

# Multi-dimensional Trust Building Process to Explain Customer Satisfaction on e-Commerce

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## Abstract

Advanced online environment and communication technology have made the e-commerce environments evolved rapidly. In the e-commerce area, one of the most important concepts regarding the relationship between seller and buyer is the "trust." Considering the purpose of purchase and satisfaction of website, the users may face problems such as consumer's transaction security or personal information sharing when they make transactions over web sites. It could be difficult to pursue the goal for the users to purchase product or service over online if the seller or service provider cannot establish trust to the customers. In this paper, through multi-dimensional viewpoints of trust, satisfaction can be accounted for by cue-based trust and experienced trust. The purchase intention mediates the experienced trust when online users purchase products or use online service.

## Keyword:

Cue-based Trust; Experienced Trust; e-Trust; Satisfaction; Purchase intention; e-Commerce

## 1. Introduction

In a field of e-commerce, one of the most important concepts regarding the relationship of seller-buyer is trust. With various advanced online environments and communication technologies, e-commerce environments have evolved rapidly. Online transaction process that is different from traditional transaction process achieved success in limited areas with the help of Internet technology adoption.

The wide spread of Internet users and the development of information technology have brought various changes of overall management in companies, the obvious changes in environments have resulted in the appearance of e-Commerce. In rapidly developing e-commerce environments, the trust is getting important to attract the attention of people in e-commerce [20]. In e-commerce environments, trust is a necessary condition and trust building mechanism is existed [29]. Specifically, building process and concept of trust can be more important because

personal information may be easily exposed much more than existing traditional transaction in e-commerce.

Thus, the competitive advantage of online sellers or service providers has to be achieved through building trust for customers to join their web sites. In order for customers to provide personal information, the trust building at the initial encounter stage is necessary before customers made purchase some products [30]. As well as cue-based trust at the initial stage, the experienced trust may need to be distinguished to explain customers' purchase behaviors.

Nevertheless, few studies had been done on customers' satisfaction to purchase products or services in terms of trust and purchase intention. Also, multi-dimensional studies are necessary to distinguish the cue-based trust and experienced trust to explain customers' satisfaction.

The following sections have reviewed existing literature. And then, this study established research model and hypotheses. In order to verify the research model and hypotheses, this study collected data using questionnaire. The analysis results and discussions are followed. Finally, this study concludes with a few limitations.

## 2. Literature Review

Trust has become an extremely important concept in online environments. This made many scholars study regarding trust. Since trust is a very vague terminology [21], this study examined existing studies and defined the concept of trust as the process of gaining mutual loyalty through cooperative behavior and belief of each other, and depending on the third party guarantee and promise of privacy.

The literature of trust can explain trust formation, organizational impacts, and trust building processes. Trust is built through various and complex structures that exist in organization. Also, trust is composed of tendency for affection and trust, perceived size, and perceived reputation [13, 17, 22, 23]. In addition, trust influences satisfaction and attitudinal loyalty as a result [10].

Considering influence on organization, trust is very important for relationship between organization and consumer [19]. With organization-customer's view, trust building in organization can gain various profit. Trust building between seller and sales manager can beacon in

continual trust building with customer through long-term work of salesperson [5]. Also, trust through partnership between distributor and manufacturer can invent effective profit [3].

Admittedly, most literature focused on trust measure or organizational effectiveness. Nevertheless there remains an unexplained area that classifies trust from trust building process perspective. Table 1 showed five trust building processes extracted from previous studies. So, the five components were identified as the antecedents of trust building [8].

Table 1. Trust-Building Processes

Processes	Definition
Calculative	Trustor calculates the costs and/or rewards of a target acting in an untrustworthy manner
Prediction	Trustor develops confidence that target's behavior can be predicted
Capability	Trustor assesses the target's ability to fulfill its promise
Intentionality	Trustor evaluates the target's motivations
Transference	Trustor draws on "proof sources," from which trust is transferred to the target

In this field, some studies refer to trust process through multi-dimension for trust. More to the immediate point, these studies present that trust building processes can be gradually divided. Nonetheless, trust building processes have not been examined to date. All this considered, attention was directed to multi-dimensional trust construct in web site and effectiveness of purchase intention and satisfaction for cue-based and experienced trust in this paper.

### 3. Research Model and Hypotheses

In some studies for the nature of trust, trust processes can be classified by pre-encounter and post-encounter between trustee & trustor [28]. Likewise, recently emerged cue-based trust means that trust is based on cues received from an initial encounter with a stimulus from online store [30]. The customer who uses e-commerce based on various cues from website will build cue-based trust. Moreover, cue-based trust will influence willingness to purchase intention of customers. For that reason, the cue-based trust can be antecedent of experienced trust or ongoing trust. Also, in preceding studies, trust in online service providers will be measured by distinguishing the pre/post encounter, in the way of distinguishing cue-based trust (pre-encounter) and experienced trust (post-encounter) [30].

The customer usually perceives certain degrees of risk in purchasing products or services, especially in the online situation. Customers will neither be able to touch the product directly nor test it before they purchase. In addition, customers will perceive the risk of information exposure during the payment transaction. Consequently, customers

will actually perceive high degrees of risk in online transaction [9]. Following these basic studies, this study defines the experienced trust as the trust that customers make through repeat transaction behavior from online store. Considering the fact that existing studies do not have perfect structural concept definition, the study for trust classification is worth developing constructs with various trust concepts [21].

Therefore, this paper analyzes how the cue-based trust and experienced trust are explained respectively in term of purchase timing. The first research model is established through the literature review (Figure 1).

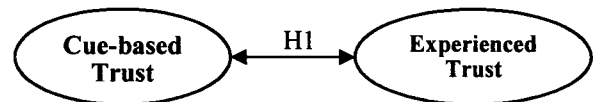


Figure 1. Research Model 1

Customers who use online store build cue-based trust through various cues before they make transactions [29]. Once cue-based trust is built, customers are going to build experienced trust based on experience from online store. For this reason, cue-based trust can precede the experienced trust.

*H1: There exists timing difference between Cue-based Trust and Experienced Trust.*

If timing difference exists between cue-based trust and experienced trust, experienced trust may not play the antecedent role for cue-based trust according to timing. Therefore, each trust construct will be different in terms of timing, and cue-based trust will be ahead of experienced trust.

*H2: Cue-based Trust is positively related Experienced Trust.*

The following figure 2 shows the second research model. Once the relationship between cue-based trust and experienced trust are clarified at the first research model, the second research model analyzes the routes that customer satisfaction is accounted for by cue-based trust and/or experienced trust with or without purchase intention.

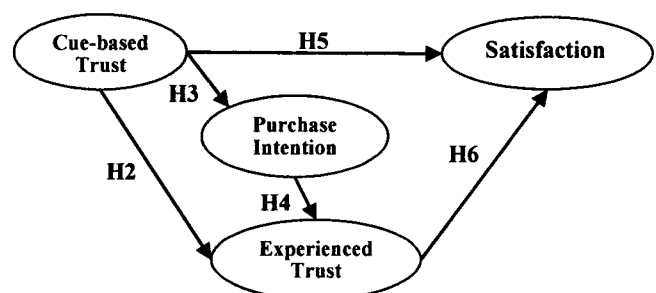


Figure 2. Research Model 2

#### 3.1 Purchase Intention

In literature review, trust is known as the concept that influences in purchase intention. In online environment, trust acts as the mediating variant for purchase intention formation [16]. The theory of reasoned action (TRA) and the theory of planned behavior presume that volitional behavior is determined by intentions to act. A major determinant of intentions, in turn, is the actor's attitudes towards the behavior [4]. As a matter of fact, if one believes that the other party is benevolent, competent, honest, and predictable, one is likely to build a purchase intention toward the online store. Trust deals with the intention to accept vulnerability based upon positive expectations of intention or behavior of another [27].

Also, trust is a willingness to rely on an exchange partner in whom one has confidence [24]. Therefore, trusting beliefs will positively impact on purchase intention. And this study established hypothesis regarding purchase intention on cue-based trust and experienced trust as follows:

*H3: Cue-based Trust is positively related with purchase intention.*

*H4: Purchase intention is positively related with experienced trust.*

### 3.2 Satisfaction

In the several proceeding studies, trust was related with customer loyalty or satisfaction. Moreover, a customer's post-purchase behavior to a brand occurs through a matching with expectations and perceived performance [7]. Overall satisfaction is "an overall evaluation based on the total purchase and consumption experience with a good or service over time" [1]. Customer satisfaction can assume to be formed through trust. Consequently, trust can be measured by cue-based trust and experienced trust for pre-encounter and post-encounter on customer satisfaction [30]. Also, trust was the core component of relationship marketing field but can assume that trust needs to satisfy customers [12]. Therefore, this study suggests that customers' evaluations before transactions will have a direct influence on their satisfaction. At the same time, experienced trust after a specific transaction will have a direct influence on their satisfaction. The hypotheses 5 and 6 are stated as follows:

*H5: Cue-based trust is positively related with user's satisfaction.*

*H6: Experienced trust is positively related with user's satisfaction.*

## 4. Research Methodology & Result

This research conducted the survey for testing hypothesis. Questionnaires are composed of 30 items and used 7 likert-scales (Cue-based Trust = 3 items, Experienced Trust = 7 items, Purchase intention = 3 items, Satisfaction = 5 items, demographic 12 items). Each item used in questionnaires is derived from existing literature (Table 2).

Table 2. Sources for Questionnaire Items

Dimensions	Sources
Cue-based trust	[30]
Experienced trust	[6, 11, 13, 14, 15, 16, 25]
Purchase Intention	[14, 17, 18]
Satisfaction	[12, 26]

The collected data were analyzed using Exploratory Factor Analysis(EFA) to check each dimension, and then convergent validity and discriminant validity were evaluated through Confirmatory Factor Analysis(CFA). After testing the validity, reliability test was conducted by internal consistency test (cronbach's  $\alpha$  ). At last, this research conducted t-test and structural equation model(SEM) to verify the proposed research models.

The population was customers with online purchasing experience, and a sample is composed of 350 undergraduates who are randomly selected. Before starting main survey, this study conducted pilot test enforcement to 30 samples. Based on the result of pilot test, this study revised survey items to improve reliability and validity. Questionnaires are distributed to undergraduate students at the classroom setting. Total 350 copies of questionnaires were distributed, and 347 copies were collected. Among the 347 copies, 16 copies were excluded because they are regarded as invalid responses. Finally, 331 copies were used for the analysis.

Table 3. Proposed Dimensions and Extracted Dimensions of measure

Proposed Dimensions	Extracted Dimensions			
	Factor	Factor Loading	Factor	Cronbach's Alpha
Cue-based Trust	Ctrust1	.865	Ctrust	0.888
	Ctrust2	.903		
	Ctrust3	.831		
Experienced Trust	Extrust1	.646	Extrust	0.860
	Extrust2	.702		
	Extrust3	.768		
	Extrust4	.715		
	Extrust5	.652		
	Extrust6	.678		
Purchase Intention	Intent1	.620	Intent	0.802
	Intent2	.881		
	Intent3	.865		
Satisfaction	SAT1	.773	SAT	0.904
	SAT3	.868		
	SAT4	.879		
	SAT5	.741		

This study checked validity for each dimension; cue-based trust, experienced trust, purchase intention, and satisfaction through two stages. The first stage is to check construct validity using EFA. The second stage is to confirm the identified factors using CFA by checking convergent validity and discriminant validity. The following table 3

summarizes the result of EFA. The table 3 shows that this study has construct validity. After EFA, two items in experienced trust and satisfaction items respectively were deleted because they are difficult to explain due to incorrect loading. Also, this study can be said to be reliable considering the fact that Cronbach's alpha values are at least 80 %.

The figure 3 shows the result of confirmatory factor analysis for checking convergent validity and discriminant validity.

Since fit measures are within suggested ranges, CFA model shows good fit. The  $\chi^2$  for CFA model shown 240.058 (d/f=98), and Q-value was 2.45. Because result of  $\chi^2$  can change sensitively through sample, the model that Q-value is below 3 recognizes that is significant [31]. Also, most model fit measures were significant (GFI=0.911, AGFI=0.877, NFI=0.928, RMSEA=0.066, CFI=0.956).

Items are loaded significantly on their intended constructs, suggesting convergent validity. Meanwhile, covariances between each construct were exposed that the unity is not included confidence interval ( $\Phi \pm 2S.E$ ) as suggested [2]. As a result, discriminant validity was also supported between each constructs.

In order to verify the hypothesis 1, paired sample t-test for cue-based trust and experienced trust was used. The result reveals that cue-based trust is different from experienced trust because the p-value (0.000) is significant (mean=0.3525, t=5.8967, d/f=330, p=.00). Thus, H1 is

suggested. Correlation between cue-based trust and experienced trust is 0.4136 and p=.000, which indicates that relationship between two trust constructs are positive.

Therefore, if cue-based trust about online store is high, we can know that degree of experienced trust building is high. The result of the second proposed model was presented as figure 4. The fit measures of proposed model are acceptable. Proposed model's  $\chi^2$  value is 244.635, and d/f was 99.

Usually, Q-value ( $\chi^2/d.f.$ ) accepts that model is suitable in 3 lows [31]. In case of proposed model, Q-value was supported that fulfill condition lower than 3 with 2.47. The other fit measures are also acceptable (GFI=0.912, AGFI=0.878, NFI=0.926, RMSEA=0.06, CFI=0.955).

H2 of path coefficient appeared as 0.411 (p =.000). Thus, H2 was supported that cue-based trust influences experienced trust's building. Path coefficient of H3 is estimated to be 0.276 (p = .000). The relationship between purchase intention and experienced trust (H4) was supported because path coefficient was 0.378 (p = .000). Customers' satisfaction through cue-based trust (H5) was also supported, estimating to be 0.140 (p = .013). H6 was supported (0.618, p = .000). Thus, experienced trust appeared more strongly effective to customer satisfaction than cue-based trust.

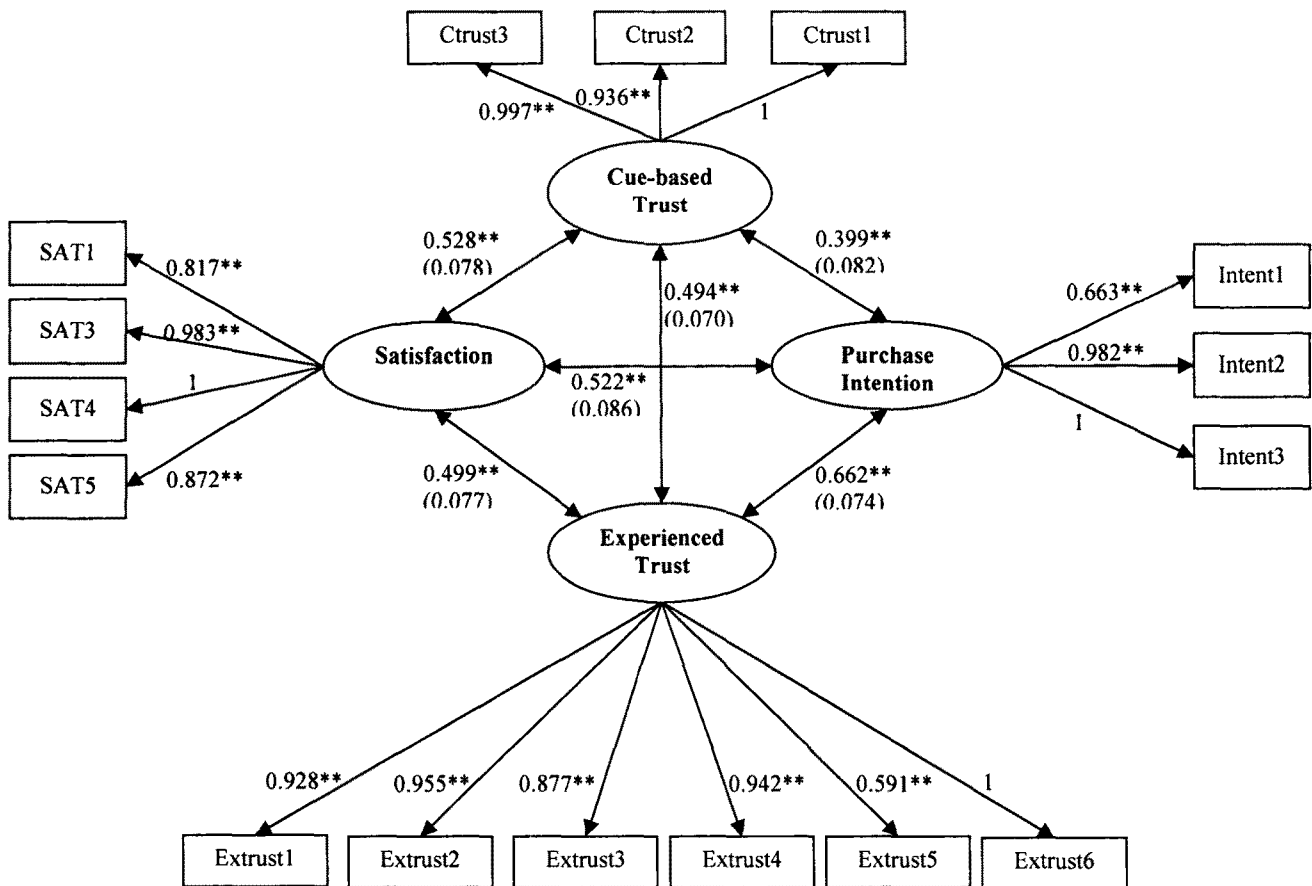


Figure 3. Confirmatory Factor Analysis

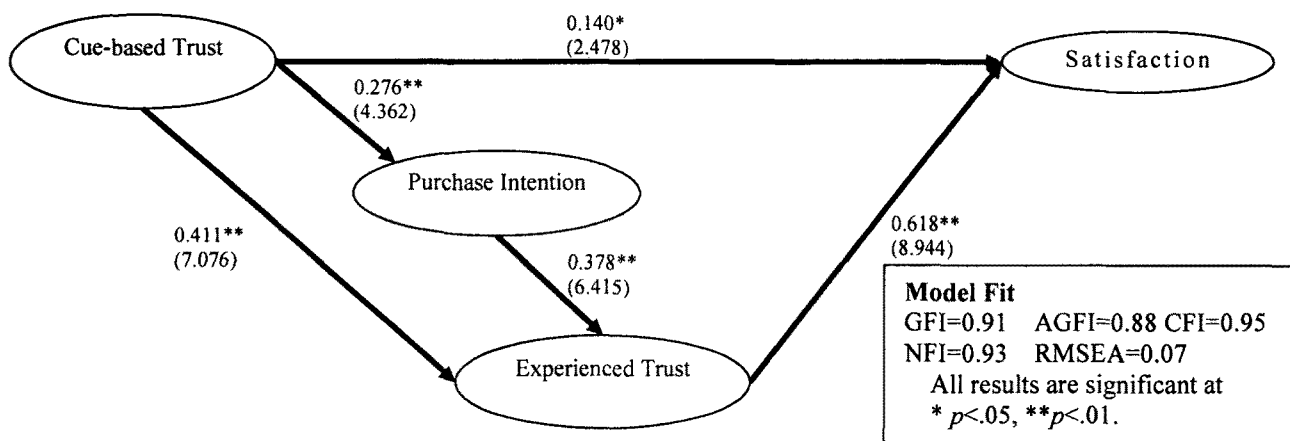


Figure 4. Result for proposed model

## 5. Discussion

Many preceding literatures have investigated trust in uni-dimension. This study divides trust in two categories, cue-based trust and experienced trust. These two trust concepts are distinct in that there are timing differences. Therefore, we present that cue-based trust and experienced trust are two different dimensions. The antecedents of cue-based trust affect experienced trust building since there is positive coefficient in H2. Therefore, the concept of cue-based trust and experienced trust is more reasonable than traditional concept of trust in preceding studies.

Consequently, the way of distinguishing cue-based trust and experienced trust is indeed important. At the same point, the result can appear to be different according to the way of how to define the two trust concepts. In this study, we define that differences in the two concepts is timing difference between cue-based trust and experienced trust through customer's stimuli and experienced trust before or after purchase. Based on these definitions, we conclude that difference exist between cue-based trust and experienced trust.

Expanding construct for the two types of trust, purchase intention, and satisfaction, preceding studies presented that trust related customer satisfaction through purchase experience. This study shows that trust built by cues which is acquired by pre-purchase visitors will result in satisfaction. As shown in the result of H5 and H6, each trust concepts affect customer satisfaction. And experienced trust affects customer satisfaction more strongly in that there is a higher coefficient. Therefore, experienced trust is more desirable than cue-based trust. In real world, cue-based trust affects customer satisfaction, and cue-based trust is the pre-stage of experienced trust.

Also, we can know the process between cue-based trust and experienced trust through purchase intention by the results of H3, H4. Therefore, cue-based trust affects customer satisfaction through purchase intention, and experienced trust affect customer satisfaction directly.

## 6. Conclusion and Future Study

This study detached concepts of trust, discovery of high competition effect in on-line store. Cue-based trust has positive influence on experienced trust building directly. For trust building to online store, result of this research suggests that building cue-based trust should be managed necessarily before experienced trust building. Second, as cue-based trust through purchase intention influenced experienced trust building indirectly. Therefore, we can do suggest that purchase intention's formation must become consideration for more strong trust relation's building. Third, experienced trust strongly affects the satisfaction of online customers to a greater extent than cue-based trust. Otherwise, in trust building mechanism, cue-based trust's effectiveness about satisfaction is feeblers than experienced trust, but cue-based trust must consider that the stage of initial customer purchase.

According to the result, we suggest that we need future study about the differences of culture and customers' characteristics between different countries about trust mechanism that is presented in this research. For example, in case of this research, online shop need to study since there is group specific's difference because various ages of users from 10 to over 40. Also, we propose that we need research on comparison between the countries regarding degree of on-line environment development.

This study has limitations. For online environment through operational definition, in the technical viewpoints, this research has limitation to be difficult to adapt to different country because of the levels of IT infrastructures. Therefore, if the analysis is used to the other countries, it needs some modifications considering distinction in IT environment.

This study has found some theoretical implications. First, in order to illustrate experienced trust or overall trust in on-line, result about cue-based trust's antecedent role was presented empirically. Second, through imported cue-based trust and experienced trust, this study presented viewpoint of trust building process in online store. Thereby, this study presented theoretical framework that confirm detached trust dimensions of cue-based trust and experienced trust as is different from trust that is uni-dimensional presented in preceding studies.

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