methodology using a survey method to test the hypotheses pertaining to the effect of trust building mechanisms on trust. The scenario methodology was used because it is difficult to vary the levels of trust building mechanisms in a real-life situation [11]. As suggested by Eroglu [5], the scenario method is an acceptable substitute for situations that cannot be replicated easily in the laboratory.

Three trust building mechanisms, reputation, return policy and third-party certification are postulated to influence trust in online vendors. The treatments consisted of two levels of reputation (bookstore with good reputation or unknown reputation), two levels of third-party certification (yes or no), and two levels of return policy (can be returned within 7 days or cannot be returned). Unlike U.S., not all the shops allow you to return the purchased goods even they are unopened in Hong Kong, unless the goods are defective. Eight scenarios were created by varying the levels of these three independent variables. This resulted in a 2x2x2 between-subject factorial design. The scenarios asked the respondents to imagine that they were book lovers who had found a book in the online bookstore described by the scenarios. Then they were asked the extent that they trust the online vendors.

3.2 The Questionnaire

The questionnaire can be divided into three sections. The first section presents one of the eight scenarios to the respondents and instructs them to read it carefully before answering the remaining questions.

Manipulation checks in the second section measure the extent to which treatments have been perceived by the subjects and to ensure that subjects have, indeed, been

manipulated as intended. One manipulation check question is included for each treatment. On a 7-point scale, the respondents were asked whether the online shop is certified by a third-party, does it have an acceptable return policy, and does it have good reputation.

The items of the trust scales, in this study are based on those of Butler [3], with the wording adapted to the current context of online shopping. The scale uses four items to assess overall trust and is similar to the one used by Gefen [6]. The items, as shown in Table 1, were rated on a seven-point scale ranging from strongly agree (1) to strongly disagree (7). The mean of these four items was used as the dependent variable in the regression analysis.

The demographics section asks the respondents to provide information on their gender, age, income, education level, occupation, and the industry in which they are working. It also poses a number of questions related to the use of the Internet and online shopping, including time spent on the Internet per week, years of experience in using the Internet, whether they have experience with online shopping websites, whether they have purchased anything online in the past 6 months, and finally whether they have ever purchased online. The question about whether they have experience with any online shopping websites is used to screen out the respondents who have never visited an online shopping website.

Table 1: Items Measuring Trust

T1: I can count on this online bookstore to be trustworthy.
T2: I feel that this online bookstore can be trusted.
T3: I believe sometimes I can NOT trust this online bookstore.
T4: I trust this online bookstore.

3.3 Subjects and Data Collection

The population of interest for this study is those Internet users who have had experience with online shopping websites, both as adopters and as potential adopters. This population was chosen because the respondents should at least have some knowledge of online shopping to provide their opinions on a number of constructs.

Because there is no sampling frame of Hong Kong Internet users, it is impossible to perform random sampling. Thus, a non-probability sample was used in this study. To increase the representativeness of the sample, participation was solicited from respondents from a wide range of backgrounds. Respondents included both students and the working public. For student respondents,

questionnaires were distributed in the classrooms and their participation was voluntary. The respondents include students from the business, social sciences, and sciences faculties. The students were randomly assigned to different scenarios. Questionnaires were also distributed to the working public through the personal contacts of the researcher. A central contact person was identified in each company; they were asked to randomly distribute 16 to 40 questionnaires to any of their colleagues who were willing to participate in the survey. People from a wide range of industrial sectors were contacted. The industries include banking and finance, manufacturing, education, information technology, as well as the public service.

4. Results

4.1 Demographic Profile of the Respondents

640 questionnaires were distributed and 463 of usable questionnaires were obtained, making a 72 percent net response rate. Fifty-six percent of the respondents hold undergraduate degrees or higher, and a further 17.5 percent are receiving tertiary education. The mean age of the respondents is 28.2 years with a standard deviation of 6.96 years. They come from a wide variety of industries.

Most of the respondents (over 80 percent) have four or more years of experience in using the Internet, with most of them falling between five to seven years. Forty-four percent of the respondents have bought goods from online shops and around 27 percent of the respondents have purchased goods online in the past six months.

4.2 Manipulation Checks and Reliability

Analysis of variance (ANOVA) was used to assess the effectiveness of the manipulations. The main effects for reputation, third-party certification, and return policy on the manipulation check questions are all found significant. The findings support that the manipulations in the scenarios are effective, and the effect of the trust building mechanisms can now be analyzed.

Cronbach's alphas were used to assess the internal consistency reliability of the trust scales. The reliability coefficient is .89, which was higher than the acceptable level of .7 for this kind of study.

4.3 Effect of Trust Building Mechanisms on Trust in the Online Vendors

Regression analyses were used to analyze the effect of trust building mechanisms. A 2x2x2 factorial design was used in the current study to assess the effect of various trust building mechanisms on trust in the online vendors. Since the cell frequencies in the factorial design are unequal, multiple regression analysis is used. If any

interaction effect is found significant, analysis of simple effects, i.e., the differential effects of treatments of one factor at each treatment level of the other factor, will be performed using, again, multiple regression analysis [23].

Trust in Online Vendor was regressed on Reputation, Third-party Certification, and Return Policy. The regression equation is significant at an alpha level of 0.001 and the independent variables account for 33 percent of the variance of trust in the online vendor. The three-way interaction is not significant. Two two-way interactions, reputation by third-party certification and reputation by return policy, are significant. The results also show that the main effect of reputation and third-party certification are significant. However, as suggested by Petersen [24], if any two-factor interaction is significant, neither of the main effects has meaning. Thus, an analysis of the simple main effects at different levels of treatment was performed.

First, the interaction of reputation by third-party certification will be discussed. Trust in the online vendor was regressed separately on third-party certification at two levels of reputation. The results are shown in Figure 2. The differential effects of third-party certification at different levels of reputation can be seen from the difference in the regression coefficients (b). A "*" in the figures means that the coefficient is significant at an alpha level of 0.025. At unknown reputation, the effect of third-party certification on trust in online vendors is significant and the regression coefficient is equal to 0.85. At good reputation, the effect of third-party certification on trust in online vendors is also significant, but the regression coefficient is equal to 0.61, which is smaller. Thus, the effect of third-party certification is higher when a company has an unknown reputation.

The interaction effect of reputation and third-party certification can also be analyzed from another angle. This time trust in the online vendor was regressed separately on reputation at two levels of third-party certification. The results are shown in Figure 3. When there is no third-party certification, the effect of reputation on trust in the online vendor is significant and the regression coefficient is equal to 0.48, while the regression coefficient is equal to 0.24 when there is third-party certification. Thus, the effect of reputation is higher when a company has no third-party certification.

We now look at the interaction of reputation and return policy. First trust in the online vendor was regressed separately on return policy at two levels of reputation. The results are shown in Figure 4. When the reputation is unknown, the effect of the return policy on trust in the online vendors is not significant. However, when the reputation is good, the effect is significant and the regression coefficient is equal to 0.21.

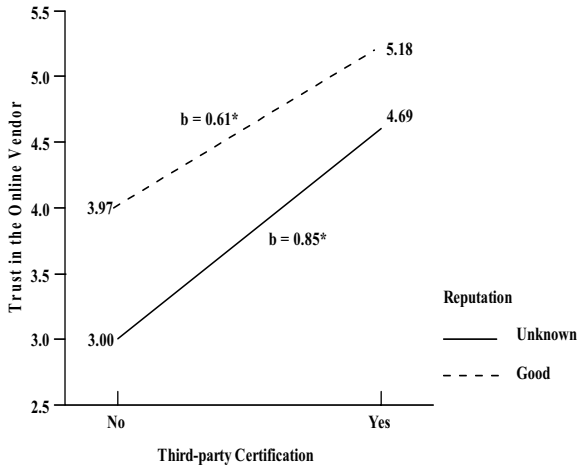


Figure 2 Effect of Third-party Certification on Trust in the Online Vendor: By Reputation

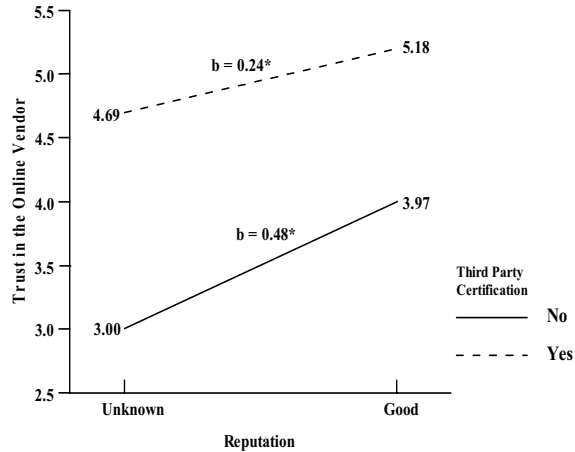


Figure 3 Effect of Reputation on Trust in the Online Vendor: By Third-party Certification

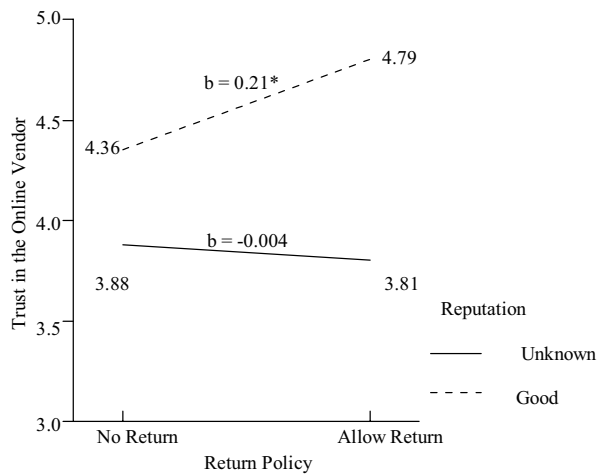


Figure 4 Effect of Return Policy on Trust in the Online Vendor: By Reputation

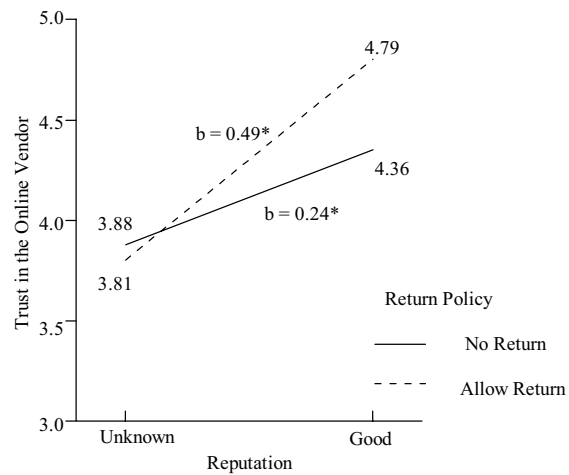


Figure 5 Effect of Reputation on Trust in the Online Vendor: By Return Policy

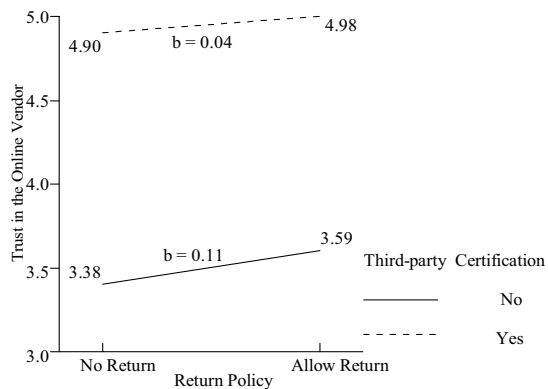


Figure 6 Effect of Return Policy on Trust in the Online Vendor: By Third-party Certification

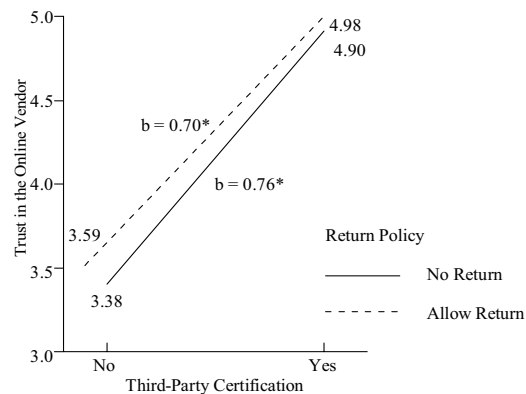


Figure 7 Effect of Third-party Certification on Trust in the Online Vendor: By Return Policy

Trust in the online vendor was also regressed separately on reputation at two levels of return policy. The results are shown in Figure 5. The effect of reputation is significant at both levels of return policy. However, the effect is higher when return is allowed ($b = 0.49$) in comparison with the case when return is not allowed ($b = 0.24$).

Although the interaction effect of the return policy and third-party certification is not significant, it does not mean that there is no simple main effect; it only means that the effects are the same at different levels of the factors. Thus, the analysis of the simple main effect will proceed. The regression results are shown in Figure 6 and 7. The effects of a return policy on trust in the online vendor are not significant at both levels of third-party certification. However, there is a significant positive effect of third-party certification on the level of trust in the online vendor at both levels of return policy, and their effects are similar ($b = 0.76$ where return is not allowed and $b = 0.70$ when return is allowed).

The above results support all the hypotheses. That is, third-party certification, a favorable return policy, and reputation all have a positive effect on the levels of customer trust in the online vendor.

5. Discussions

Drawing from Zucker's trust production framework, a scenario-based method was used to investigate how trust production mechanisms interact in affecting the level of consumers' trust in online vendors. The specific trust production mechanisms were chosen because they provide cues to engender the customers' initial trust in an online vendor when they do not have past transaction history.

The results show that all three trust building mechanisms, third-party certification, reputation, and return policy, increase trust in the online vendor. They interact with one another to produce different levels of influence on the trust.

Third-party certification significantly increases customer trust in the online vendor under all treatment levels of the other two mechanisms. The magnitudes of the effect under the conditions of having an acceptable return policy and disallowing returns are similar. Nevertheless, the increase in trust is less substantial for firms with a good reputation compared to firms with an unknown reputation. Reputation also significantly increases customer trust in the online vendor under all treatment levels of the other two mechanisms. It has a greater effect under the conditions when there is no third-party certification or when there is an acceptable return policy. However, the return policy only has effect when vendors have a good reputation and it has no effect under other treatment conditions. This is consistent with the fact

that the return policy is a kind of promise; if vendors do not have good reputations, their promises will not be believable. In general, the effect of third-party certification is stronger than other mechanisms.

These findings have both theoretical and practical significances. Theoretically, recognizing the existence of the interactions among trust building mechanisms is crucial for the interpretation of the results from similar studies. Past inconsistent findings of the effect of some trust building mechanisms may be due to this interaction effect being overlooked. For instance, Bhattacharjee [1] found a significant effect of familiarity on trust, while Gefen et al. [7] did not. When looking at the vendors they were evaluating, Bhattacharjee chose Amazon and Gefen et al. asked the respondents to name the vendor from which they had last purchased. Amazon obviously has a good reputation, but it is hard to assess the reputation of the firms named in the study of Gefen et al. Therefore, the not significant result that Gefen et al. found may be due to their overlooking the interaction effect of familiarity with reputation, or the interaction effect with the other antecedents of trust that they examined. Therefore, future studies of trust building mechanisms must take this interaction effect into account when designing the study. Moreover, realizing the existence of this interaction effect has also shed light on the interpretation of the findings of past research.

In practical terms, the results entail the suggestions that different trust building mechanisms should be used by online vendors in different stages of development. As a return policy is only effective when an online vendor has a good reputation, this method should not be used as the only means to engender trust by a new online vendor. For a newcomer to online business, the most effective means of increasing the trust of customers is to obtain third-party certification.

The finding that reputation is a source of trust is consistent with the postulation and empirical findings of social exchange theory [15], and with extant studies on online shopping [12,21]. As reputation has a positive effect on customer trust in online vendors, various means should be employed by online vendors to improve their reputations. One way to enhance reputation is to invest in trust developing measures and signaling activities. The higher-quality service providers should reveal private information about their operations to their customers in a way that cannot be imitated by lower-quality providers [28]. Greyser [10] reported the findings of surveys of over 10,000 interviews with executives worldwide, and suggested that communications, including effective advertising, sponsorship of major events, etc., are key drivers of corporate reputation.

Third-party certification, an institutional-based trust building mechanism, has been found to be the most effective means of engendering trust. This result is

different from the one found by Lee and Turban [18]. They did not find significant relationship between the effectiveness of third-party certification and consumer trust in Internet shopping. However, their constructs focus on Internet shopping in general, and not direct to specific online merchant. On the other hand, our result is consistent with the finding of Kimery and McCord [14] that privacy assurance seal, TRUSTe, has a positive impact on the perceived trustworthiness of the e-retailer. To promote electronic business, there is a need to establish a better institutional infrastructure to increase the trust of the general public in electronic commerce. Trusted third-party organizations that are recognized worldwide should be established. As mentioned earlier, the pretest of the scenarios found that few of the Hong Kong participants had heard about TRUSTe. Because electronic commerce or online shopping is globally oriented, world-recognized, trusted third-parties are needed, in addition to certification organizations that are local to a country.

This study has a number of limitations and the results should be interpreted and used bearing these limitations in mind. Some of the limitations are inherent in the methodology; others come from the choices and compromises of the researcher. One limitation stemming from the scenario method is its limited generalizability when compared to field studies [9]. However, it is a trade off between external and internal validity that needs to be made. This method allows us to manipulate variables that it may not be feasible to adjust in a real-life setting, such as the use of a certain return policy, and the method also allows us a measure of control over otherwise uncontrollable confounding variables, such as the service quality of different companies. Another limitation is that the scenarios may not provide a real-world context for the respondents. A careful process has been used to develop the scenarios so that they reflect a certain degree of correspondence to the real-world shopping situation. However, the artificiality of the setting may still have an effect on the dependent measures [22]. The use of a non-probability based sample in this study may also compromise the generalizability of the findings.

6. Conclusion

Since risk cannot be totally eliminated in online shopping, it is important to engender customers' trust. Our study has established the effectiveness of the institutional-based and process-based trust building mechanisms. More importantly, their effects on trust have been shown to be interacting with one another. These findings are important both theoretically and practically. Theoretically, past inconsistent findings of the effects of the trust building mechanisms can be reinterpreted in the light of this new finding, and future studies could

incorporate this interaction effect into their research design. The findings can generate appropriate suggestions for online vendors at different stages of their business development on how to engender the trust of their customers using different strategies.

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