



Consumers rule: How consumer reviews influence perceived trustworthiness of online stores

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ABSTRACT

Two studies examined the impact of online store reviews on consumer trust in online stores. Based on the warranting principle, it was proposed that consumer reviews are a more important cue for judging the trustworthiness of an online store than the overall reputation of the store (Experiment 1) or assurance seals (Experiment 2). The role of dispositional trust was also examined. In both experiments, consumer reviews turned out as the strongest predictor of trustworthiness judgments. Store reputation had no significant effect. In Experiment 1, there was a main effect of dispositional trust on perceived trustworthiness. In Experiment 2, dispositional trust moderated the effects of reviews and assurance seals. High trusters were more influenced by the reviews of other consumers; and only high trusters tended to be influenced by assurance seals. The results show that consumer reviews play an important role in consumer decision making, indicating that online consumer communities indeed empower consumers.

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1. Introduction

“More people would shop online if they trusted the e-commerce environment more”. That’s one of the main conclusions of a report of the PEW Internet & American Life Project (Horrihan 2008, ii). Thus, although online shopping has become part of everyday life for many people, many consumers are still afraid of negative experiences. Even for consumers who frequently shop online, it is important to be able to judge the trustworthiness of a specific online store. Prior online trust models focused on perceptions of the company, perceptions of the website, and consumer characteristics as predictors of trust in online stores (McKnight et al. 2002a,b; Koufaris and Hampton-Sosa 2004, Metzger 2006). The present paper extends these models by adding a new factor: consumer reviews. Since the rise of social media, word-of-mouth communication has reached an unprecedented scale (Dellarocas 2003) and using testimonials and consumer reviews for assessing the credibility of online information has become a dominant strategy (Metzger et al. 2010). Therefore we argue that social-based information like online store reviews is more influential than other cues such as the overall store reputation (Experiment 1) and assurance seals (Experiment 2). Prior studies on the influence of consumer reviews have focused on the effects of product reviews on

product choice. The present paper focuses on services by examining the influence of reviews about the service quality of an online store on perceived trustworthiness of the store. Thereby, the paper integrates research on electronic word-of-mouth (eWOM) and research on online trust. Before we turn to the literature review, we shortly describe the specific characteristics of e-commerce environments.

2. E-commerce

Although e-commerce has become more and more popular, shopping in online stores or online auctions is still more risky than shopping in a brick and mortar shop. Online markets are noisy environments and there are many ways for things to go wrong (Utz et al. 2009, van Noort et al. 2008). First, less information about the product is available. Buyers are not able to touch and feel the product, and colors might look different depending on the browser used. Product and money are not exchanged immediately at the counter. Usually, the seller has to transfer money first, and then the seller ships the product. These transactions are mediated by technology and therefore prone to technical failures or miscommunication (e.g. typing mistakes in the address or bank account number). Many of these interactions are one-shot; buyer and seller often live in different places, and less information about buyer and seller is available. There are various risks for the buyer: the product might not be shipped at all, not be shipped on time, or a lower quality product might be shipped. Complaint handling might also take longer than in a brick and mortar shop, or the company

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might not respond to email or phone calls at all. For online shoppers, it is therefore not only important to choose the right product, but also to choose a trustworthy online store. In the following section, we give an overview over past research on trust in online stores and electronic word-of-mouth, before we turn to the specific role of online store reviews, reputation and dispositional trust.

3. Literature review

3.1. Trust

According to Mayer et al. (1995, p. 712), trust is the “willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party”. Trust is an important predictor of actual risk taking in a relationship. In the context of online shopping, risk taking means actually buying from an online store.

Trust is influenced by the trustor’s propensity to trust and the factors of perceived trustworthiness. Mayer et al. (1995) distinguished three components of perceived trustworthiness: ability, benevolence, and integrity. These components are also called trusting beliefs by other authors (McKnight et al. 2002a,b). Ability means that the interaction partner has the necessary skills and competencies. Benevolence describes the extent to which the trustee wants to do good to the trustor, whereas integrity is defined as the adherence to a set of principles that the trustor finds acceptable (Mayer et al. 1995, p. 718/719).

3.2. Assessing perceived trustworthiness in an e-commerce context

Buying from an online store is typically a situation with information asymmetry. The seller has much more information about the quality of the products and the service than the buyer. Signaling theory can be used to explain behavior in these situations. Signaling theory has been developed in economics (Spence 1973) and biology (Zahavi 1975) and has been applied in information economics (e.g. Kirmani and Rao 2000). Signaling theory states that people rely on signals if they have to judge a not observable quality. Signals differ in their reliability. Assessment signals are highly reliable and indicate the possession of a resource by wasting it (Donath 2007). For example, a rich person can demonstrate wealth by buying expensive cars and other status symbols. Conventional signals on the other hand are less reliable and easier to fake. Self presentation on a webpage is an example of a conventional signal. Everybody could state to be rich on a website but it is difficult to verify this claim.

In the context of e-commerce, the not observable quality is the trustworthiness of the online store, that is, the ability and the willingness of the store owner and employees to deliver high quality products and services. For the store, it is therefore important to signal trustworthiness to attract consumers (Riegelsberger et al. 2005). For the consumers, it is important to correctly perceive and interpret the signals. Vendor and website characteristics are the signals most studied in this context (McKnight et al. 2002a,b; Koufaris and Hampton-Sosa 2004, Riegelsberger et al. 2005, Metzger 2006). The present research builds on these models and adds online consumer reviews as an additional factor. Vendor and website characteristics are signals controlled by the company. Consumer reviews are different; they are provided by other consumers and are therefore not under the control of the company. They can however be used by companies, for example by showing them on the website or by referring to them. Consumer store reviews provide social-based information and these means of

assessing credibility have become more important since the rise of social media (Metzger et al. 2010).

Walther and Parks (2002) introduced the warranting principle to predict which cues will be used in online impression formation. They assume that a cue has a higher warranting value and is therefore more useful when it is more difficult to manipulate. Based on this reasoning, it is assumed that consumers regard the reviews written by other consumers as more important trust cues than vendor characteristics (Experiment 1) or website characteristics (Experiment 2). Before the effects of various characteristics on perceived trustworthiness are described, an overview of the effects of eWOM and consumer reviews is given.

3.3. eWOM

Word-of-mouth communication has always been considered a powerful influence factor on consumer behavior (Whyte 1954, Katz and Lazarsfeld 1955), but it has received more attention since online consumer communities came up and word-of-mouth gained in scale. Consumer communities such as Epinions or Ciao have been developed to offer a platform for consumers to engage in eWOM. Many consumers search on the Internet before they make purchases (Smith et al. 2005), and they do not only search for product information provided by the producer or vendor, but also for reviews written by other consumers. In consumer reviews, consumers describe their experience with a product or service. These reviews can vary in length, but the very active members of consumer communities invest about an hour in writing a review (Utz 2009). Consumers can usually give an overall rating of the product (e.g. 1–5 stars), but many consumers regard the concrete experiences described in the text as more informative. A positive review stresses for example not only the quality of the product, but also the design, the ease of use or the understandability of the instruction manual.

It has been demonstrated that positive consumer reviews increase sales whereas negative reviews decrease sales (Chevalier and Mayzlin 2006, Dellarocas et al. 2007). However, some researchers have found that negative reviews can also increase sales (Berger et al. 2010), mainly because reviewed products have a greater chance to end up in the consumers’ consideration sets than products that have not even been reviewed (see also Vermeulen and Seegers 2009).

Park and Lee (2009) found that consumers pay more attention to reviews in case of experience products than in case of search products. Other researchers have focused on how consumers process the information provided in reviews and examined the role of potential moderators such as involvement, motivation, or product category (Harris and Gupta 2008, Park and Kim 2008). Review depth influences the perceived helpfulness of a review, especially in the case of search products (Mudambi and Schuff 2010). Huang and Chen (2006) contrasted the effects of expert recommendations and customer recommendations and found that customer recommendations had more influence. Taken together, there is ample evidence that consumer reviews influence product choices.

Prior studies dealt with reviews on products and used consumer choices in an experimental setting or actual sales of products as dependent variables. Product reviews usually focus on the quality of a product. However, many consumer communities also offer ratings and reviews of (online) stores. For stores, prompt shipping, careful packaging of fragile products, and good customer service are important. The quality of customer service is more difficult to judge; services are more like experience products in this regard. Store reviews focus not only on the ability, but also on the benevolence and integrity of the owner and employees of the online store. They could therefore be compared with the ratings and short comments given in the eBay reputation system. On eBay and many

other auction sites, buyers can give sellers a positive, neutral, or negative feedback rating. It is optional to add a short text comment. Several studies have shown that negative feedback ratings affect the probability of sale (Eaton 2005, Lucking-Reiley et al. 2007, Melnik and Alm 2002). Moreover, Pavlou and Dimoka (2006) have shown that the short text comments explain additional variance. The trust building function of text is understudied in the context of online store reviews (Gefen et al. 2008), but we argue that online store reviews should have even more impact than eBay feedback comments because they are not limited to 80 characters. Thus, it is expected that reviews about the customer service of a store influence perceived trustworthiness of an online store. Thus, the first hypothesis is:

H1: The more positive an online store review, the higher the perceived trustworthiness of the online store.

The influence of consumer reviews has usually not been contrasted with the influence of other cues, such as assurance seals or store reputation. We argue that consumer reviews have more influence on trust than other cues. Metzger et al. (2010) report that social information pooling is a common strategy to judge the credibility of online information. The term social information pooling describes the use of social media such as testimonials, feedback systems and consumer review sites. The participants judged reviews and testimonials are more credible than information from the company itself. Moreover, the presence of at least some negative reviews is even taken as a sign of credibility. Other researchers also found that consumer reviews are perceived as more trustworthy because they are considered as more unbiased than information provided by the company or by experts (Bickart and Schindler 2001, Smith et al. 2005). This is in line with signaling theory and the warranting principle: if other consumers say that the company is trustworthy and delivers a good service, this is a more reliable signal than when the company itself states this. In Experiment 1, the influence of consumer reviews is contrasted with the influence of store reputation, in Experiment 2, the influence of consumer reviews is contrasted with the influence of assurance seals.

3.4. Online store reputation

Reputation is a multidimensional construct, and a company can have several reputations, e.g. one for quality, one for good customer service, or one for innovative products (Herbig et al. 1994). These various dimension are often combined into a general reputation score (e.g. Van Riel 2001). In case of online stores, prompt and correct shipping and good complaint handling are important ingredients of store reputation. Reputation is a valuable asset that requires a long term investment of resources, effort, and attention to customer relationships (Jarvenpaa and Tractinsky 1999). Thus, obtaining a good reputation is costly. Moreover, risking a good reputation by delivering low quality products or services is dangerous because reputation can easily be destroyed (Herbig et al. 1994). Reputation can therefore be regarded as a reliable signal.

The effects of store reputation on consumer trust have repeatedly been studied. Indeed, Metzger (2006) compared a well-known and a fictional and therefore unknown store and found that reputation influences trust, even more than privacy/security assurances did. Several other authors used different operationalizations of the multidimensional reputation construct and found also a positive relationship between perceived reputation and trust (Jarvenpaa et al. 2000, de Ruyter et al. 2001, McKnight et al. 2002a,b; Koufaris and Hampton-Sosa 2004). In the present study, we compare a well-known store that has received high

scores on customer service with a less well-known store. In line with prior research, we expect that store reputation positively affects perceived trustworthiness.

H2: Store reputation is positively related to perceived trustworthiness.

More interesting than these two relatively straightforward predictions is the question how these two cues are combined. To our knowledge, there is no study that directly contrasted the effect of store reputation with the effect of consumer reviews on trust. Lim et al. (2006) compared the influence of portal affiliation and customer endorsements. Portal affiliation is not the same as store reputation, but the authors assumed that the high reputation of the portal transfers to the online store. In the first experiment, the online store was either affiliated with Yahoo or not; and there was a customer endorsement or not. The customer endorsements were displayed on the site of the online store, and not on a separate (and maybe more independent) consumer community. Customer endorsements enhanced trust, whereas portal affiliation had no effect. The second experiment used two different portals and varied the familiarity of the endorsers (local and similar peers, similar peers, foreign peers). Again, and in line with signaling theory and the warranting principle, peer endorsement was the more effective trust building strategy; especially endorsements by similar peers increased trust.

The reputation of a company is at least partly based on the actual actions and performance of the company. Moreover, companies can use PR to influence their reputation. Although companies might try to fake consumer reviews, consumer reviews are far less under the control of the company. Metzger et al. (2010) found that consumers regard reviews as very credible, especially if there are also negative reviews present. This is in line with the warranting principle (Walther and Parks 2002): information that is more difficult to manipulate, is regarded as more trustworthy. Therefore, we expect that consumers rely more on online store reviews than on store reputation when making trustworthiness judgments.

H3: Online store reviews have a stronger effect on perceived trustworthiness than store reputation.

3.5. The role of dispositional trust

Propensity to trust is expected to influence trust directly and also indirectly, via the trusting beliefs (Mayer et al. 1995). The propensity to trust is often called dispositional trust in (social) psychology and is regarded as a relatively stable personality characteristic. Individuals scoring high on dispositional trust believe that other individuals are in general trustworthy and good. Dispositional trust is especially important in new relationships when few other cues or experiences are available (McKnight et al. 2004). This has also been proven in the context of e-commerce (McKnight et al. 2002a,b) and can also be expected in the current context.

H4: The higher dispositional trust, the higher perceived trustworthiness.

However, dispositional trust could also play a moderating role. Two lines of argumentation are possible. It could be that high trusters consider one positive cue already as sufficient, whereas low trusters only trust the store if both cues are positive. However, it could also be that mainly high trusters are affected by cues. Although people might assume that high trusters are gullible and possibly lack social intelligence, Yamagishi (2001) argued that the low trusters have lower social intelligence scores. Low trusters

often avoid social interactions because of their low trust and do therefore not learn and increase their social intelligence. High trusters on the other hand scrutinize the social cues given by potential interaction partners more closely and engage in trusting behavior if they encounter positive cues (Yamagishi 2001). Because of these opposite lines of argumentation, we propose a moderation effect, but do not specify the direction of this effect:

H5: Dispositional trust moderates the effects of store reputation and online store reviews on perceived trustworthiness.

4. Experiment 1

4.1. Method

4.1.1. Participants and design

The experiment had a 2 (review: negative vs. positive) \times 2 (store reputation: low vs. high) between subjects design. Participants came to the laboratory and were seated in separate cubicles. Each cubicle was equipped with a computer on which the instructions and materials were displayed. One hundred students of VU University Amsterdam participated. The majority (73%) were female, 27% were male. Mean age of the participants was $M = 23$ years.

4.1.2. Procedure

Respondents should imagine that they wanted to buy an iPod nano and that they came across an online store on their Internet search. They then viewed the screenshot of the respective online store. Next, a review about the service of the store was displayed. After viewing the store and the review, the respondents answered the questions on perceived trustworthiness of the online store, manipulation checks and some demographic measures.

4.1.3. Independent variables

Reputation of the online store was manipulated by presenting participants either with a screenshot of the online Apple-store (high reputation) or a far less known online store, the Progress online store (low reputation). The Apple store was chosen for the high reputation condition because of its consistently high scores on tests of customer service (Tech Support Showdown 2010).

In the positive review condition, a customer described an incident in which the earphones were missing, but the customer service sent new ones the next day. In the negative review condition, the customer first had to wait five days because the iPods were sold out, and then the earphones were missing. However, the customer service denied its responsibility and the customer had to buy new earphones.

Dispositional trust was measured with eight items such as "Most people are trustworthy." (Van Lange et al. 1998). Answers were given on a seven-point scale, $\alpha = .82$, $M = 4.29$, $SD = .75$.

4.1.4. Manipulation checks

Respondents judged the content of the review on a seven-point scale from 1 = very negative to 7 = very positive how they perceived the review. Respondents also estimated the reputation of the stores on a scale consisting of six items. The items covered various aspects of reputation identified by Van Riel (2001), $\alpha = .77$.

4.1.5. Dependent variables

Perceived trustworthiness was measured with eight items adapted from the trusting beliefs scale by McKnight et al. (2002a,b). An example item is "I believe this online store has my best interests in mind". This scale can be split into the sub-components benevolence, integrity, and ability, but factor analysis showed that the items loaded on one factor. Answers were

given on a seven-point scale. Cronbach's α was .94, $M = 4.01$, $SD = 1.34$.

4.2. Results

4.2.1. Manipulation checks

A 2 (review) \times 2 (store reputation) analysis of variance with the manipulation check for review as dependent variable revealed a significant main effect of review, $F(1,97) = 118.00$, $p < .001$. The positive review was perceived as more positive ($M = 4.12$) than the negative review ($M = 2.14$). The analysis with store reputation as dependent variable revealed a significant effect of store reputation, $F(1,97) = 7.61$, $p < .01$. The Apple store was perceived as having a higher store reputation ($M = 4.66$) than the Progress store ($M = 4.20$). No other effects were significant, all F s < 1.20 . The manipulations were successful.

4.2.2. Hypothesis testing

To avoid the negative effects of dichotomizing dispositional trust, the data were analyzed by a regression analysis (MacCallum et al. 2002). The main effects and all possible interactions were entered as predictors, and perceived trustworthiness in the online store was the criterion variable. The regression model was significant, $F(7,92) = 9.26$, $p < .001$, and explained 37% of the variance (R^2_{adj}). Review had a significant effect, $\beta = .56$, $t(92) = 6.79$, $p < .001$. Perceived trustworthiness was higher in the positive review condition ($M = 4.73$) than in the negative review condition ($M = 3.25$). Hypothesis 1 is therefore supported. Although perceived trustworthiness of the Apple store ($M = 4.12$) was higher than perceived trustworthiness of the Progress store ($M = 3.86$), this effect failed to reach the significance level, $\beta = -.16$, $t(92) = -1.63$, $p = .11$. Hypothesis 2 is therefore not supported. However, these results indicate that consumer reviews are indeed more influential than the reputation of an online store, thereby supporting Hypothesis 3. In line with Hypothesis 4, there was a significant effect of dispositional trust, $\beta = .25$, $t = 2.99$, $p < .01$. The higher dispositional trust, the higher the perceived trustworthiness. None of the interaction effects were significant, all t s < 1.23 .

4.3. Discussion

As predicted, consumer reviews, that is, social-based information, had a strong effect on perceived trustworthiness of the online store. Dispositional trust also had an effect; individuals who trusted others more perceived the online store as more trustworthy. More interesting and in contrast to the expectations, reputation of the online store did not influence perceived trustworthiness. The means were in the expected direction, but the effect failed to reach significance. Interestingly, there were no interaction effects with dispositional trust. Thus, at least in the case of consumer reviews and store reputation, low and high trusters do not differ in their weighting of different cues.

As predicted, the main effect of reviews was much stronger than the effect of store reputation. Although this pattern has been predicted, it could also be due to the specific manipulations. The manipulation check for review had much stronger effects than the one for store reputation. The two reviews differed clearly in their valence, whereas the less reputable store still received quite positive ratings. Coombs and Holladay (2002) report similar results for the potentially shielding effect of a good reputation in a crisis situation. The positive and the neutral reputation did not differ much in their experiment, only the company with a negative reputation was damaged by the crisis.

In Experiment 2, we will put our central hypothesis that the social-based information provided in consumer reviews is more

influential than other cues to a stronger test. First, we will add a neutral review condition. Second, the effect of reviews will be contrasted with the effect of assurance seals.

Assurance seals are an example of institution-based trust (Pavlou and Gefen 2004). They are provided by independent firms who certificate the online stores. Online stores that got certified may include the assurance seal on their webpage. Thus, a third party has tested the service of the store and guarantees the quality of the service. Assurance seals are therefore less under the control of the online store. The warranting value of an assurance seal should therefore be higher than the one of store reputation. If consumer reviews are also more influential than assurance seals, this strengthens our main point that consumer reviews are an important determinant of consumer trust in online stores.

Empirical evidence on the effects of assurance seals is mixed (Kerkhof and van Noort 2010). Some authors concluded that assurance seals are not very effective because consumers do not pay attention to them (Kovar et al. 2000, Lala et al. 2002) or do not understand them (Kimery and McCord 2002, 2006; Kim et al. 2004). Other authors argued that personality characteristics moderate the effect and that assurance seals affect especially consumers who are high on trait anxiety (Yang et al. 2006), who aim to prevent negative outcomes (Van Noort et al. 2007), or who perceive internet shopping as risky (Miyazaki and Krishnamurthy 2002). There are also several studies that have found that the presence of assurance seals increases trust and intention to buy (Houston and Taylor 1999, Hu et al. 2003, Zhang 2005). Aiken and Boush (2006) even reported that the presence of an assurance seal increased trust more than an objective-source rating and implied investments in advertisement did.

In this paper, assurance seals are seen as an example of institution-based trust and as cues with a higher warranting value than reputation; therefore, it is expected that they influence trustworthiness judgments.

H6: Perceived trustworthiness of an online store is higher in the presence of assurance seals than in the absence of assurance seals.

Assurance seals are delivered by trusted third parties, but consumer reviews are written by other consumers. Thus, both signals come from third parties and should be perceived as reliable. However, companies apply for assurance seals and put them on the website of their online store; this might be perceived as strategic behavior to gain the trust of consumers. Moreover, prior research found mixed results for the effectiveness of assurance seals (Kerkhof and Van Noort 2010). Other consumers are regarded as independent source; and peers are often perceived as more influential than experts (Smith et al. 2005). Moreover, since the rise of the social web, social-based means of credibility assessment have become more and more important (Metzger et al. 2010). Therefore, we expect that consumers are more influenced by consumer reviews than by assurance seals.

H7: Online store reviews have a stronger effect on perceived trustworthiness than assurance seals.

Dispositional trust did not moderate the effects on consumer reviews and store reputation on perceived trustworthiness. However, assurance seals are a different type of social cue, and it could be that high trusting consumers pay more attention to these types of cues. Therefore, we formulate another hypothesis regarding the effects of dispositional trust:

H8: Dispositional trust moderates the effects of assurance seals and online store reviews on perceived trustworthiness.

5. Experiment 2

5.1. Method

5.1.1. Participants and design

The experiment had a 2 (assurance seal: yes vs. no) \times 3 (review: negative vs. neutral vs. positive) – between subjects design. Dispositional trust was measured. One hundred thirty-one participants (76 males, 57 females) completed the online experiment. Mean age of the participants was 27 (range from 14 to 63). The majority (65%) bought several times a year from the Internet.

5.1.2. Procedure

The experiment was conducted online; participants were recruited via the snowball-system. The experiment started with some questions on the demographics and experience with Internet shopping. Next, dispositional trust was measured. As in Experiment 1, participants were asked to imagine that they wanted to buy an iPod nano, and were presented with the screenshot of an online store and an online review. After viewing these two screens, they answered the dependent measures.

5.1.3. Independent variables

5.1.3.1. *Assurance seal.* A rather unknown online store (according to the Alexa traffic ranking) was used as basis for the experimental material. In the no assurance seal condition, a screenshot of the online store was presented. In the assurance seal condition, several assurance seals well-known in the Netherlands were added: Thuiswinkel waarborg, Qshops keurmerk, Webshop keurmerk, and some logo's for save payment options (e.g. PayPal).

5.1.3.2. *Review.* In this experiment, there were three review conditions: positive, negative, and a neutral review. The positive review reported positive experiences with the customer service of the store; the negative review reported very negative experiences with the customer service. The neutral review reported mixed experiences – delivery took somewhat longer than expected, but in the end the problem was solved and the customer was satisfied.

5.1.3.3. *Dispositional trust.* Dispositional trust was measured with the scale by McKnight et al. (2002a,b). Agreement with the statements was given on a 5-point-scale, $M = 3.58$, $SD = .51$, $\alpha = .83$.

5.1.4. Dependent measure

Perceived trustworthiness of the online store was measured with the same items as in Experiment 1. However, this time, the answers were given on a 5-point-scale because the study was an online survey and the sample did not only consist of students experienced with surveys, $M = 2.84$, $SD = .94$, $\alpha = .96$.

5.1.4.1. *Manipulation checks.* Respondents were asked whether they have seen a negative, neutral, or positive review; and whether they encountered assurance seals on the site of the online store.

5.2. Results

5.2.1. Manipulation checks

Respondents judged the positive review as more positive ($M = 2.91$) than the neutral review ($M = 2.07$) and in turn the negative review ($M = 1.41$), $F(2,130) = 90.83$, $p < .001$. The manipulation check for assurance seal showed a slightly different picture. Ninety-five percent of the respondents in the no-assurance seal condition answered correctly that they did not encounter

assurance seals. However, 52% of the respondents in the assurance seal condition also stated that they had not encountered an assurance seal. This is in line with earlier findings reporting that consumers do not pay attention to assurance seals (Kimery and McCord 2002, 2006). To be able to generalize the results to real e-commerce situations, in which consumers also often do not remember the assurance seals, the data were first analyzed with the experimental condition as independent variable. This makes it also possible to detect potential subconscious effects of assurance seals. Then, the data were analyzed only for the person who correctly answered the manipulation check item.

The data were analyzed using regression analyses. Review as a three-level categorical variable had to be recoded into two contrasts (Judd 2000). The first contrast contrasted the positive review condition with the other two conditions [2 –1 –1]; the second contrasted the neutral and the negative review [0 1 –1]. Consequently, there were also two interaction terms.

The overall regression model was significant, $F(11, 121) = 10.34$, $p < .001$, $R^2_{adj} = .44$. Both review contrasts were significant, $\beta = .57$, $t(121) = 8.48$, $p < .001$ for the first contrast, and $\beta = .38$, $t(121) = 5.75$, $p < .001$, for the second. The online store with the positive review was perceived as most trustworthy ($M = 3.54$), followed by the store with the neutral review ($M = 2.92$). The store with the negative review was perceived as least trustworthy ($M = 2.05$). Hypothesis 1 is therefore again supported.

The main effect of assurance seal was not significant, $t < 1$, ns. Hypothesis 6 is therefore rejected. However, this result supports Hypothesis 7 that predicted that the influence of online store reviews is stronger than the influence of assurance seals. There was also a marginally significant interaction between dispositional trust and assurance seal, $\beta = .13$, $t(121) = 1.83$, $p < .10$. As predicted by Hypothesis 8, dispositional trust moderated the effects. As can be seen in Fig. 1, an assurance seal increased perceived trustworthiness for high trusters (slope $B = .15$), but had even a slightly negative effect on low trusters (slope $B = -.09$).

Also in line with hypothesis 8, there was an interaction between dispositional trust and the contrast between the positive and the other two reviews, $\beta = .15$, $t = 2.24$, $p < .05$. As can be seen in Fig. 2, a positive review had more effect on high trusters (slope $B = .48$) than on low trusters (slope $B = .28$).

To establish whether the lack of effects of assurance seals was due to the fact that many respondents had not noticed the seals, we conducted additional analyses including only the respondents who answered the manipulation check item for assurance seals correctly.

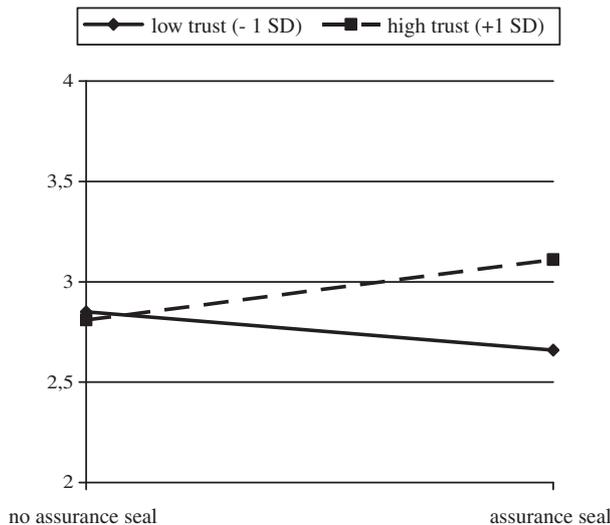


Fig. 1. Perceived trustworthiness of the online store as a function of dispositional trust and assurance seals (Experiment 2).

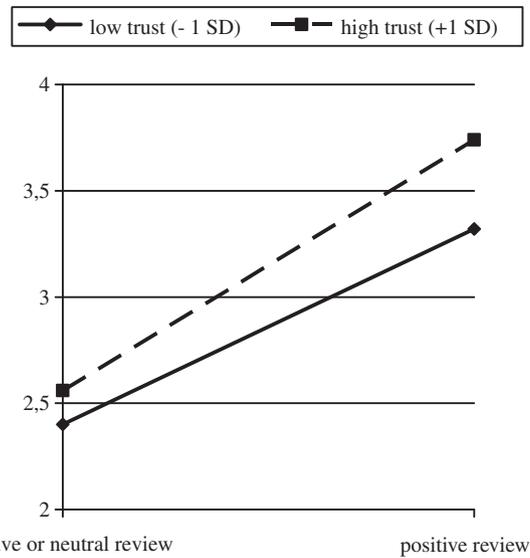


Fig. 2. Perceived trustworthiness of the online store as a function of dispositional trust and review (Experiment 2).

These analyses did not reveal a significant main effect of assurance seal either, $t < 1$, ns. The overall pattern was virtually the same, but the interaction between assurance seal and dispositional trust failed to reach significance in this smaller sample, $\beta = .15$, $t(93) = 1.63$, $p = .11$. Only the main effects of review were significant in this analysis, $\beta = .57$, $t(93) = 6.74$, $p < .001$, for the contrast between the positive review and the other two reviews, and $\beta = .43$, $t(93) = 4.89$, $p < .001$, for the contrast between the neutral and the negative review. Again, trustworthiness was highest in the positive review condition ($M = 3.70$), followed by the neutral condition ($M = 2.93$) and in turn the negative review condition ($M = 1.96$).

5.3. Discussion

As in Experiment 1, review valence had a strong effect on perceived trustworthiness. The introduction of the neutral condition showed that a positive review enhanced perceived trustworthiness, whereas a negative review reduced trustworthiness. Thus, it is not the case that the default is to trust and that only the negative review had a strong trust-reducing impact.

Dispositional trust had a moderating effect in this experiment. High trusting consumers were more easily persuaded by positive cues. That is, people who generally trust other people also trust positive reviews and assurance seals more than low trusters. Thus, the present results replicated the findings by Yamagishi (2001) in the domain of online shopping. They also indicate that it is especially difficult to gain the trust of low trusters.

In line with prior findings (Cranor et al. 2000, Kimery and McCord 2002, 2006), about half of the respondents in the assurance seal condition were not aware of the assurance seals. Interestingly, the analysis revealed the same pattern, regardless of whether all respondents were included or only the ones that correctly answered the manipulation check on assurance seals. That is, even the respondents who have correctly noticed the assurance seals, did not give higher trustworthiness judgments than the respondents who correctly have not noticed any assurance seals. Instead, assurance seals only affected high trusters.

6. General discussion

Across two studies, strong effects of online reviews on perceived trustworthiness of an online store were found (see

Table 1
Overview over the hypotheses and results.

Hypothesis	Evidence	
	Experiment 1 reviews vs. reputation	Experiment 2 reviews vs. assurance seals
H1: main effect store review	$p < .001$	$p < .001$
H2: main effect of online store reputation	Rejected ($p = .11$)	–
H3: effect store reviews stronger than store reputation	$p < .001$	–
H4: main effect dispositional trust	$p < .01$	Rejected
H5: dispositional trust moderates effects of store reviews	Rejected	–
H6: main effect of assurance seals	–	Rejected
H7: effect store reviews stronger than assurance seals	–	$p < .001$
H8: dispositional trust moderates effects of assurance seals and store reviews	–	$p < .10$ for interaction with assurance seals, $p < .05$ for interaction with store reviews

Note: – indicates that the hypothesis has not been tested in this experiment.

Table 1). In Experiment 1, the positive review elicited higher trustworthiness judgments than the negative review. By adding a neutral review condition, Experiment 2 showed that a positive review enhanced perceived trustworthiness, whereas a negative review reduced perceived trustworthiness. The trust-reducing effect of a negative review was only slightly stronger than the trust-enhancing review of a positive review.

More important, the information provided by other consumers had more impact than store reputation and assurance seals. Metzger et al. (2010) showed that social-based means of assessing credibility of information are getting more and more important. The present results show that social-based information also has more impact on final trustworthiness judgments than other cues. Prior trust models neglected the possibility that consumers search for consumer generated information to assess the trustworthiness of an online store (Gefen et al. 2008). The present research shows that it is necessary to add consumer-generated information to these models. Moreover, the data suggest that the various classes of information are not equal and that cues are not combined in an additive fashion. The warranting principle (Walther and Parks 2002) can help to predict which cues have more impact. Consumer reviews are more difficult to manipulate and were therefore regarded as a more reliable signal than store reputation or assurance seals in the present research.

In contrast to earlier studies (Jarvenpaa and Tractinsky 1999, de Ruyter et al. 2001, Koufaris and Hampton-Sosa 2004), store reputation did not have a significant effect on perceived trustworthiness of the online store. The effect was close to marginal significance, but the much stronger effect of consumer reviews overruled the reputation effect. In prior research, store reputation was contrasted with other vendor or website characteristics. It could be that reputation is a stronger cue than other vendor or website cues, but still overruled by social-based cues. However, the smaller effects could also be due to our experimental setting. In the first experiment, no neutral review condition was included, so the stronger effect of consumer reviews might have been partly due to the larger difference between the two review conditions. Reputation might also be a more global concept and therefore a more distal cue for trustworthiness. A store can have several reputations (Herbig et al. 1994), e.g. a reputation for prompt delivery or a reputation for customer service. We did not specifically manipulate the reputation for customer service, but assumed that the positive overall reputation of the Apple store spills over to its service reputation. A review describing a concrete negative experience with the customer service is more closely related to trustworthiness and is obviously considered as a better cue for perceived trustworthiness of the store. A similar line of argumentation is used in the correspondence principle (Ajzen and Fishbein 1977), which states that more specific attitudes are better predictors of behavior than general attitudes.

Assurance seals are directly targeted at the quality of the services and the adherence to certain ethical principles. Thus, they should be reliable signals when the trustworthiness of an online store has to be judged. The problem is that many users do not pay attention to them or do not know their meaning (Cranor et al. 2000, Kimery and McCord 2002, 2006; Kim et al. 2008). In the current experiment, about half of the respondents did not notice the assurance seal. However, even among those who noticed the assurance seals, no main effect of assurance seals was found. This might be because the reviews used in the current experiment described problems with the customer service. Thus, even if an assurance seal guarantees that the problem will be solved in the end, consumers avoid the store if they expect that solving the problem requires various emails and phone calls and eventually the intervention of a third party. This is especially the case for the low trusting consumers, who prefer to avoid risky situations. High trusting consumers on the other hand tended to perceive the online store as more trustworthy when assurance seals were present.

Dispositional trust turned out to play an important role in various ways. In Experiment 1, dispositional trust had a main effect. High trusters perceived the online store as more trustworthy than low trusters did. In Experiment 2, dispositional trust interacted with the presented cues. High trusters showed only higher levels of trust than low trusters when positive cues were present, e.g. a positive review or assurance seals. This is in contrast with earlier findings that assurance seals affect mainly individuals who perceive online shopping as risky (Miyazaki and Krishnamurthy 2002, Yang et al. 2006, Van Noort et al. 2007). However, the results are in line with Yamagishi's (2001) finding that high trusters scrutinize social cues more closely whereas low trusters avoid interactions. Reading the reviews of other consumer could turn online shopping into a more social activity, and this could explain why our findings are more in line with other findings on social interactions.

Dispositional trust had no moderating effect in Experiment 1. This could be due to the different samples. Experiment 1 was conducted with a student sample in the lab, thus a somewhat artificial situation. Experiment 2 used a more representative sample of consumers with online shopping experience. Moreover, it was conducted online, which fits the natural online shopping situation.

6.1. Theoretical contributions

The present research contributed to prior research in several ways. First, it integrated research on online trust and research on eWOM by studying the effects of consumer reviews on perceived trustworthiness of an online store. This is important because the rise of the social web has changed the ways in which people assess the credibility of online information; social information pooling is

nowadays a dominant strategy (Metzger et al. 2010). The results of both experiments show clearly that consumer reviews do not only influence product choice, but also the perceived trustworthiness of an online store and consequently possibly also choice of an online store. Online trust models should include consumer reviews, especially because a negative review can overrule other reliable signals such as a good reputation or assurance seals.

Second, the paper extended prior studies on eWOM by adding a neutral review condition and by examining reviews on customer service. Prior research focused on product reviews; the present research shows that these findings generalize also to service reviews. Most prior studies contrasted a negative and a positive review and it remained unclear whether the effects were driven primarily by the positive review, the negative review, or both. Negative information is often assumed to be more diagnostic and therefore also as more influential in impression formation and trustworthiness judgments (negativity bias, e.g. Baumeister et al. 2001). The present results show only a slightly larger trust-reducing effect of the negative review in comparison to the positive review. However, the positive review also significantly enhanced perceived trustworthiness.

Third, the present study looked not only for main effects of dispositional trust, but also for interaction effects. Most prior studies on online trust did not examine interactions with dispositional trust (Jarvenpaa and Tractinsky 1999, de Ruyter et al. 2001, Koufaris and Hampton-Sosa 2004). Dispositional trust turned out to play an important role. In Experiment 1, conducted with university students, a main effect emerged. In the more diverse and experienced sample of Experiment 2, interactions with dispositional trust occurred. High trusters had more trust in positive signals such as a positive review or an assurance seal. Thus, it is not the case that high trusters are naïve and trust even stores which better should not be trusted. Rotter (1980) and Yamagishi (2001) have shown earlier that high trust does not correspond to high gullibility. Controlling for dispositional trust is an important contribution to prior research. Considering dispositional trust as a moderator can also help to explain the somewhat inconsistent findings on the effects of assurance seals. In a high trusting sample, stronger effects of assurance seals can be expected.

6.2. Practical implications

The present experiments have several practical implications. First, the results illustrate the rising power of consumers. The social web has made it possible for consumers to express their opinions; and social information pooling has become an important strategy to assess the credibility of online information (Metzger et al. 2010). Therefore, it is important for vendors to monitor consumer reviews. A negative review can have detrimental effects, and these effects cannot easily be compensated by a good reputation or assurance seals. For vendors, this is a somewhat depressing result because building and maintaining a good reputation is costly, and going through the certification process for assurance seals requires time and effort. For consumers, this is good news because they can now successfully warn other consumers against online stores with a bad customer service. Some companies have already formed online customer care teams that respond to negative reviews. Thus, it can be expected that eWOM forces companies to improve their products and customer service.

Another practical implication is that investing in assurance seals is not the most promising strategy to gain the trust of potential customers. Even the participants who correctly remembered the seals did not report higher trustworthiness.

Companies should better focus on other, more social strategies. The results also showed that it is most important to focus on the customers low in dispositional trust. These customers do not even trust positive reviews or assurance seals.

We used reviews as they are found on the popular Dutch consumer review site www.kieskeurig.nl. No information about the reviewer is given, only the name. This may shed doubt on whether the review(er) is genuine. Other consumer communities such as www.epionions.com have user profiles and additional information about the trustworthiness and competence of the reviewers, such as the number of reviews written, ratings of the helpfulness of these reviews, or the number of people who trust this reviewer. Testimonials that come from the social network of the customer might also be perceived as more trustworthy. Therefore, a third practical implication for the designers of consumer communities is to include social information beyond the reviews themselves. This may be done by review(er) ratings, or by aggregating reviews from outside of the domain of the online store. This may help low trusters to overcome their dispositional distrust.

6.3. Limitations

We should note some limitations of the current paper. We already discussed the use of university students as subjects in Experiment 1 and the absence of a neutral review condition in the same experiment. Some other limitations should be noted. Participants only read one consumer review. This is a somewhat unrealistic setting; in real life, people often read several reviews. The impact of one negative review could then be diminished by several positive reviews; however, this would still demonstrate the impact of social information pooling. Another limitation is that the experiments focused on perceived trustworthiness and did not assess buying intention or actual buying behavior. However, the links between perceived trustworthiness, buying intention, and buying behavior have been repeatedly demonstrated, so we are confident that similar patterns would be found for buying intention and buying behavior.

In the present experiments, respondents were first exposed to the screenshot of the online store and read then the review about the store. This corresponds often to a realistic situation – people encounter a store that offers a product for the lowest price, and seek than additional information about the online store. However, it might also be interesting to examine what happens if respondents are first exposed to the review. Does a negative review trigger a more careful examination of the website? It could be that people become more aware of the presence of assurance seals, the professionalism of the web design, or the reputation of a store when they have read a negative review. The review did not contain much information about the writer of the reviewer. Future research could examine how additional social information such as the number of people who trust this reviewer or the rated helpfulness of a review influence the impact of a review. The primary goal of this paper was to demonstrate that consumer reviews have a strong effect on perceived trustworthiness of an online store; future research should focus more on the underlying processes such as attributions.

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