

# PERSONALITY BASED PSYCHOLOGICAL ANTECEDENTS OF CONSUMERS' TRUST IN E-COMMERCE

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## Abstract

*Online trust is one of the main determinants of the success of e-retailers and much research has dealt with website features triggering consumer trust to them. Another stream of research focuses on the psychological antecedents to online trust; i.e., what "happens" in the consumer's mind before or while a person decides to trust an e-retailer? So far, each effort has focused on only a few selected aspects of this trust formation process. Only few studies have attempted to identify major personality based psychological antecedents of trust. Our work identified the relative importance of the personality based psychological antecedents of trust in technology adoption and e-retailing. We develop a model that incorporates the Big Five personality traits (Extraversion, Neuroticism, Agreeableness, Conscientiousness and Openness to experience), the most widely accepted framework for personality research in psychology, as well as determinants of trust in our model. We empirically test our model using a survey-based approach sampling 140 university students. Possible limitations of research are also discussed.*

**Keywords:** Trust, E-commerce, Psychological, Personality Traits, Extraversion, Neuroticism, Agreeableness, Conscientiousness, Openness to Experience.

## 1. INTRODUCTION

The Internet has made it possible to conduct business-to-consumer transactions across an open network (Ford, 1998), but although it has many benefits it also raises many concerns. Currently the most important ones with respect to e-commerce and e-retailing are security, privacy, and consumer protection issues. The preoccupation with these has resulted in the fact that the current dimensions of e-commerce and e-retailing are still smaller than expected.

These can all be reduced to consumers' lack of trust in e-retailing (Hoffman et al., 1999). Trust is central to any commercial transaction, whether conducted in the conventional way (in a retail outlet) or over the Internet (by means of a website). Trust can trigger increased purchasing to the extent that it reduces the complexity and perceived risks of purchasing (Geffen, 2000). Therefore, only if the consumer trusts the retailer will he or she feel comfortable when purchasing a product, giving personal information, and using payment methods other than cash. In brief, trust increases the probability of (re)purchase. Without consumer trust, e-retailing will never reach its full economic potential (Ferraro, 1998). Trust together with economic value and perceived risk is a strong determinant of online consumer behavior (Azam and Qiang, 2012). Only recently has research on factors influencing consumer trust in e-retailing been conducted (Koufaris and Hampton-Sosa, 2004).

Most has been on the effects of situational factors; i.e., the design of the website and the use of brand names or trust seals (Endeshaw, 2001; Lynch et al., 2001). So far, no study has attempted to identify what the consumer thinks before or while deciding to trust; i.e., what are the psychological determinants of trust in e-retailing?

Trust is a much more important in an online situation than in an offline situation. Online, the parties do not have direct physical contact and the product cannot be seen or touched. The buyer does not even know if the retailer actually owns the product and the seller cannot always be sure that payment will be received. In fact neither partner can be sure. In a brick-and-mortar shop, the customer can see and try out the product, pay, and leave owning the product. The seller can check the customer's payment immediately. Thus, trust is generally not necessary. In the online relationship, however, no sale would be made without at least some trust.

Trust, according to Rousseau, is defined as: ". . . a psychological state comprising the intention to accept vulnerability based upon positive expectations of the intentions or behavior of another" (1998).

This definition depicts trust as a mindset, which encourages a person to take risk because of positive expectations. But, how exactly are these positive expectations formed? Is trust determined by a person's personality or is a more

cognitive? Is trust also influenced by personality traits? Here an attempt to identify the set of psychological antecedents of consumer trust in e-commerce is made.

This paper is organized as follows. Section 2 outlines the personality-based factors and technology adoption and then explains personality-based factors and trust in e-commerce context that is at the base of the proposed extended model. Section 3 describes conceptual model, theory and hypothesis of the proposed model. Section 4 explains research model and hypothesis. The research methodology for the conceptual model, research analysis and results are given in section 5. Finally, section 6 describes conclusion and possible limitations of study

## **2. PERSONALITY-BASED FACTORS AND TECHNOLOGY ADOPTION**

To some extent, technology adoption models have recognized the value of personality related variables in predicting intentions to use new technology. Personality traits are generally conceptualized as underlying individual characteristics that influence human behavior in a consistent manner across a variety of situations. Numerous studies exist in IS (typically within the nomological network of TAM) that incorporate traits such as self efficacy (Compeau and Higgins, 1995), personal innovativeness (Agarwal and Prasad, 1998), playfulness (Webster and Martocchio, 1992), or cognitive absorption (Agarwal and Karahanna, 2000). Notably, there is significant concern in psychology over the use of personality traits as narrow as the ones previously employed in IS studies in the technology adoption domain (Judge and Bono, 2001). In particular, research on narrow personality traits has been subjected to criticism concerning the discriminant validity of the various traits.

Further, personality researchers have questioned whether domain-specific personality traits, such as those specific to technology adoption, can really be considered personality traits since they do not examine the impact of these traits beyond a specific, narrow range of outcome behaviors. As a result, we suggest the use of broad personality traits, such as the Big Five, that have been validated and used to predict behavior across situations in a large number of empirical studies and meta-analyses (Judge et al., 2002).

In the context of trust, we are unaware of studies that have considered the impact of broad personality traits. Narrower personality traits have been used (Tam et al., 2002) that examined motivators that can induce consumers to disclose personal information. Those motivators include intrinsic components (pleasure, novelty, altruism) and extrinsic factors (monetary and time savings, self-enhancement, and social adjustment). The applicability of those narrow trait factors to trust in e-commerce, however, is questionable as a user is not explicitly asked to disclose location information—it is inherent to the system.

Thus, in order to examine the role of personality traits that may impact trust and adoption behavior in e-commerce, we propose the use of the Big Five personality framework. Within the field of psychology, the Big Five (McCrae and Costa, 1987) is the most widely accepted personality taxonomy. It consists of five factors: Extraversion, Neuroticism, Agreeableness, Conscientiousness and Openness to experience which have been meta-analytically found to subsume all other personality traits (McCrae and Costa, 1987). This taxonomy has contributed substantially to explaining human behavior in a variety of situations. For instance, job performance, job satisfaction, training performance and career success are predicted by Big Five traits.

### **2.1 Personality-based factors and Trust in E-commerce**

For an effective acceptance of e-purchasing, e-retailers need to understand the consumers' sensitivity towards the e-commerce trust and its antecedents which is totally different from brick-mortar ones (Azam et al, 2012). In this study we use following personality traits as psychological antecedents of trust.

Extraversion can be defined as being focused on the outside world. Extraverts like to be in other people's company. Because they are focused on the outside world, are more sociable, carefree, and adapt to change faster, it can be argued that they will be more likely to trust e-retailers, especially with respect to information practices.

Neuroticism is characterized by emotional instability, pessimism, and low self-esteem. People high in neuroticism often perceive that they have an unfavorable position in transaction processes. They feel that they have no control. Perceived low control is hypothesized to have a negative influence on trust.

People scoring high on agreeableness have positive beliefs toward others and appreciate their values and convictions. In contrast, people who score low on agreeableness have little respect for other's interests and well-being and are less

concerned with social norms. It is thought that people having respect for others also believe that others have respect for them. Therefore, people high in agreeableness are expected to be more trustful.

People scoring high on conscientiousness are thought to be responsible, dutiful, and trustworthy. In addition, they tend to be more serious and cautious in making decisions. People who score low on conscientiousness will be more likely to trust and hence be more trustful. Alternatively, people scoring high on conscientiousness expect others to be conscientious also and hence they are more likely to trust. Here, however, we assume that the first argument will hold.

Openness to experience is characterized by open mindedness. People high in this are more likely to make liberal decisions, in contrast to people who are low in it and tend to make more conservative and moderate decisions. More openness leads to more willingness to embrace new concepts and be more careless with respect to new situations and experiences. Thus, people with a high openness to experience are more likely to trust.

### 3. RESEARCH MODEL AND HYPOTHESES

#### Personality Traits

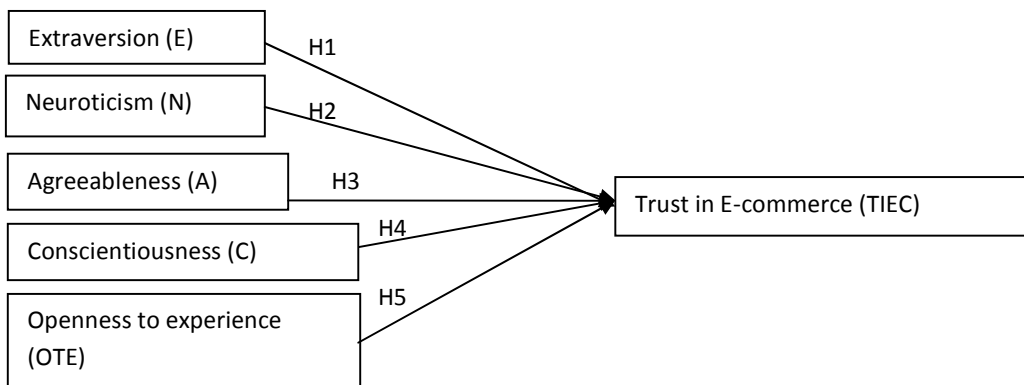


Figure 1: Proposed research model

The hypotheses embodied in the model are listed below.

- H1: Extraversion a personality –based factor positively influences consumers’ trust in e-commerce.
- H2: Neuroticism a personality –based factor negatively influences consumers’ trust in e-commerce.
- H3: Agreeableness a personality –based factor positively influences consumers’ trust in e-commerce.
- H4: Conscientiousness a personality –based factor negatively influences consumers’ trust in e-commerce.
- H5: Openness to experience a personality –based factor positively influences consumers’ trust in e-commerce.

### 4. Research Methodology

In this section, a description of the data and methods utilized in the analysis are provided.

#### 4.1 Survey instrument

A survey questionnaire was developed based on the characteristics of the selected factors referred to in the previous sections. The factors are related to the online consumers’ personality traits that enhance consumers’ trust in e-commerce, all elicited by using a seven point Likert scale ranging from 1 “strongly disagree” through to 7 “strongly agree”. Some questions were, however, posed in an ordinal or nominal format a diverse range of variables relating to these factors was identified from a review of the literature, and was modified and incorporated into a new questionnaire. The questionnaire was confirmed through discussion with two university professors and PhD candidates. Two preliminary tests of the questionnaire were conducted. In the first test, understanding of the description of variables was tested on 10 participants, and in the second, construct validity of the questionnaire was examined with data from 24 MBA students in College of Economy and Business Administration, Chongqing

University. Reliability was examined using Cronbach's  $\alpha$  values for each construct. The findings showed that the Cronbach's  $\alpha$  value of all of constructs were 0.79 to 0.91, demonstrating a good reliability. The questionnaire was finalized after refinement of the variables and the clarification of ambiguities identified in the test (appendix A).

#### 4.2 Survey and data collection

In this study, group of respondents were selected on the grounds of their being frequent purchasers in electronic commerce or having knowledge of product and service characteristics in electronic commerce. The sampling strategy was to select respondents belonging to these specialized customer group from broader target. To assess the research model in Fig. 1, a self-administered survey approach was used to collect data from graduate and post graduate students at College of Economy and Business Administration, Chongqing University PR China. A survey questionnaire was put up to collect the information via email.

The reason to use the survey questionnaire is that its inexpensiveness, less time consumption and the ability to provide both quantitative scale and qualitative data from a large research sample. The sampling unit of this study is believed to be the potential e-shoppers. The young generation is the major group participating in e-shopping because university students are amongst the adult population to whom internet is easily accessible and is a daily routine. A total 180 respondents attended. For final analysis, 140 respondents out of 145 questionnaires (male 65, female 75) were used. Five questionnaires were excluded owing to having numerous missing answers. In addition, Table 1 shows the demographic characteristics of the respondents.

	No. of Respondents		
<b><u>Gender</u></b>		<b><u>Purchasing Experience in EC</u></b>	
Male	65	YES	137
Female	75	NO	3
<b><u>Age Distribution</u></b>		<b><u>Purchasing Items</u></b>	Books, Clothes, Software, Music CDs, Movies, Sports equipment and other (includes phone cards, train tickets and hardware).
18-22	30		
23-28	63		
28-above	47		
<b><u>Internet use</u></b>			
1-3 years	5		
3-7 years	55		
Above 7 years	80		

Table 1: Demographic characteristic of the respondents

#### 4.3 Data Analysis

Our data was analyzed by partial least squares (PLS), a structural equation modeling (SEM) technique. PLS employs a component-based approach for estimation purposes (Lohmoller, 1988). Typically, PLS is better suited for explaining complex relationships. PLS Graph, version 3.0, was used for our analysis. The bootstrap re-sampling method (500 re-samples) was employed to determine the significance of the paths within the structural model. We investigated the common method bias by employing Harman's one-factor test (Podsakoff et al., 2003). This test found no significant bias in our dataset that were due to the survey methodology.

#### 4.4 Measurement Validation

We assessed reliability using internal consistency scores, calculated by the composite reliability scores. Internal consistencies of all variables are acceptable because they all exceed 0.80 (descriptive statistics and composite reliability are shown in Table 2). Convergent and discriminant validity is adequate

- (i) When the PLS indicators load much higher on their hypothesized factor than on other factors (own loadings are higher than cross loadings) and
- (ii) When the square root of each factor's average variance extracted (AVE) is larger than its correlations with other factors (Chin, 1998).

The first test was performed by the use of the PLS confirmatory factor analysis procedure where all items loaded well on their respective factors. All loadings are much higher than all cross loadings. Factor loadings and cross-loadings for the multi-item measures are omitted for brevity. Second, as shown in Table 2, the square root of all AVEs is much larger than all other cross correlations. Jointly, these findings suggest adequate convergent and discriminant validity.

Constructs	E	N	A	C	O TE	TIEC
<b>Extraversion (E)</b>	0.93					
<b>Neuroticism (N)</b>	0.74	0.88				
<b>Agreeableness (A)</b>	0.53	0.61	0.9			
<b>Conscientiousness (C)</b>	0.66	0.70	0.76	0.92		
<b>Openness to experience (OTE)</b>	0.60	0.63	0.67	0.81	0.95	
<b>Trust in E-commerce (TIEC)</b>	0.51	0.54	0.58	0.59	0.64	0.96
<b>Mean</b>	5.25	5.86	5.63	6.38	6.49	6.72
<b>St. Dev.</b>	1.12	1.09	1.37	1.21	1.19	1.31
<b>Construct Reliability</b>	0.90	0.88	0.83	0.91	0.87	0.95

Note: Values on the diagonal are the square-root of the average variance extracted for each construct (AVE).

Table 2: Descriptive statistics and Correlation matrix

#### 4.5 Testing the structure model

Our overall analysis results are shown in table 3. The standardized PLS path coefficients and R2 values are shown in the table.

As assumed, extraversion (E) significantly affects trust in e-commerce (TIEC), accounting for 50% of the variance. Neuroticism (N) (path = 0.29) is significantly related to trust in e-commerce (TIEC) and collectively explains 49% of its variance.

Overall agreeableness (A) (path = 0.39) and conscientiousness (C) (path= 0.25) significantly effects trust in e-commerce (TIEC) with the variance explanation of 50% and 55% respectively. Trust in e-commerce (TIEC) is significantly influenced by openness to experience (OTE) (path = 0.15) which accounts for 45% of the dependent variable's variance.

Hypothesis	Casual Paths	R2	t-value
<b>H1</b>	E→TIEC	0.50	0.31***
<b>H2</b>	N→ TIEC	0.49	0.49***
<b>H3</b>	A→ TIEC	0.55	0.39***
<b>H4</b>	C→ TIEC	0.50	0.25***
<b>H5</b>	OTE→ TIEC	0.45	0.15***

\* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$

Table 3: PLS results for causal paths (n=140)

## 5. DISCUSSION

The Big Five personality traits, the most widely accepted framework for personality research in psychology, plays a role in explaining the trust in e-commerce. The findings of this study provide a viability test examining which personality variables play a determining role in the formation of trust in the context of e-commerce. Multiple conclusions can be drawn from the study.

Our research supports H1 that extroverted individuals are energetic, outgoing and dominant in social situations therefore more likely to trust e-commerce and less likely voice strong privacy concerns. A plausible explanation could be that extroverted individuals are more likely to make efforts to be actively involved and interested in opportunities to provide and obtain information. They are more involved in online activities and trust on online transactions.

Current study supports individuals that are neurotic (emotionally instable) less likely trust in e-commerce as he or she has a tendency to experience more threats and anxiety than do emotionally stable individuals. Furthermore, these individuals tend to be insecure and highly concerned about potential failures or risks. Due to their worrisome nature and their tendency to focus on negative events and possible losses, we expect highly neurotic or emotionally unstable individuals to be worried and concerned about privacy, and thus more hesitant in adopting e-commerce. In other words, they may be more likely to focus on the associated risks rather than the potential benefits of using the technology (online shopping). As a result, neurotic individuals are likely to perceive threats to their privacy as stronger than those who are less neurotic.

Results show that more agreeable individuals who are generally more likely to trust their social environment and who have a tendency to strive for harmony in their social relationships expressed fewer concerns about security hence trust in e-commerce thus supporting H3. In other words, agreeable individuals are less likely to develop distrust in their service providers and may assume that those service providers are also inclined to maintain a trust-based relationship. Openness to new experience predisposes individuals to try and experience new things. Individuals high on openness report lower levels of concern about privacy related issues, demonstrating that their tendency to seek new experiences influences their evaluation of possible risks.

Past research has recognized that conscientious persons give attention to detail, and effort to exact in everything they do. Conscientiousness is the most widely studied personality trait. The result of this study supports that conscientious negatively influences consumers' online trust or trust in e-commerce. This study has demonstrated, at least for this sample, that the conscientious individuals and their focus on planning and detail may lead them to perceive e-commerce as an opportunity to retrieve information necessary to succeed, complete tasks, and to be detail-oriented. As a result, we anticipate that highly conscientious individuals will be less concerned about privacy than those who are less conscientious. As a consequence, we expect conscientious individuals to have little to no privacy concerns pertaining to the adoption of e-commerce.

Current study supports H5 that openness to experience positively influences consumers' trust in e-commerce. A possible explanation is that highly open individuals are generally more likely to view advantages of trying new things over disadvantages and risks, hence trust easily. Therefore we anticipate that openness to experience relates negatively to privacy concerns, and positively to trust in e-commerce. Individuals high on openness report lower levels of concern about privacy related issues, demonstrating that their tendency to seek new experiences influences their evaluation of possible risks.

Summarizing, personality based psychological factors played a role in developing consumer trust in e-retailing. The question that remains is: how far are these results applicable to an individual e-retailer? Clearly, trust in the e-commerce is a requirement to trusting an individual e-retailer. Thus, each individual e-retailer should contribute to improving customers' perception of e-retailing in general. Given this we can also assume that personality based psychological factors would probably explain trust in individual retailers in the similar way as in e-commerce. We believe that the factors of this study form the basis of trust in e-retailing and are thus applicable to all e-retailers.

This study has attempted to shed some light on the personality based psychological antecedents of trust in e-retailing. According to our results, personality traits like Extraversion, Neuroticism, Agreeableness, Conscientiousness and

Openness to experience are the main determinants of consumer trust in e-retailing. Consumers do behave, after all, rationally.

## 6. LIMITATIONS

Although our findings provide meaningful implications for online stores, our study has few limitations.

Our model considers five personality based psychological antecedents of trust as factors affecting on consumers' trust in e-commerce, since other factors such propensity to trust was not included, in future research this factor can also be included.

Although this study has been conducted at the individual level of analysis, our sample data was collected from university students. So we may not exclude the possibility that the lack of consumer variance may have affected our result.

Finally, in order to test causal relationships among constructs, a longitudinal study may be an alternative. In addition, future researchers may be able to survey respondents from different countries and carry out cross-cultural comparisons.

## 7. AUTHOR BIOGRAPHY

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**Appendix A****Extraversion (E) items by Martinez and John (1998)**

I see myself as someone who . . .

1. is talkative
2. is reserved
3. is full of energy
4. generates a lot of enthusiasm
5. tends to be quiet
6. has an assertive personality
7. is sometimes shy, inhibited
8. is outgoing, sociable

**Neuroticism (N) items by Martinez and John (1998)**

I see myself as someone who . . .

1. is depressed, blue
2. is relaxed, handles stress well
3. can be tense
4. worries a lot
5. is emotionally stable, not easily upset
6. can be moody
7. remains calm in tense situations
8. gets nervous easily

**Agreeableness (A) items by Martinez and John (1998)**

I see myself as someone who . . . n

1. tends to find fault with others
2. is helpful and unselfish with others
3. starts quarrels with others
4. has a forgiving nature
5. is generally trusting
6. can be cold and aloof
7. is considerate and kind to almost everyone
8. is sometimes rude to others
9. likes to cooperate with others

**Conscientiousness (C) items by Martinez and John (1998)**

I see myself as someone who . . .

1. does a thorough job
2. can be somewhat careless
3. is a reliable worker
4. tends to be disorganized
5. tends to be lazy
6. perseveres until the task is finished
7. does things efficiently
8. makes plans and follows through with them
9. is easily distracted

**Openness to experience (OTE) items by Martinez and John (1998)**

I see myself as someone who . . .

1. is original, comes up with new ideas
2. is curious about many different things
3. is ingenious, a deep thinker
4. has an active imagination
5. is inventive

6. values artistic, aesthetic experiences
7. prefers work that is routine
8. likes to reflect, play with ideas
9. has few artistic interests
10. is sophisticated in art, music, or literature

**Trust in e-commerce (TIEC) items by Walczuch and Lundgren (2004)**

1. Generally speaking, e-retailers are not trustworthy (reverse)
2. I feel that after I make a credit card payment, the e-retailer will deny that I paid and thus not send me the ordered product/service (reverse)
3. I am concerned about the technical skills and knowledge with respect to security of most e-retailers (reverse)
4. I expect that most e-retailers will refrain from unfair advantage taking
5. I am comfortable buying something from an Internet store
6. I rather expect a traditional retailer than an e-retailer to carry out his/her contractual agreements (reverse)
7. There exists a lot of unfair and untrustful advertising on the Internet (reverse)
8. I trust e-retailers with respect to my credit card information
9. I am worried that my privacy will be invaded if I buy something from an e-retailer (reverse)