Initial Trust: Three-Factor Model vs. Two-Factor Model

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Initial Trust: Three-Factor Model vs. Two-Factor Model

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ABSTRACT

Initial trust is important, especially in the ecommerce context, for online retailers to achieve customers’ initial commitment which may lead to a more robust relationship. For this reason, several previous studies of ecommerce focused on initial trust. However, one problem with the previous studies is the validity of initial trust. In this paper, we compared a three-factor model of initial trust (competence, benevolence, and integrity) with a two-factor model (competence and goodwill). A statistical analysis with structural equation modeling indicated that the two factors of the three-factor model (i.e., benevolence and integrity) failed to provide evidence of discriminant validity. On the other hand, the two factor model demonstrated evidence of validity and reliability of the constructs (i.e., competence and goodwill). As an alternative to the three-factor model, therefore, the two-factor model of initial trust is presented with theoretical and practical implications.

Keywords

Initial trust, trusting beliefs, three-factor model (competence, benevolence, integrity), two-factor model (competence, goodwill)

INTRODUCTION

Initial trust is an important factor for success in the context of business-to-customer (B2C) ecommerce. Startup online retailers, for instance, would likely fail if they couldn’t gain customers’ initial trust. Once they win customers’ initial trust, they can develop more robust trust which is an efficient way to build more loyal customers.

Due to its importance, initial trust has been examined by some researchers (e.g., McKnight, Cummings, and Chervany, 1998; McKnight, Choudhury, and Kacmar, 2002; Kourafis and Hampton-Sosa, 2004). Kourafis and Hampton-Sosa used a unidimensional scale of initial trust while others used multi-dimensional scales of initial trust (e.g., McKnight, Cummings, and Chervany, 1998; McKnight, Choudhury, and Kacmar, 2002). In their conceptual study, McKnight, Cummings, and Chervany (1998) proposed a four-dimension model of initial trust measured as trusting beliefs (i.e., benevolence belief, competence belief, honesty belief, and predictability belief) which is based on the three-dimension model of trustworthiness (i.e., ability, benevolence, and integrity) proposed by Mayer, Davis, and Schoorman (1995).

In an empirical study, McKnight, Choudhury, and Kacmar (2002) used a three-factor model of initial trust (i.e., competence belief, benevolence belief, and integrity belief). In the study, the integrity dimension is a slimmed-down version of the original integrity dimension proposed by Mayer, Davis, and Schoorman (1995). In fact, McKnight, Cummings, and Chervany (1998) originally proposed a four-factor model of initial trust (i.e., competence belief, benevolence belief, honesty belief, and predictability belief), and in a related study, McKnight, Choudhury, and Kacmar (2002) removed predictability belief and used honesty belief as the integrity dimension. The rationale for this is that predictability (an aspect of integrity) may not be appropriate for initial trust.

The removal of the predictability aspect seems reasonable, but the remaining component (i.e., honesty) seems to be problematic to stand alone as the integrity dimension. Pragmatically, the empirical data by McKnight, Choudhury, and Kacmar (2002) indicated that benevolence and integrity may be unidimensional (high correlation, 0.90). Our data (to be explained later) also showed a similar result, which implies that benevolence and integrity may be treated as one factor.

Previous literature supports the two-dimension view of the trusting belief construct (i.e., trustworthiness). Barber (1983, p. 14) provides the meaning of trust with two aspects: i) the expectation of technically competent role performance (similar to
competence) and ii) expectations of fiduciary obligation and responsibility (similar to goodwill). Nooteboom (1996, p. 990) also explains trust with two aspects: a partner’s ability to perform according to agreement (competence trust) and his intentions to do so (goodwill trust). Das and Teng (2001) continue this interpretation and define trust in terms of goodwill and competence. They further define goodwill trust as good intentions and integrity of a trustee.

We consider the literature-supported three-dimension view of trusting beliefs useful for the understanding of initial trust. Nevertheless, the problem of the previous study in the context of initial trust formation (e.g., high correlation between benevolence and integrity) needs to be resolved. For this matter, we analyzed our empirical data and compared a three-factor model of initial trust (competence, benevolence, and integrity) and a two-factor model (competence and goodwill).

**ANALYSIS OF THE DIMENSIONS OF INITIAL TRUST**

The items for the initial trust scale were developed to measure customers’ initial trust in unknown online retailers. Recommended guidelines for developing measurement scales (e.g., Churchill, 1979) were used to develop the scale. Based on the definition of initial trust (measured as trusting beliefs in the early stage when no significant commitments are established), relevant items for the scale were identified from the previous studies of trust and modified to fit the ecommerce context. A series of pilot tests were conducted to finalize the items (refer to Appendix).

The items (and others such as demographic questions) were used to generate a questionnaire which was used in a series of experimental survey sessions. In a session, each participant was asked to spend about 15 to 20 minutes to navigate an assigned website, and to complete the provided questionnaire. For the survey, four online websites were selected from online search directories (e.g., Yahoo!), and they seemed to have been unknown to the participants. This was necessary because initial trust is the issue in this study.

Three hundred nineteen questionnaires were collected from the survey sessions, and three hundred two cases were finalized after the screening process. The cases were further divided into two groups (Sample A with the first half of the cases and Sample B with the second half). Sample A consisted of 63 female participants (41.7%) and 87 male (57.6%). The majority of participants (91.4%) were in the age range between 18 years old and 30. The demographics of Sample B were similar to those of Sample A: 73 female (48.3%) and 77 male (51.0%), and most participants were in the age range between 18 and 30 (92.1%).

In the following sections, each sample was used to compare the three-factor model of initial trust and the two-factor model of initial trust.

**Analysis of the Models with Sample A**

Structural equation modeling was used to examine the models. The three-factor model (Figure 1a) fit the data well (Chi-square = 35.006, df = 24, p = 0.068; GFI = 0.952; NFI = 0.951; CFI = 0.984; RMSEA = 0.055, range between 0.000 and 0.093, p = 0.381), but failed to establish discriminant validity. The correlation between benevolence and integrity (0.99) indicated that the two constructs shared too much to be of separate dimensions. The analysis of average variance extracted (AVE) also didn’t demonstrate discriminant validity (refer to Table 1a). The AVE of benevolence (0.419) is less than the squared correlations among the constructs (0.62 between competence and benevolence, 0.45 between competence and integrity, and 0.98 between benevolence and integrity). The result, therefore, implied that the three-factor model failed to establish discriminant validity (Fornell and Larcker, 1981).

The two-factor model (Figure 1b) fit the data well (Chi-square = 39.000, df = 26, p = 0.0449; GFI = 0.946; NFI = 0.946; CFI = 0.981; RMSEA = 0.058, range between 0.004 and 0.093, p = 0.339), and demonstrated discriminant validity. The AVEs were greater than the squared correlations between the two constructs. The AVE of competence was 0.64 and that of goodwill was 0.54, and both were greater than the squared correlation between competence and goodwill (0.50). This indicated evidence of discriminant validity. The two-factor model also demonstrated reliability (Cronbach’s α of competence was 0.88, and that of goodwill was 0.84) and convergent validity (AVEs greater than 0.5).

The analysis with Sample A, therefore, indicated the two-factor model of initial trust is reliable and valid while the three-factor model displayed problems with the two dimensions (benevolence and integrity).
Chi-square = 35.006, df = 24, p = 0.068; 
GFI = 0.952; NFI = 0.951; CFI = 0.984; 
RMSEA = 0.055, range between 0.000 and 0.093, p = 0.381

Chi-square = 39.000, df = 26, p = 0.0449; 
GFI = 0.946; NFI = 0.946; CFI = 0.981; 
RMSEA = 0.058, range between 0.004 and 0.093, p = 0.339

Figure 1a. Three-Factor Model of Initial Trust (Sample A)
Figure 1b. Two-Factor Model of Initial Trust (Sample A)

<table>
<thead>
<tr>
<th>Competence (α = .88)</th>
<th>Benevolence (α = .69)</th>
<th>Integrity (α = .83)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Competence</td>
<td>.642</td>
<td>.79</td>
</tr>
<tr>
<td>Benevolence</td>
<td>.6241</td>
<td>.419</td>
</tr>
<tr>
<td>Integrity</td>
<td>.4489</td>
<td>.9801</td>
</tr>
</tbody>
</table>

Cronbach’s α: in the parentheses below each construct’s name
Average Variance Extracted (AVE): Diagonal (bold)
Correlation Squared: Bottom left of the diagonal (italic)

Table 1a. Cronbach α, Correlation, AVE, and Correlation Squared
(Three-Factor Model with Sample A)

<table>
<thead>
<tr>
<th>Competence (α = .88)</th>
<th>Goodwill (α = .84)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Competence</td>
<td>.642</td>
</tr>
<tr>
<td>Goodwill</td>
<td>.5045</td>
</tr>
</tbody>
</table>

Cronbach’s α: in the parentheses below each construct’s name
Average Variance Extracted (AVE): Diagonal (bold)
Correlation Squared: Bottom left of the diagonal (italic)

Table 1b. Cronbach α, Correlation, AVE, and Correlation Squared
(Two-Factor Model with Sample A)

Analysis of the Models with Sample B

Sample B also revealed similar results. Both models (the three-factor model and the two-factor model) fit the data well as shown in Figure 2a. The fit indexes of the three-factor model indicated that the model fit the data well (Chi-square = 54.412, df = 24, p < 0.001; GFI = 0.926; NFI = 0.944; CFI = 0.968; RMSEA = 0.092, range between 0.059 and 0.125, p = 0.02). The two-factor model also fit the data well (Chi-square = 57.642, df = 26, p < 0.001; GFI = 0.918; NFI = 0.941; CFI = 0.966; RMSEA = 0.090, range between 0.059 and 0.122, p = 0.021).

The three-factor model, however, didn’t demonstrate discriminant validity. The correlation between benevolence and integrity was problematic (refer to Figure 2a), and the AVEs were less than the squared correlation between benevolence and integrity as shown in Table 2a. On the other hand, the two-factor model demonstrated discriminant validity: the AVEs were greater than the squared correlation between competence and goodwill. The two-factor model also demonstrated convergent validity (the AVE of competence was 0.67, that of goodwill was 0.67, and both were greater than the cut-off value, 0.5). The constructs of the two-dimension model displayed reliability: Cronbach’s α of competence was 0.88, and that of goodwill was also 0.88.

The analysis with Sample B also detected the problem with the three-factor model of initial trust, i.e., failure to indicate discriminant validity between benevolence and integrity.
Chi-square = 54.412, df = 24, p < 0.001; GFI = 0.926; NFI = 0.944; CFI = 0.968; RMSEA = 0.092, range between 0.059 and 0.125, p = 0.02

Chi-square = 57.642, df = 26, p < 0.001; GFI = 0.918; NFI = 0.941; CFI = 0.966; RMSEA = 0.090, range between 0.059 and 0.122, p = 0.021

Figure 2a. Three-Factor Model of Initial Trust (Sample B)

Figure 2b. Two-Factor Model of Initial Trust (Sample B)

The outcome of both analyses revealed the same results which are discussed in the next section.

**DISCUSSION AND CONCLUSION**

We compared two models of initial trust (i.e., the three-factor model and the two-factor model), and found that the three-factor model indicated a problem of discriminant validity (between benevolence and integrity). We believe that the three-factor model is backed well by previous literature (e.g., Mayer, David, and Schoorman, 1995; McKnight, Choudhury, and Kacmar, 2002). Nonetheless, we may have to search for solutions or better alternatives when we face problems of the three-factor model. Some solutions used in the previous studies include using a second-order model of trust (e.g., Bhattacherjee, 2002), or a formative-indicator model (e.g., Lowry, Vance, Moody, Beckman, and Read, 2008).

In this paper, we presented an alternative to handle initial trust in the context of ecommerce: a two-factor model of initial trust. The two-factor model can be justified with its practicality and theory support. First, the two-factor model demonstrated reliability and validity, and thus it can be used as an alternative model of initial trust to the three-factor model. Other solutions such as using a second-order model may limit a full understanding of the distinct dimensions of initial trust (i.e., competence and goodwill).

Second, it is not problematic to combine benevolence and part of integrity (honesty) into one construct (i.e., goodwill) as proposed in this study. Theoretically, benevolence may be treated separately from integrity because the former is based on altruism and the latter on utilitarianism (McKnight, Choudhury, and Kacmar, 2002). The distinction, however, may be too
weak to be detected psychometrically by trustors. Goodwill, defined as benevolence with honesty, seems to be a logically better construct, especially in the ecommerce context where the trustee is not a person. What matters to the truster is whether the trustee is honest and willing to help the trustee (i.e., goodwill). Logically, benevolence with honesty is goodwill; Benevolence without honesty is cheating; Honesty without benevolence is just a formal policy.

Third, previous studies also support the two-dimension model of trust (e.g., Barber, 1983; Das and Teng, 2001; Nooteboom, 1996). Das and Teng interpreted trust as “positive expectations regarding goodwill and competence” (p. 256), and goodwill as “one’s good faith, good intentions, and integrity” (p.256). The interpretation seems to be logical enough for the two-factor model of trust to be used without sacrificing the nature of initial trust.

Our study leaves some implications for future studies of initial trust in the context of ecommerce. This study indicated problems with the three-factor model of initial trust. Therefore, more studies are necessary to test the three-factor model. Since the three-factor model is theoretically well backed with previous studies, the validity of the model should be further tested to detect any other possible reasons (e.g., data problems).

The two factor model should also be examined further. As analyzed, the two-factor model seems to be valid and reliable. It is also logically reasonable, and is supported by previous studies even though it is less popular than the three-factor model.

Final conclusions, however, cannot be drawn yet until more studies validate the two-factor model.

This study also has implications for practitioners. The two factors of initial trust, defined in terms of competence and goodwill, are valid and reliable, and present two important aspects of customers’ initial trust that ebusinesses (e.g., online retailers) should seriously consider. Competence (e.g., trustors’ belief that the trustee has ability to make high-quality products available and to fulfill its obligations reliably) and goodwill (trustors’ beliefs that the trustee is honest and willing to serve the trustees) are among the most important issues that ebusinesses should consider to achieve customers’ initial trust which will lead to a better chance of robust relationships.

Before considering these, however, some limitations should be considered. First, the two-factor model should be further examined. Our study was designed originally to test the two-factor model (competence and goodwill, of which goodwill combines benevolence and honesty), which may have resulted in a favorable bias toward the two-factor model. To check this, previous studies or future studies that use the three-factor model may be arranged and tested as the two-factor model.

Second, the sample was collected from student participants. Even though using students is defended as the surrogate for ecommerce customers (e.g., McKnight, Choudhury, and Kacmar, 2002), students are part of the whole population of ecommerce, and thus the result of this study may be limited in the context.

Third, our study focuses on the ecommerce context, i.e., a human trustor and a non-human trustee (e.g., a company). Initial trust in the context of ecommerce may be different from that in different conditions such as a human trustor and a human trustee (e.g., romantic relationship). In the latter case, the three-factor model of initial trust may be more useful.

With the limitations considered, we hope that this study is interpreted and applied usefully in future studies.

ACKNOWLEDGMENTS
To be added.

REFERENCES


**APPENDIX**

<table>
<thead>
<tr>
<th>Two Factor¹</th>
<th>Three Factor²</th>
<th>Code</th>
<th>Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>Competence</td>
<td>Competence</td>
<td>tc01</td>
<td>I believe that the company has the competence to provide goods and/or services that I need.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>tc02</td>
<td>I believe that the goods and/or services that the company provides must be of high quality.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>tc03</td>
<td>I believe that the company has the expertise to provide mechanisms for safe and reliable transactions.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>tc04</td>
<td>I believe that the company has the capacity and resources to provide high quality goods and/or services.</td>
</tr>
<tr>
<td>Goodwill</td>
<td>Benevolence</td>
<td>tb01</td>
<td>I believe that the company is always eager to help customers.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>tb02*</td>
<td>I believe that the company is eager to provide mechanisms for safe and reliable transactions.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>tb03</td>
<td>I believe that the company is interested in customers’ welfare.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>tb04</td>
<td>I believe that the company does its best to protect customers’ privacy.</td>
</tr>
<tr>
<td>Integrity³</td>
<td></td>
<td>ti01</td>
<td>I believe that the company is honest with customers all the time.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ti02</td>
<td>I believe that the company is truly sincere in keeping promises made to customers.</td>
</tr>
</tbody>
</table>

¹ The two factor model of initial trust proposed in this study
² The three factor model of initial trust popular in the MIS field
³ Only honesty-related items were used. The predictability items were not included because this study focuses on initial trust
* Dropped in the final analysis due to a cross-loading problem in both Sample A and B.