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Psychological Antecedents of Institution-Based Consumer Trust in E-Retailing

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Abstract

Whereas many research studies have focused on website features triggering consumer trust in e-retailing, so far no study has attempted to identify all psychological antecedents of trust, i.e. what exactly “happens” in the consumer’s mind before or while the person decides to trust e-retailing. In contrast to other papers on the antecedents of trusting beliefs in specific e-retailing stores, this paper will identify the antecedents of institution-based trust in e-retailing, i.e. trust people have in e-retailing in general. Personality, perception, attitude, experience and knowledge were hypothesized to influence institution-based consumer trust in e-retailing. According to the results of this study, perception based factors are the main determinants of consumer trust in e-retailing. Consumers do behave, after all, rational.

Keywords: e-retailing, consumer trust, institution-based trust, psychological determinants, antecedents to trust

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1. Introduction

The Internet has made it possible to conduct business-to-consumer transactions across an open network [19]. Although the open network has many benefits it also raises many concerns. Currently the most important concerns of people with respect to e-commerce and e-retailing are security, privacy and consumer protection issues. The preoccupation with these issues has resulted in the fact that the current dimensions of e-commerce and e-retailing are still smaller than expected [10; 28].

Research has found that the formerly mentioned concerns — privacy, security and consumer protection — can all be reduced to consumers' lack of trust in e-retailing [16; 27]. Trust is central to any commercial transaction, whether conducted in the conventional way (i.e. in a retail outlet) or over the Internet (i.e. by means of a web-site). Trust can trigger increased purchasing to the extent that it reduces the complexity and perceived risks of online purchasing [23; 30; 46]. Therefore, only if the consumer trusts the retailer he will feel free to purchase a product, give away personal information and use payment methods other than cash. In brief, trust increases the probability of (re)purchase.

Several authors believe that without consumer trust, e-retailing will never reach its full economic potential [18; 29].

Only recently, research on factors influencing consumer trust in e-retailing has been conducted. Most of this recent research has been on the effects of situational factors on trust in e-retailing, i.e. the design of the website, and the use of brand names or of trust seals [17; 33; 37; 38; 47; 50-52; 54; 55]. So far no study has attempted to identify what exactly “happens” in the consumer's mind before or while the person decides to trust. In other words: What are the psychological determinants of trust in e-retailing? 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” [53].

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 somebody's personality or is a more cognitive, perception-based explanation appropriate? Another source of trust could be the acquired knowledge of prior experience with e-retailing. This paper is an

attempt to identify the entire set of psychological antecedents of consumer trust in e-retailing. In contrast to other papers on the antecedents of trusting beliefs in or trustworthiness of specific e-retailing stores [29; 30], this paper will identify the antecedents of institution-based consumer trust in e-retailing, i.e. trust people have in e-retailing in general. A recent study on the multidimensional nature of trust has identified institution-based trust as an antecedent to trusting beliefs [41]. For the remainder of this paper we will use (consumer) trust in retailing to mean institution-based consumer trust in e-retailing to improve the readability.

Firstly, the psychological antecedents tested in this research will be defined. Thereafter, the research methodology will be depicted. The next section will show the research results. Finally, the findings will be discussed and a conclusion will be drawn.

2. Psychological antecedents of consumer trust in e-retailing

To identify the psychological antecedents of consumer trust in e-retailing, the psychological factors that have an influence on trust in general have to be identified. Due to the fact that there is no comprehensive theory available, several theories are combined to form a complete picture of all psychological factors influencing trust. The factors are divided into the following five categories:

- Personality-based factors;
- Perception-based factors;
- Experience-based factors;
- Knowledge-based factors; and
- Attitude.

The above-mentioned categories are split up into several factors (see Appendix 1). Figure 1 depicts a graphical representation of the hypothesized effects.

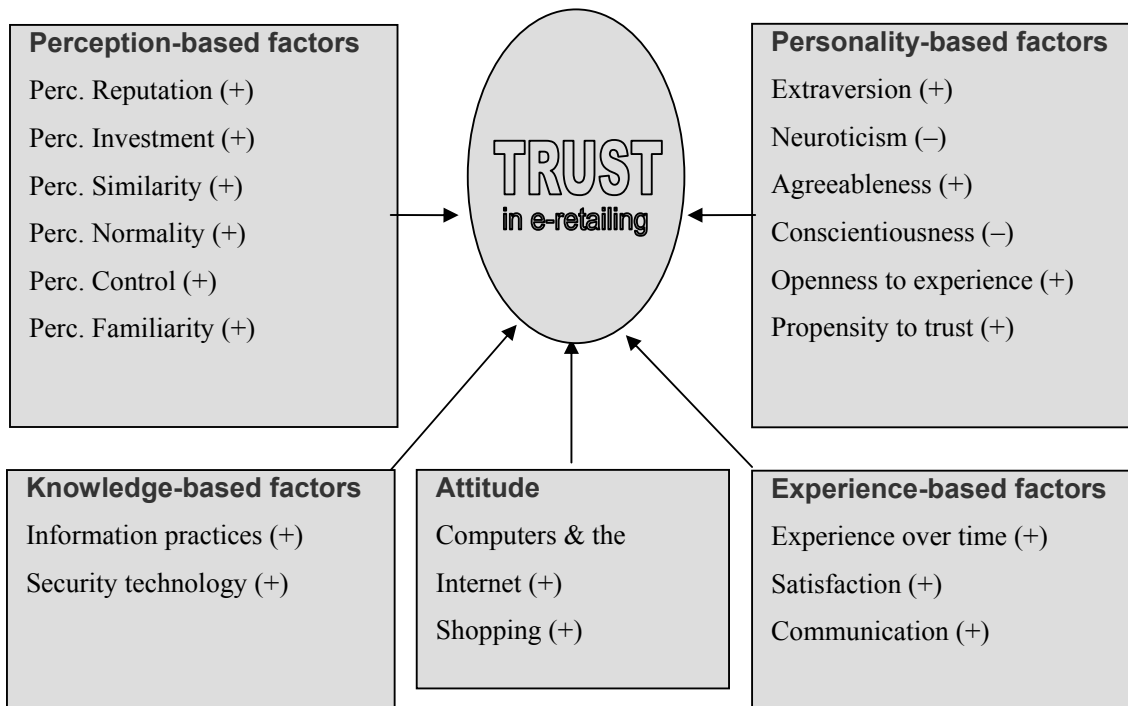


Figure 1: Psychological antecedents of consumer trust in e-retailing

2.1. Personality-based factors

According to Dibb et al [14], personality consists of “all the internal traits and behaviors that make a person unique”. A number of competing views exist as to what the most important dimensions of a person’s personality are [8; 25]. In this research use is made of one of the most accepted theories, namely Costa and McCrae’s [11] trait-theory, which contains the following five traits:

1. Extraversion;
2. Neuroticism;
3. Agreeableness;
4. Conscientiousness; and
5. Openness to experience.

Next to these five factors, we added as a sixth personality trait “Propensity to Trust” due to its obvious positive relationship with the dependent variable trust. How these six traits are related to consumer trust will now be specified in detail.

Extraversion can be defined as being focused on the outside world. Extrovert people like to be in other people’s company. Because extrovert people are focused on the outside world, are more sociable,

careless and adapt to change faster [3; 8; 25], 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 [3; 49]. They feel that they have no control. Perceived low control, which comes with neuroticism, is hypothesized to have a negative influence on trust.

People scoring high on agreeableness have positive beliefs toward other people and appreciate other people's values and convictions. In contrast, people who score low on agreeableness have little respect for other people'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 [3; 49].

Furthermore, 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 more trustful [3; 49]. Alternatively, it can also be argued that people scoring high on conscientiousness expect other people to be conscientious as well and hence they are more likely to trust. In this research, however, we hypothesize the first argument to hold.

Openness to experience is characterized by open-mindedness. People high in openness to experience are more likely to make liberal decisions, in contrast to people who are low in openness to experience who tend to make more conservative and moderate decisions. More openness leads to more willingness to embrace new concepts and being more careless with respect to new situations and experiences [49]. Thus, people with a high openness to experience are more likely to trust.

Propensity to trust indicates the likelihood of a person to trust. Obviously, the higher somebody's propensity to trust, the more likely he is to trust [1; 4; 9; 31; 39; 40]. This should also apply to trust in e-retailing. Propensity to trust has also been called disposition to trust by other authors [23; 41].

To put it all in a nutshell, it is assumed that personality traits influence trust in general: some do so in a negative, and some in a positive way. As mentioned before, parallels exist between trust in general and consumer trust in e-retailing. This leads to the formulation of hypothesis 1.

H₁: Personality-based factors such as extraversion, neuroticism, agreeableness, conscientiousness, openness to experience and propensity to trust influence consumer trust in e-retailing.

2.2. Perception-based factors

Several scholars [12; 21; 29; 34; 42; 43; 57] have investigated the influence of consumer perception of certain aspects related to e-retailers on trust. Here, the various theories are combined and six factors that have been shown to have an influence on trust are discussed.

1. Perceived reputation of e-retailer;
2. Perceived investment of e-retailer;
3. Perceived similarity of e-retailer;
4. Perceived normality of e-retailer;
5. Perceived control of consumer; and
6. Perceived familiarity of consumer.

Reputation is based on second hand information about a (potential) seller's traits [42; 57]. Second hand information is not as assuring as first hand information, which is collected during a history of experiences with e-retailing. However, the reputation of an e-retailer is likely to influence a buyer's trust position towards this e-retailer [20; 26; 29; 30; 32]. According to McKnight et al [42], sellers with a good reputation are seen as trustworthy, and those with a bad reputation as untrustworthy. According to Mitra et al. [44], information sources can be classified into three categories, which are information from (1) consumer dominated sources (word of mouth; information from friends and relatives); (2) neutral sources; and (3) marketer dominated sources (items are ordered according to their level of importance). If perceived reputation has an influence on consumer trust in e-retailing, then second hand information is supposed to have an influence on consumer trust in e-retailing as well. Ba [5] calls trust built upon information from consumer-dominated sources "transference based trust", and he explains that if a buyer receives second hand information from a trusted person he will use this information to define the e-retailer in terms of trustworthiness. Likewise, positive information from marketer-dominated sources positively influences consumer trust in e-retailing.

Perceived organizational investment is the perceived amount of resources a seller has invested in his business. Perceived investment is believed to have an influence on consumer trust in e-retailing. The

higher the losses a seller will incur if he violates consumer trust, the less likely he is to actually violate consumer trust and hence the higher consumers' perceived trustworthiness of the seller [21; 26; 29; 30]. Therefore, a positive relationship between perceived investment and trust is hypothesized.

Perceived similarity means that one perceives the other as being similar to oneself. Perceived similarity is believed to have a positive influence on trust, because people grouped together tend to have the same goals and values and therefore tend to perceive each other positively. Thus, consumers who perceive Internet merchants to be similar to themselves will be more likely to trust these merchants [7; 42].

Perceived normality is defined as the consumer's perception that things are normal or 'common'. Situational normality depicts a properly ordered setting that seems to enable a successful interaction. An individual who perceives a situation as being normal will feel more comfortable and hence will be more trustful toward the other party [42].

Deutsch [13] defines control as "the consumer's perceived power to influence the other person's outcome and hence to reduce any incentive he may have to engage in untrustworthy behavior". Das and Teng [12] and McKnight et al [42] have identified three control mechanisms, i.e. regulations, guarantees, and legal recourse, which increase consumers' perceived control and hence their confidence in e-retailing. When a consumer feels that she has some power to influence the outcome of the transactions with the e-retailers, she is more likely to expect trustworthy behavior and thus to trust the other person [13; 58].

Familiarity is the phenomenon that the more often people are exposed to a certain stimulus, the more positively they will evaluate it [7], and therefore trust it. Furthermore, when dealing with an unknown vendor, consumers are more concerned about privacy, and therefore less likely to trust [23; 47]. In contrast, increased familiarity means a better understanding of the transaction process with the e-retailer, which increases consumer trust. It should be stated that familiarity is not the same as experience over time. Experience results from active interaction with a process, while familiarity is the result of mere exposure to a person, a store or an event.

In sum, all perception-based factors are thought to influence consumer trust in a positive way. This yields the second hypothesis.

H₂: Positive assessments of perception-based factors such as perceived investment, perceived similarity, perceived normality, perceived control and perceived familiarity have a positive influence on consumer trust in e-retailing.

2.3. Experience-based factors

Experience in this study is defined as first hand knowledge. This first hand knowledge is accumulated through active participation of the consumer in the online buying process [56]. The following three experience-related aspects are important with respect to trust.

1. Experience over time;
2. Satisfaction; and
3. Communication.

Several scholars [21; 42] have proposed that trust develops over time as consumers build trust-relevant knowledge through experience with e-retailing.

Of course, trust does not result from experience alone. The perceived satisfaction with past outcomes is also very important [21]. People who are experienced in buying online and have had positive experiences will view e-retailing as being trustworthy.

According to numerous authors, communication plays an important role in establishing trust [2; 13; 36; 45]. In this research, communication is defined as the formal and informal sharing of relevant, reliable and timely information between seller and customer [45]. According to Loomis [36] and Deutsch [13], a well-functioning communication system contains communication about expectations, intentions, retaliation (“expression of one’s planned reaction to violations of one’s expectations” [13]) and absolution (“expression of means of restoring co-operation after a violation of one’s expectation has occurred” [13]). These four elements of communication have a positive influence on trust and thus the lack of the communication of these elements might to a large extent hinder the development of trust.

The above mentioned factors clearly show that the more positive the experience of a consumer has been in the past, the higher the level of trust will be in e-retailing. Hypothesis 3 depicts this relationship between experience and trust.

H₃: Positive assessments of experience-based factors such as experience over time, satisfaction and communication have a positive influence on consumer trust in e-retailing.

2.4. Knowledge-based factors

In this paper a distinct line is drawn between knowledge-based and experience-based trust, i.e. knowledge is seen more in the sense of ‘technical’ knowledge. Technical knowledge can be divided into knowledge about information practices and knowledge about security technology.

People who are knowledgeable about information practices know whether it is possible for a seller to retrieve certain information from certain sources [43]. Consequently, consumers with good knowledge of negative information practices could be less trusting. On the other hand, it can be argued that consumers who are aware of what is possible with regards to information practices will be more trustful since they feel more in control. In this research a positive relationship between knowledge on information practices and consumer trust is hypothesized.

Secondly, an individual who has knowledge about security technology also has knowledge about how the security aspects (integrity, confidentiality etc.) can be technically guaranteed. Such people are able to check for features that indicate that an e-retailer’s website is secure. It is expected that people with this knowledge are more confident with regard to buying online and would trust e-retailing more. Li et al. also found that perceived knowledge is seen as an indicator of trust [35]. From this argumentation hypothesis 4 can be derived.

H₄: Knowledge-based factors such as information practices and security technology positively influence consumer trust in e-retailing.

2.5. Attitude

Attitude can be defined as the evaluation of entities [24]. Several authors [9; 29; 30; 43] have proposed that consumers’ attitude towards shopping and/or computers have an influence on trust in an Internet store. But since consumers can only buy something in an Internet store if they also have an Internet connection, it is believed that also their attitude towards the Internet has an influence on their trust in e-retailing. Therefore, when speaking about consumers’ attitude towards trust in e-retailing all three components, namely attitude towards computer, the Internet and shopping should be considered. These arguments lead to the formulation of hypothesis 5.

H₅ Positive attitudes to computers, Internet and shopping have a positive influence on consumer trust in e-retailing.

3. Research Methodology

3.1 Sample

US American students were chosen as the research population for this study for a number of reasons. At the time of this study (2001), US American students typically had, in contrast to the average non-American, unlimited, free access to the Internet and were already rather familiar with the medium. Furthermore, many e-retailers target the young population (e.g. CD shops like CD Now) and the student population (e.g. book shops like Amazon.com). In addition, technical, logistical and payment issues have reached the most advanced state in the US e-retailing market. Consequently, since we were looking for a representative sample of the advanced Internet user, we feel that US students qualify.

The research was organized by sending questionnaires to three US universities and by administering questionnaires to US American exchange students who participated in a summer course at a university in the Netherlands. Data of 149 students was collected. All questionnaires were administered to groups of students in a classroom situation. The return rate was thus close to 100%.

3.2 Survey instrument

A paper questionnaire was administered to the sample. All categories mentioned in the hypotheses were measured with the help of this questionnaire. Whereas the hypotheses were stated in general and included several constructs, the questionnaire tested the various constructs separately. Wherever possible the items were measured on a 5-point Likert scale. The remaining questions were in an ordinal or nominal format. Appendix 2 presents the list of the items and corresponding constructs used in this research, including their references.

Pre-tested and validated instruments or items were used where available. Often these items were adapted to reflect the e-retailing focus of the study. If no existing measures were available, items were created by the authors to measure the construct. Especially for the dependent variable trust new items had to be created in order to measure general instead of specific consumer trust. The existing literature on these constructs (as cited in chapter 2) was used as a guide to formulate items. In most cases, two or

more items, some of which are reversely scored to keep the attention of the participant, measure each construct.

Before the actual research, a pilot study with 107 Dutch students was conducted to test the questionnaire. Small adaptations to the design of the questionnaire were made to improve the readability of the instrument. The outcome of the pilot study showed promising results regarding validity and reliability of the survey instrument.

Reliability of the final questionnaire was tested using Cronbach alpha. Appendix 2 shows the Cronbach alpha values for each of the constructs used in this research. According to Nunnally [48] an alpha of 0.50 or higher indicates a sufficient level of internal reliability. As can be read from the table, the majority of constructs reach a sufficient internal reliability level. However, for questions where no construct is used, the Cronbach alpha measure is irrelevant. This applies to the questions about: information from consumer dominated sources, from neutral sources and from marketer dominated sources as well as the questions about knowledge of information practices and security technology, experience over time, and familiarity. The just mentioned factors should not be seen as constructs (which must be measured in an indirect way) but as direct and explicit questions about the level of experience, knowledge or information. Therefore, it does not make sense to apply an instrument like Cronbach alpha to these questions.

The construct “communication independent of the buying process” was created after calculating the internal reliability of the former construct communication of expectations (6 items) as formulated by Ganesan [21]. Further analysis showed that the construct communication of expectations is in fact two-dimensional, and thus had low internal reliability. To combat this, the items were split between two constructs, namely communication of expectations (2 items) and communication independent of the buying process (4 items).

While testing for multicollinearity, only the constructs attitude towards computers (3 items) and attitude towards the Internet (3 items) were significantly correlated with a coefficient of 0.77. Therefore, the two constructs were combined into one. The construct attitude to computers & the Internet now consists of 6 items with a Cronbach alpha of 0.82.

4. Results

Before testing the hypotheses, a short statistical test was run to confirm the importance of trust on the actual buying behavior of our participants. A simple comparison of buyers (mean= 3.18) and non-buyers (mean = 2.59) showed that there is a significant difference in trust between these two groups tested at a $p < 0.01$ level. This indicates that trust indeed is one important determinant of online purchase behavior.

To test the hypotheses, two regression models were calculated. The first model contains all constructs and is therefore only applicable for participants with experience in e-retailing, i.e. buyers or those who intended to buy. The second model contains a selection of the constructs, which apply to all participants, including those with no prior e-retailing experience. Through a comparison of the two models the impact of experience on consumer trust can be observed. The two models are graphically represented in figure 2.

Model 1

Trust = a + b₁Extraversion + b₂Neuroticism + b₃Ageeableness + b₄Conscientiousness + b₅Openness to experience + b₆ Propensity to trust + b₇ Reputation + b₈Word of mouth + b₉Friends and relatives + b₁₀Neutral sources + b₁₁Marketer dominated sources + b₁₂Investment + b₁₃Similarity + b₁₄Normality + b₁₅Control + b₁₆Familiarity + b₁₇Experience over time + b₁₈Satisfaction + b₁₉Communication independent of buying process + b₂₀Communication of expectations + b₂₁Communication of intentions + b₂₂Communication of retaliation + b₂₃Communication of absolution + b₂₄Knowledge about information practices + b₂₅Knowledge about security technology + b₂₆Attitude towards computers & the Internet + b₂₇Attitude towards shopping

Model 2

Trust = a + b₁Extraversion + b₂Neuroticism + b₃Ageeableness + b₄Conscientiousness + b₅Openness to experience + b₆ Propensity to trust + b₇ Reputation + b₈Word of mouth + b₉Friends and relatives + b₁₀Neutral sources + b₁₁Marketer dominated sources + b₁₂Investment + b₁₃Similarity + b₁₄Normality + b₁₅Control + b₁₆Familiarity + b₁₇Experience over time + b₁₈Knowledge about information practices + b₁₉Knowledge about security technology + b₂₀Attitude towards computers & the Internet + b₂₁Attitude towards shopping

Figure 2: Regression models

4.1 Results of regression analyses

4.1.1 Results of regression using model 1

The results of the regression analysis of model 1 show six statistically significant factors, three at $\alpha = 0.01$ and three at $\alpha = 0.05$. These are: reputation, word of mouth, information from friends and relatives, perceived investment, perceived similarity, and perceived control.

The F-ratio of regression model 1 is 11.026 and statistically significant ($p < 0.01$). The R square adjusted of the regression is 0.719.

Model 1	Std. b	Std. error	Sig.
Constant		-1.630	.107
Extraversion	.004	.065	.949
Neuroticism	.082	1.228	.223
Agreeableness	-.059	-.912	.365
Conscientiousness	.016	.245	.807
Openness to experience	-.067	-1.073	.287
Propensity to trust	.055	.875	.384
Perceived Reputation	.283	3.145	.002***
Word of mouth	.144	2.379	.020**
Information from friends and relatives	.216	3.087	.003***
Information from neutral sources	.013	.211	.833
Information from marketer dominated sources	-.009	-.132	.895
Perceived Investment	.157	2.565	.012**
Perceived Similarity	.168	2.440	.017**
Perceived Normality	.062	.964	.338
Perceived Control	.356	4.352	.000***
Perceived Familiarity	.030	.482	.631
Experience over time	.040	.659	.512
Satisfaction	.057	.715	.477
Communication independent of buying process	-.037	-.434	.666
Communication of expectations	.052	.602	.549
Communication of intentions	.055	.637	.526

Communication of retaliation	-.133	-1.299	.198
Communication of absolution	.047	.667	.507
Knowledge about information practices	.073	1.268	.209
Knowledge about security technology	.008	.136	.892
Attitude toward computers & the Internet	.066	.959	.341
Attitude towards shopping	-.077	-1.259	.212
F-ratio	11.026		
R square adjusted	.719		

Table 1: Results regression model 1

* significant at $\alpha < 0.1$

** significant at $\alpha < 0.05$

*** significant at $\alpha < 0.01$

4.1.2 Results of regression using model 2

From the results of the regression analysis in table 2 it becomes clear that model 2 contains more statistically significant factors than model 1. All factors that are significant for experienced participants in Model 1 are also significant in Model 2. However, in addition, three more factors were found to be significant: perceived familiarity, knowledge about information practices, and experience over time. The F-ratio of regression model 2 is 18.264 and it is significant at $p < 0.01$. The R square adjusted is 0.716 and comparable to model 1.

Model 2	Std. b	Std. error	Sig.
Constant		-1.795	.075
Extraversion	-.055	-1.087	.279
Neuroticism	.033	.618	.538
Agreeableness	-.072	-1.347	.180
Conscientiousness	-.002	-.038	.970
Openness to experience	-.047	-.947	.346
Propensity to trust	.044	.864	.389
Perceived Reputation	.266	3.660	.000***
Word of mouth	.157	3.193	.002***
Information from friends and relatives	.137	2.460	.015**
Information from neutral sources	.018	.338	.736
Information from marketer dominated	-.018	-.326	.745

sources			
Perceived Investment	.127	2.513	.013**
Perceived Similarity	.171	3.103	.002***
Perceived Normality	.036	.681	.497
Perceived Control	.342	5.412	.000***
Perceived Familiarity	.093	1.818	.071*
Experience over time	.158	2.940	.004***
Knowledge about information practices	.098	2.081	.039**
Knowledge about security technology	.025	.498	.620
Attitude toward the Internet & computers	.022	.409	.683
Attitude towards shopping	-.035	-.731	.466
F-ratio	18.264		
R square adjusted	.716		

Table 2: Results regression model 2

* significant at $\alpha < 0.1$

** significant at $\alpha < 0.05$

*** significant at $\alpha < 0.01$

4.2 Hypotheses testing

4.2.1 Hypothesis 1: Personality-based factors influence consumer trust in e-retailing – not supported.

The regression of model 1 and 2 show that none of the personality factors had a significant effect on the dependent variable trust. Since the internal reliability of all these constructs were between 0.6 and 0.85 (and therefore sufficient) it would appear that personality traits are not determinants of consumer trust in e-retailing. Not even propensity to trust has, according to the results from our study, an effect on the level of consumer trust in e-retailing. Thus this study did not find any support for hypothesis 1.

4.2.2 Hypothesis 2: Positive assessments of perception-based factors have a positive influence on consumer trust in e-retailing - supported

Model 1 suggests that for those participants with experience in e-retailing only perception-based factors influence consumer trust in e-retailing. For e-retailing experienced participants there are five perception based factors that have a statistically significant influence on trust, namely: reputation,

word of mouth, information from friends and relatives, perceived investment, perceived similarity, and perceived control. In addition to the perception-based factors found in model 1, model 2 indicates an additional factor: perceived familiarity.

The factor reputation influences consumer trust to a large extent in both models. The coefficients are 0.283 and .266 (both at $p < 0.01$). To recall, this category of second-hand information consisted of the following three more detailed factors: information from consumer dominated sources, divided into the two constructs information from friends and relatives and word of mouth, information from neutral sources and information from marketer dominated sources. The constructs information from word of mouth and friends and relatives also have a significant influence on trust (at a level of $p < 0.05$ and $p < 0.01$ in both models). It can be concluded that the opinions of friends and relatives about e-retailing as well as information about e-retailing gathered from someone who has actual experience with buying online have a significant influence on consumer trust in e-retailing.

Information from marketer dominated sources, however do not influence the level of trust.

Perceived investment also has a significant effect on trust ($p < 0.05$ in both models). Therefore, the perceived investment, i.e. the perceived size of e-retailers, positively influences the level of trust towards e-retailers.

Furthermore, the influence of consumers' perceived similarity of e-retailers to themselves is statistically significant in both models ($p < 0.05$ in model 1 and $p < 0.01$ in model 2). It can be concluded that a consumer who perceives e-retailers to have different goals and values will be more likely to distrust e-retailers.

Normality does not have an influence on trust according to this study.

Nevertheless, perceived control, on the other hand, has a large influence on trust in both models ($b = 0.356$ and 0.342 respectively at $p < 0.01$). As expected, the results indicate that consumers who perceive that they have power to influence e-retailers' financial outcomes and hence reduce any incentive e-retailers may have to engage in untrustworthy behavior, will be more trustful towards e-retailers.

Lastly, a statistically significant effect of familiarity on trust ($b = 0.93$ at a 0.1 significance level) was only found in model 2. This seems to indicate that familiarity is not important for people who have

experience in e-retailing but rather is an important issue to distinguish experienced from inexperienced participants.

In sum, we found much support for hypothesis 2. Perception based factors are the main determinants of trust in e-retailing in this study.

4.2.3 Hypothesis 3: Positive assessments of experience-based factors have a positive influence on consumer trust in e-retailing – partial support

The influence of experience-based factors on trust was analyzed in both model 1 and model 2. In model 2 however, only those experience-based factors could be included that were independent of actual experience in e-retailing. Whereas satisfaction and communication constructs were left out in model 2, only experience over time was included in both models. In addition, we could also indirectly make some assessment of the influence of experience on trust by comparing the results of the two models.

In model 1, none of the experience-based factors had any effect on consumer trust in retailing. It seems that for experienced participants the actual positive or negative experience does not have an effect on their general institution-based trust when buying online. The various experience factors, such as satisfaction and communication factors, may have an effect on the trusting beliefs in a specific retailer, though. However, this is not within the scope of this research.

In contrast to the findings in model 1, model 2 strongly supports the positive relationship between experience over time and trust ($p < 0.01$). Also, the additional significant factors perceived familiarity and knowledge about information practices in model 2 indicate that the trust in e-retailing of participants with no experience in e-retailing exhibit lower levels of trust due to lower experience with e-retailing, low levels of familiarity with e-retailing and the Internet and less knowledge about information practices. Thus, there is partial evidence for this hypothesis. There is no support for the hypothesis when only participants with experience in e-retailing are analyzed. Experience factors, however, significantly explain the differences in trust levels between experienced and inexperienced participants.

4.2.4 Hypothesis 4: Knowledge-based factors such as information practices and security technology positively influence consumer trust in e-retailing – partial support

For the experienced group (model 1) none of the knowledge-based factors had a significant effect on trust. Model 2 shows that knowledge about information practices significantly influences trust levels at $p < 0.05$. Therefore, increased knowledge about information practices increases consumer trust in e-retailing.

Knowledge about security technology does not affect trust in either model. Consequently, we find mixed support for hypothesis 4. The low trust levels of participants that do not have experience seem to be influenced by the participants' lack of knowledge about security practices.

4.2.5 Hypothesis 5: Positive attitudes to computers, shopping and the Internet have a positive influence on consumer trust in e-retailing – no support

Contrary to a previous study conducted by Jarvenpaa and Tractinsky [29] none of the attitude-based factors seems to have a significant influence on trust. This holds for experienced as well as inexperienced participants. Therefore, the hypothesis with respect to attitude (H5) can be rejected. The only “explanation” for this finding is that attitude towards computers & the Internet and attitude towards shopping is just not related to trust with respect to e-retailing.

5. Conclusion

Personality, perception, attitude, experience and knowledge were hypothesized to have an influence on determining institution-based consumer trust in e-retailing. A comprehensive survey analyzed which of these factors predicted consumer trust in e-retailing. A summarizing overview of the factors that were found in this research study to have a significant influence on consumer trust in e-retailing is provided in figure 3.

Interestingly, personality based factors are completely eliminated from the model. This means that, contrary to expectations, institution-based trust in online retailing is not influenced by the individual personality. Although we have only measured six personality factors, we do not expect that other ways

of measuring personality would show different results. We ground our opinion on the fact that in our research even the most related factor, propensity to trust, did not have an effect on trust in e-retailing.

In contrast to the significant relationships that other researchers have found, attitude towards shopping, computers & the Internet did not have a significant influence on consumer trust in e-retailing. When analyzing all possible reasons for consumer trust in e-retailing, consumers seem to make their decision to trust an e-retailer on a more perception-based, cognitive basis.

The hypotheses of this paper were partly supported for knowledge-based factors (knowledge about information practice) and for experience-based factors (the duration of experience with e-retailing). In both cases only a rather small part of the possible influences were indeed supported and they were only supported in model 2, which indicates that these factors are only statistically significant with respect to the different trust levels between buyers and non-buyers. Thus, knowledge-based and experience-based factors in general seem to play a rather limited role in determining consumer trust in e-retailing.

The two sub issues identified here, however, do play a significant role in the decision process of the customer and should not be ignored by businesses. To put it plainly, those customers who are informed about information practices and have more experience with e-retailing tend to trust more.

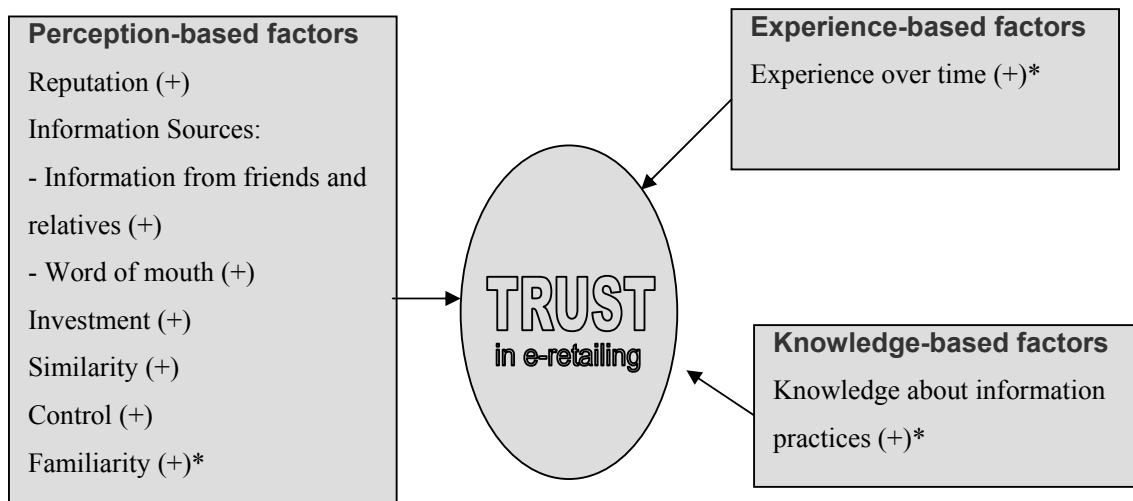
However, in general, the perception-based factors seem to have the greatest influence on consumer trust in e-retailing. Even stronger: these antecedents completely determine consumer trust in e-retailing for experienced buyers. Issues like the reputation of e-retailing, information from consumer-dominated sources, perceived investment, i.e. size, perceived similarity, and perceived control are the main issues that determine online consumer trust. A lack of perceived familiarity with Internet and e-retailing may be a reason for the low trust levels of participants with no e-retailing experience.

For an online business this is rather good news since all of these are factors that can be influenced at least to a certain extent. By dedicating more resources to marketing initiatives or simply by doing good business and thus supporting positive word of mouth among its customers, e-retailers can increase consumer trust in e-retailing in general and thus in their virtual stores.

Familiarity with Internet and e-retailing of those inexperienced Internet users can be increased without actual e-retailing experience. Providing potential customers with valuable information about how e-

retailing works would already have a positive influence on familiarity and thus on consumer trust in e-retailing.

This study has attempted to shed some light on the psychological antecedents of institution-based consumer trust in e-retailing. According to the results of this study, perception based factors like the perceived reputation, perceived investment, perceived similarity, perceived control and perceived familiarity are the main determinants of consumer trust in e-retailing. Consumers do behave, after all, rational.



** only significant when buyers and non-buyers are included in the analysis (model 2)*

Figure 3: Results of study

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Appendix 1: Overview of categories and factors

Category	Factors
Personality	Extraversion
	Neuroticism
	Openness to experience
	Agreeableness
	Conscientiousness
	Propensity to trust
Perception	Reputation
	- Consumer dominated
	- Neutral sources
	- Marketer dominated
	Investment
	Similarity
	Normality
	Control
	Familiarity
Experience	Experience over time
	Satisfaction
	Communication
Knowledge	Information practices
	Security aspects
Attitude	Computers and the Internet
	Shopping

Appendix 2 Constructs measured by the questionnaire

Unless otherwise indicated, the questions were answered on a 5 point Likert scale with extremes being strongly agree/strongly disagree. References are given where applicable. In case of mixed references individual items are assigned to original source.

Construct	Item	Alpha
Trust (created by authors)	<ul style="list-style-type: none"> ▪ Generally speaking, e-retailers are not trustworthy (reverse) ▪ 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) ▪ I am concerned about the technical skills and knowledge with respect to security of most e-retailers. (reverse) ▪ I expect that most e-retailers will refrain from unfair advantage taking. ▪ I am comfortable buying something from an Internet store. ▪ I rather expect a traditional retailer than an e-retailer to carry out his/her contractual agreements. (reverse) ▪ There exists a lot of unfair and untrustful advertising on the Internet (reverse) ▪ I trust e-retailers with respect to my credit card information. ▪ I am worried that my privacy will be invaded if I buy something from an e-retailer. (reverse) 	0.77
Extraversion [6]	<p>I see myself as someone who ...</p> <ul style="list-style-type: none"> ▪ is talkative ▪ is reserved ▪ is full of energy ▪ generates a lot of enthusiasm ▪ tends to be quiet ▪ has an assertive personality ▪ is sometimes shy, inhibited ▪ is outgoing, sociable 	0.85

Neuroticism [6]	I see myself as someone who ... <ul style="list-style-type: none"> ▪ is depressed, blue ▪ is relaxed, handles stress well ▪ can be tense ▪ worries a lot ▪ is emotionally stable, not easily upset ▪ can be moody ▪ remains calm in tense situations ▪ gets nervous easily 	0.62
Agreeableness [6]	I see myself as someone who ... <ul style="list-style-type: none"> ▪ tends to find fault with others ▪ is helpful and unselfish with others ▪ starts quarrels with others ▪ has a forgiving nature ▪ is generally trusting ▪ can be cold and aloof ▪ is considerate and kind to almost everyone ▪ is sometimes rude to others ▪ likes to cooperate with others 	0.80
Conscientiousness [6]	I see myself as someone who ... <ul style="list-style-type: none"> ▪ does a thorough job ▪ can be somewhat careless ▪ is a reliable worker ▪ tends to be disorganized ▪ tends to be lazy ▪ perseveres until the task is finished ▪ does things efficiently ▪ makes plans and follows through with them ▪ is easily distracted 	0.74
Openness to experience [6]	I see myself as someone who ... <ul style="list-style-type: none"> ▪ is original, comes up with new ideas ▪ is curious about many different things ▪ is ingenious, a deep thinker ▪ has an active imagination ▪ is inventive ▪ values artistic, aesthetic experiences 	0.81

	<ul style="list-style-type: none"> ▪ prefers work that is routine ▪ likes to reflect, play with ideas ▪ has few artistic interests ▪ is sophisticated in art, music, or literature 	
Propensity to trust [40]	<ul style="list-style-type: none"> ▪ One should be very cautious with strangers ▪ Most experts tell the truth about the limits of their knowledge ▪ Most people can be counted on to do what they say they will do ▪ These days, you must be alert or someone is likely to take advantage of you ▪ Most salespeople are honest in describing their products ▪ Most repair people will not overcharge people who are ignorant of their speciality ▪ Most people answer public opinion polls honestly ▪ Most adults are competent at their jobs 	0.57
Reputation (some items adapted from [21]; some created by authors)	<ul style="list-style-type: none"> ▪ E-retailers have a reputation of being honest. [21] ▪ E-retailers are known to be concerned about their customers. [21] ▪ Internet stores have a reputation of not having adequate disclosure requirements, like warranties and guarantees in place. (reverse) ▪ E-retailers have a reputation of not keeping their contractual promises. (reverse) ▪ Most people think that buying online is secure. ▪ Most people think that buying online is not harmful for your privacy. <p>X. E-retailers have a bad reputation in the market. (not included) [21]</p>	0.66
Information from consumer dominated sources: - friends and relatives (Created by authors)	<ul style="list-style-type: none"> ▪ Most of my friends and relatives think that e-retailers are trustworthy. 	Not applicable
Information from consumer dominated sources:	<ul style="list-style-type: none"> ▪ I know someone who had bad experiences with buying online. (reverse) 	Not applicable

- word of mouth (Created by authors)		
Information from neutral sources (Created by authors)	<ul style="list-style-type: none"> ▪ There is a lot of negative information in the media (TV, radio, newspapers, periodicals, etc. about buying online (reverse) ▪ According to consumer reports it is not advisable to buy from an Internet store. (reverse) 	Not applicable
Information from marketer dominated sources (Created by authors)	<ul style="list-style-type: none"> ▪ E-retailers promote that they are trustworthy. ▪ I know advertisements of e-retailers that argue that it is secure to buy from an Internet store. ▪ I know of e-retailer advertisements that say privacy will not be invaded when something is bought online. 	Not applicable
Perceived investment (adapted from [29])	<ul style="list-style-type: none"> ▪ E-retailers are mostly small players in the market (reverse) [29] 	Not applicable
Perceived similarity ([15])	<ul style="list-style-type: none"> ▪ I perceive the interests of traditional retailers to be more similar to mine than the interests of e-retailers. (reverse) ▪ I perceive the values of e-retailers to be more similar to mine than the values of traditional retailers. ▪ I perceive e-retailers as being more similar to me than traditional e-retailer. 	0.54
Perceived normality (Created by authors)	<ul style="list-style-type: none"> ▪ To buy something from an Internet store is not a common thing to do. (reverse) ▪ Most people do not think that it is normal to buy products from an e-retailer. (reverse) ▪ It is not commonly accepted to buy something from an e-retailer. (reverse) 	0.56
Perceived control (Created by authors)	<ul style="list-style-type: none"> ▪ There exist adequate laws that will protect me when I make online purchases. ▪ Many e-retailers make use of seals of approval like Visa, Etrust and SET which will protect me when I make online purchases. ▪ Many e-retailers do not have adequate labeling and disclosure requirement like warranties, guarantees, product standards and specifications in place. (reverse) ▪ In my opinion, e-retailers have adequate mechanisms 	0.71

	<p>in place that will safeguard me from defective products.</p> <ul style="list-style-type: none"> ▪ Most e-retailers do not have conditions of cancellation in place. (reverse) ▪ If an e-retailer posts a privacy policy on his/her Website I would trust that e-retailer to follow the policy. ▪ Most e-retailers have an appropriate refund mechanism in place. 	
Perceived familiarity (adapted from [22]; some created by authors)	<ul style="list-style-type: none"> ▪ I like a feeling of familiarity before I buy something from an e-retailer. [22] ▪ I know ... number of e-retailers. (ordinal) ▪ I use the Internet (how often) (ordinal) ▪ I use the Internet since months years. (number) 	Not applicable
Experience over time (created by authors)	<ul style="list-style-type: none"> ▪ Have you made purchases from e-retailers in the past? (nominal) ▪ How many times did you buy something from an e-retailer? (ordinal) ▪ I buy things from the Internet since months years. (number) 	Not applicable
Satisfaction (created by authors)	<ul style="list-style-type: none"> ▪ My experiences with e-retailers were always positive. ▪ My experiences with e-retailers were as satisfactory as my experiences with traditional retailers. ▪ I felt pleased with respect to the outcomes of the last five times I bought something online. 	0.87
Communication independent of buying process (created by authors)	<ul style="list-style-type: none"> ▪ The e-retailers I have experience with have problems answering my questions. (reverse) ▪ The e-retailers I have experience with are responsive to my needs of information. ▪ I always knew what the privacy policy of the e-retailers I have experience with was. ▪ I always knew what the security policy of the e-retailers I have experience with was. 	0.75
Communication of: - expectations	<ul style="list-style-type: none"> ▪ When I ordered a product from an e-retailer I always knew when I could expect the product to be delivered. 	0.48

(created by authors)	<ul style="list-style-type: none"> ▪ It was always clear to me what I had to pay for the ordered products or services. 	
Communication of: - intentions (created by authors)	<ul style="list-style-type: none"> ▪ If something was not in stock it was clear to me when it would be replenished. ▪ It was always clear to me that the seller had really received my order and thus that he would deliver the ordered product. ▪ It was clear to me when the e-retailer would ship the ordered product. 	0.75
Communication of: - retaliation (created by authors)	<ul style="list-style-type: none"> ▪ The e-retailers I have experience with provided me with information about the conditions with respect to for example cancellation, payback mechanisms and conflict resolution. ▪ The e-retailers I have experience with provided me with information about the applicable law system to this particular contract. ▪ It was always clear to me if I had the possibility to return the ordered products. ▪ It was always clear to what I had to do if something was not as expected. ▪ If problems such as shipment delays arise, the e-retailers I have experience with are honest about the problems. 	0.81
Communication of: - absolution (created by authors)	<ul style="list-style-type: none"> ▪ If something would not go as expected, the e-retailer will give me the idea this would not happen the next time. ▪ The e-retailer offered me something extra, like for example a discount, if something would go wrong with the delivery. 	0.61
Knowledge of information practices (Created by authors)	<ul style="list-style-type: none"> ▪ I believe that e-retailers can without my knowledge obtain my name and address from Internet usage. (reverse) ▪ Third parties can without my knowledge obtain the information that I have given to an e-retailer. ▪ I believe that e-retailers can without my knowledge obtain my name and address from buying on the 	Not applicable

	<p>Internet. (reverse)</p> <ul style="list-style-type: none"> ▪ I believe that e-retailers can without my knowledge obtain my e-mail address from Internet usage. (reverse) ▪ I believe that e-retailers can without my knowledge obtain information about my surfing behavior. 	
<p>Knowledge about security technology (Created by authors)</p>	<ul style="list-style-type: none"> ▪ I know what SET is. ▪ A message locked with a certain public key can only be opened with the corresponding public key. (reverse) ▪ My browser indicates when I enter a secure area. ▪ All secure servers are technically the same and are equally secure. (reverse) 	Not applicable
<p>Attitude towards computers and the Internet ([29], some created by authors)</p>	<ul style="list-style-type: none"> ▪ Computers make work more interesting. [29] ▪ I enjoy interacting with computers [29] ▪ I use computers for fun. [29] ▪ I like using the Internet ▪ I use the Internet for fun. ▪ The Internet makes work more interesting. 	0.82
<p>Attitude towards shopping ([29])</p>	<ul style="list-style-type: none"> ▪ I view shopping as an important leisure activity. ▪ I dislike shopping (reverse) ▪ For me, shopping is a pleasurable activity. ▪ I would prefer somebody else to do my shopping. (reverse) 	0.87