

# Trustworthiness in E-Commerce

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## ABSTRACT

Usability has often been sold as the silver bullet for solving the problems of unprofitable online stores. Although better usability will generally improve these sites and their potential for success, usability alone will not result in a highly thriving online presence. After all, no reasonable person will spend money at an untrustworthy online store no matter how usable and pretty the site may be. In this paper, we examine the multifaceted notions of trust and trustworthiness and how they can be applied to E-commerce stores. Trust in online stores strongly affects consumers' purchase decisions. While the majority of trust research lies in sociology and psychology, it is also relevant to E-commerce. We argue that high usability of an online store does not imply that the store is also trustworthy and, based on a theoretical discussion of trust, formulate a few design guidelines for designing for trust.

## Categories and Subject Descriptors

K.4.4 [Electronic Commerce]. H.5.2 [Information Interfaces and Presentation]: User Interfaces.

## General Terms

Design, Human Factors

## Keywords

Trust, E-Commerce, Human-Computer Interaction, Usability

## 1. INTRODUCTION

Research shows that trust is key to the success of electronic commerce [4, 5, 13]. A study conducted by Consumer WebWatch between December of 2001 and January of 2002 found that less than 30% of online shoppers trust online stores and 80% feel it is important that an online store be trustworthy. Interestingly, these numbers were much lower than trust in newspapers and television (58%) and the government in Washington (47%). This lack of trust has been identified as a key element of consumers hesitating in making online transactions [2, 9]. As Ang et al. [1] report, many E-commerce sites are indeed not trustworthy, i.e., it is not just a perception problem. For instance, many sites that collect personal information about the online visitors do not report this at all and many sites do not make explicit how they reuse or disclose

personal information to third parties.

In this paper, we try to answer the question of what makes online stores trustworthy. Understanding the nature of trust seems like a logical first step. Too often, this step is not taken seriously enough, resulting in naïve and faulty notions of trust. Understanding the concept of trust in other areas, such as psychology and sociology, can give insight into understanding what facilitates trustworthiness online. What makes people trust and mistrust other people and organizations and what does this mean? Applying this understanding to E-commerce will be helpful in developing initial guidelines for designing for trust. The guidelines are based on a theoretical discussion of the concept of trust. These guidelines need to be empirically tested later.

For instance, why do so many shoppers perceive online shopping as untrustworthy? One possible answer can be found by looking at the facet of trust which says that when people trust an individual, say a medical doctor, they often are not only placing trust in that individual but also in the system associated with the individual, which, in this case, is the medical community [3]. This aspect of trust can be applied to E-commerce. The trustworthiness of an E-commerce site is not only dependent on the site itself but what and who the site is associated with. Assume that the user had a bad experience buying a computer from online store *A*. Although another computer online store *B* is not related to *A*, the consumer may now be wary of all online computer E-commerce sites, including, to some degree, company *B*. As a more extreme example, consider designing an online car dealership. The not-so-trustworthy image of your typical car salesman can make building a trustworthy online dealership site rather challenging.

## 2. A MODEL FOR ONLINE SHOPPING

The examples in the introduction show that we cannot judge the trustworthiness of a site by simply looking at the site in isolation. Therefore, we introduce a simple model of online shopping that makes explicit what elements need to be included when we talk about usability and trust issues. This model is based on "normal" shopping in physical (or brick-and-mortar) stores.

Shopping online consists of four phases, two during the visit and one each before and after the visit. Without going into any details, we assume that every consumer has a "trust model" storing all her personal trust-related beliefs.

1. The customer decides that she wants or needs to buy a certain, possibly loosely specified, set of items *X*.
2. The customer "enters" the online store and selects a set of items. This selection process may vary a lot between different stores, and the selected items *Y* may or may not be related to the originally intended set of items *X*.

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Conference '00, Month 1-2, 2000, City, State.

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3. The customer purchases the items  $Y$  during the check-out phase.
4. The customer evaluates the shopping experience and updates her trust model. This evaluation and update process is generally a subconscious process, although if the customer has a strong positive or negative perception of the shopping experience, this may also be a conscious process.

The most important characteristics of this model for our discussion are the following. First, a shopping episode is always to be seen in the context of a shopping history consisting of other shopping episodes, exposure to advertisements, relationships to stores, sellers and brands, etc. A current episode will become part of the context for the next shopping trip. Second, the interaction with the E-commerce site consists of a selection phase and a checkout phase. Too often—for the online store, that is—the checkout phase is omitted by the potential customer and a full shopping cart is left behind [14]. This is a problem that happens for obvious reasons less often in physical stores.

In the rest of the paper it is important to keep in mind the two main phases, selection and checkout, and the existence of a context that goes beyond what is usually considered to be relevant.

### 3. WHAT IS TRUST?

We have already used words like trust and trustworthiness without defining what they mean. Unfortunately, it is not so easy to pin these terms down and give a simple definition that everyone will agree on. However, we can circumscribe the various notions of trust by describing some of their more pertinent characteristics.

The popular literature assumes that everyone knows what trust means and therefore there is no need to provide some kind of definition. Unfortunately, even the research literature too often takes this road and it becomes quite clear that most authors do not agree on one and the same definition. The only thing they seem to agree on is that trust is a multifaceted and difficult concept to define [6, 7]. This difficulty is due in part to our daily vernacular, interchanging terms like trustworthiness and trust, or entrusting and trusting. Barber states that “[i]n both serious social thought and everyday discourse, it is assumed that the meaning of trust, and of its many apparent synonyms, is so well known that it can be left undefined or to contextual implications” and that “vagueness is apparent also in the multiple meanings given to trust” [3]. Hardin agrees saying that “[w]e often tend to suppose that our quick, even sloppy intuitions or insights are foundational, not merely casual” [7].

What follows is a discussion of some of the many facets of trust, along with their implications for E-commerce.

#### 3.1 Intentions and Competence

We have expectations when we place trust in someone. Govier states that expectations of trust relationships have two dimensions: motivation and competence [6]. What motivates one to be trustworthy? Some may be motivated by self-interest, by what he or she gets out of being trustworthy, e.g., someone selling a used car with mechanical problems. He wants a potential buyer

to trust him when he says the car is in working order. He is only concerned with his interests and not the other person considering buying the car.

On the other hand, others are motivated by the trustee’s interests, the person who is placing the trust. Hardin has a more narrow view and claims that trust is an issue only when the trusted party has concern for fulfilling the trustee’s interest and not his own [7]. Online stores should be using this approach, i.e., they should try to make the customers feel they are more important to the store than sales. Govier states that “[t]o trust people is to expect that they will act well, that they will take our interests into account and not harm us” [6] and similarly, Barber describes a trustworthy person as someone who places “...others’ interests before their own” [3]. This does not always apply to the brick-and-mortar situation when, for instance, a transaction is completely finished by the time the customer leaves the store and paid that chocolate bar in cash.

Not only do we want a trusted party to be concerned about our interests, we want it to be competent as well. “Technical competence” is an important facet of trust [3]. If a person feels someone lacks ability necessary for the relationship, this person will not place trust in that someone.

Extending these thoughts to E-commerce suggests that online stores need to be both competent and have consumer interests at heart to fulfill expectations that are associated with trust. How can online stores give the impression of competence? One way is to avoid looking incompetent as so many sites do with broken links, unclear checkout procedure, use of protocols that are not secure, missing privacy information or simply a very unprofessional look. For many interesting examples see <http://shopping.yahoo.com>. As far as an online store having consumer interests at heart, stores should be designed in a user-centered way, e.g., by arranging product layout from the consumer’s perspective, rather than from a back-end perspective, such as a layout with a database feel [8]. A responsive support contact will also make clear to the customer that the business is not just about making money, but about making the customer happy as well.

#### 3.2 Context

Context is important when discussing trust [3, 6, 7]. Rarely do we trust a person with everything, rather we trust people in a specific context only. Often context is not discussed but implicitly assumed [6, 7]. This leads to an obvious problem: the meaning of trust differs from author to author and people less aware of this problem will simply ignore the context altogether. Hardin states that this “... is an inherent problem with the use of ordinary notions in such discussions. It often requires deliberate effort to avoid falling into vernacular usage and, hence, into drawing the wrong implications” [7]. According to Govier [6], we may feel fine having a certain person fix our computer but would be uncomfortable relying on the same person delivering an important parcel. Therefore, behavioral measures, to be meaningful and generalizable, have to be associated with a particular context [7].

For online stores, this means that they shouldn’t just sell everything they could in principle. Will customers indeed be comfortable making a certain purchase online? If not, it’s probably a waste trying to sell it—it might even divert shoppers from buying other things. For instance, the cost of an item may be

an issue, especially if the store is not very well known. Many customers don't necessarily buy computers according to which one is the best deal, but which one is the best deal among the few big, well-known online stores like Dell, Gateway, IBM, etc. Some customer may feel apprehensive about purchasing clothing they can't touch. A good way of finding out what may work is studying what has been sold for decades through catalogs. The important implication on E-commerce is to realize certain products will be more challenging to sell online than others. The context is elliptically assumed, i.e. the statement "I trust online stores enough to make purchases" really means, "I trust online stores enough to make *certain* purchases." One may trust online stores enough to buy books and clothes, but not enough to purchase something really important to the buyer, such as airline tickets, or something really expensive, such as a car.

### 3.3 Cooperation

Trust is also associated with cooperation. One may assume that two people who cooperate must trust each other to a certain degree. This is Govier's view who makes a direct association between interaction and trust [6]. However, Hardin [7] points out that this is not necessarily the case. A person can engage in cooperation not because she trusts someone but because she has no alternatives. This may occur online when, for example, an online store carries a needed product that product is not physically available in the shopper's area. Collectors of vintage dolls or certain memorabilia may have to resort to eBay to buy them. For instance, someone who wants to buy a collectible for a friend who is a collector could probably only find this collectible by chance at a thrift store or a yard-sale. Thus, she has no real alternative but to buy it online.

A person may trust someone but never have the opportunity to act on that trust. It is therefore important to draw a clear distinction between trust and action. According to Hardin [7], "[t]rust is thus inherently a matter of knowledge or belief" and it is important to note that there is no risk in trusting alone, the risk is in acting on trust. So it is possible to trust an online store and never purchase anything from it. Obviously, the person is not taking any risk. For instance, a person may trust an online jeweler but never have the money or the urge to make a purchase.

### 3.4 Uncertainty

Uncertainty, risk and vulnerability are all relevant to trust. Trust is only an issue if there is some amount of uncertainty involved. One must have enough confidence in someone to overcome this uncertainty. Trusting someone means taking a risk or, as Govier puts it "trust is risky" [6]. As discussed in the previous section, she should have said instead that *acting* on trust is risky [7].

Another way of overcoming this uncertainty is by using a trusted third party. For instance, many online companies rely on other companies, e.g., PayPal, to take care of money transactions. In such a case, the customer is not required to trust the seller with the money, but only the money transaction company.

Trust involves choice, i.e., the concept of trust is meaningless in a deterministic world [7]. After all, what good would it do to trust or not if one would do the next predetermined action anyway?

Uncertainty abounds on the web. Consumers can feel uncertain about the use of sensitive information like personal and credit

card information, product descriptions, and shipping times. Also, the web is full of choices, easily accessible alternatives, made with just one click. Often it is not even clear what a certain choice implies, or even worse, what it has caused after having been selected. A trustworthy web site should therefore attempt to minimize the amount of uncertainty involved in the user's decision making. Furthermore, if a decision can be postponed or even altogether omitted, the need for trust, and thus, risk, can be even more reduced.

### 3.5 Length of Relationship

The longer the relationship, the more trustworthy parties become [6, 7]. If trust had declined over time, the relationship would have been discontinued sooner or later. Thus, a long relationship generally implies strong trust that extends into the future [6]. Hardin states that "[i]t is primarily those with whom we have ongoing relationships that we trust. And the richer the ongoing relationship and the more valuable it is to us, the more trusting and trustworthy we are likely to be" [7].

Hence, the more we frequent an online store the more trustworthy it is perceived. Getting customers to return is a big challenge for online stores because once trust is lost it is difficult to regain [6]. However, repeat customers build a stronger and stronger relationship with the store increasing the trustworthiness of that site for this customer. This can be highly lucrative for the store. As we have discussed in the section on 'context,' a strong reputation can be highly beneficial as it allows the store to sell different items, for instance, more expensive ones.

### 3.6 Reputation

Hardin describes reputation as perceived trustworthiness [7]. New relationships with other people and online stores are often based on recommendations from other sources. For instance, if a person considers trusting a new store, she might try to get information about the store's trustworthiness. Since this is a new store for her, she cannot rely on her own but only on other people's experiences with the store. We often use reference letters from people we trust to find out whether we should also trust, at least initially, a third person. This can correlate to trustmarks online, such as TRUSTe and VeriSign. Trustmarks give their seal of approval to sites if they pass certain criteria, criteria made available to the public. Hence, trustmarks try to give consumers reason to shop at an online store only once and feel they can trust it. If an online store has a bad reputation, it essentially has no perceived trustworthiness.

## 4. TRUST AND USABILITY

Usability is often considered one of the key factors to the success of an online store, or, to put it differently, an unusable site will falter quickly. We have already hinted at the fact that trustworthiness is neither a subset of usability nor is it implied by usability. Before we can contrast usability and trustworthiness of a site more explicitly, we need to define what we mean by usability.

### 4.1 Usability

The usability of an online store is normally measured as a combination of how well it performs with respect to certain measures. The following is list of usability criteria is quite

representative, although every site will emphasize the criteria differently depending on the site's goals, user characteristics and context [12].

- *Learnability* addresses how easy it is to learn to use the site. For instance, how easy is it to figure out how to navigate around in the site or how to use the search engine?
- *Efficiency* addresses how quickly a task can be successfully accomplished. For instance, how quickly can a specific item be shopped including checkout?
- *Effectiveness* addresses whether relevant problems can be solved well. For instance, is it easy to shop for a pants/shirts combination?
- *Memorability* addresses whether the user remembers how to use the site or whether he has to re-learn it each time. For instance, do I still remember where I can find those pants/shirts combinations or do I have to learn the site architecture anew?
- *Subjective satisfaction* addresses whether the user likes interacting with the online store.
- *Error* addresses how well the store helps avoid user errors and supports the user to recover from errors. For instance, an error may be not finding a certain product or putting the wrong item into the shopping cart, whereas recovery refers to how easy is it to get rid of the wrong item from the shopping cart.

Of course, a more extensive list of usability criteria is possible, however, above list covers the most frequently used criteria.

## 4.2 Trust and Usability

Usability is often sold as the silver bullet for the poor sales record of many online stores. Many times the impression is given that a usable online store will be successful [11]. But is usability all we need? Obviously, a site needs to be trustworthy and it should be clear by now that usability alone will not result in a trustworthy site. Usability is absolutely necessary [11], however, we also need to design the site for trustworthiness.

Based on the previous review of the concept of trust, we will list a set of guidelines that may help to make sites more trustworthy and discuss whether high usability will take care of these issues or not. We will also include well-known usability guidelines [12] (but see also [10]) to show that a facet of trustworthiness is improved by improving usability. (Each guideline is annotated with number of the section to which it relates in this paper.)

- *Fulfill the customer's expectations (3.1)*: Make sure the product descriptions are accurate and detailed so there are no surprises when the product finally reaches the consumer.
- *Show technical competence (3.1)*: Make sure that the site is completely functional; that it actually does everything it says it does. Make sure all words are spelled correctly, there are no broken links or dead images, search engines yield proper results, etc. These types of recommendations are also found in usability guidelines [10].
- *Put consumer interests above your own (3.1)*: Provide services such as money-back guarantees, competitive price matching, product reviews. Let the consumer know that you are concerned about his satisfaction, more so than whether you make money from a sale. Follow up with consumers who did purchase asking them how their experience went, suggestions for improvement, if anything went wrong. And if the consumer did have a bad experience, correct the situation, provide a shipping refund, store credit, a coupon for a percentage of their next purchase, even if it costs you money. In the long run it will be worth it. The consumer will return and not only that, will spread the word on the great customer service he received, convincing others to shop there as well.
- *Remember certain products are more challenging to sell online than others (3.2)*: You can not take the same approach to selling books online as you would cars. Different products need different policies. Selling medical supplies or drugstore items should offer discreet packaging, while selling cars online should offer delivery or pick up options, warranty options, and provide different financing options.
- *Minimize the risk the customer is taking (3.3)*: Whether the customer considers a certain action risky depends on his trust model, i.e., earlier experiences somehow relate to the current potential purchase. It also depends on how expensive the item is for this customer. Usability cannot directly help here. Of course, it would be easy to increase the risk, for instance, by announcing that "everything is cheap in our store, but we sell your personal information to the highest bidder." It is the converse that is a challenge. Provide safe and secure transactions, along with sound privacy policies, allowing the customer to feel comfortable sending personal information over the Internet. Your consumer's trust is more valuable than their personal information.
- *Reduce uncertainty in decisions (3.4)*: Usability guidelines make it clear that it should always be obvious to the user what results and potential side-effects an action will have before it is executed. Thus, reducing uncertainty is a goal consistent with usability.
- *Let the user feel in control (3.4)*. Allow the user to be able to press the back button on the browser, let her decide when all the purchase decisions are made. Govier states that when we distrust we feel a need to control the relationship [9]. This perhaps may mean that online consumers are not trusting, thereby want to be in control, which is why usability experts push control to compensate for this lack of trustworthiness online.
- *Minimize number of required decisions (3.4)*: Minimizing the number of steps to accomplish a task and not requiring decisions upfront, although they may never be needed, is consistent with design for high usability. It will reduce time on tasks and potential errors. Of course, this does not imply that we want to remove useful decisions from the user, just superfluous ones.

- *Do not ask for personal information unless necessary (3.4):* Avoid asking for personal and credit card information until the very end of the checkout procedure. Do not force users to log into your site to shop.
- *Consider moving certain risky actions to third party (3.4):* Allow consumers to deal with a trusted third party for risky actions, such as allowing PayPal or BidPay for making payments, instead of consumers directly paying you.
- *Build a long-term relationship (3.5):* You want consumers to have a positive first shopping experience and come away with a good impression. If consumers have a bad experience, they are likely to be gone forever and never return. To get customers to return, show them appreciation by giving discounts on return purchases, such as free shipping. Let them know that there business is vitally important to you and how much you appreciate them trying you out.
- *Build a good reputation, i.e., not just real but also perceived trustworthiness (3.6):* Advertising may be key here in building perceived trustworthiness. If feasible, advertise in newspapers and magazines geared toward your product line, and television. If consumers have heard and read your site's name repeatedly they are likely to try you out.

Many of these guidelines happen to coincide with usability guidelines already created, but they are grounded in trust. This overlapping is a good thing. There are, however, a few guidelines that are not addressed from a usability standpoint. These are the guidelines mentioned associated with consumer interests, minimizing consumer risk, building long relationships and long reputations, and having third-parties.

## 5. SUMMARY

Many E-commerce sites still need major improvements to be successful. Improved usability is definitely one of the key factors, but so is trustworthiness. We have discussed the concept of trust in quite some detail since we believe that only by studying its many facets we can understand what online stores need beside usability. As a result of comparing what a trustworthy site requires and what a usable site provides we concluded that several needs are not met related to consumer interests, minimizing consumer risk, building long relationships and long reputations, and having third-parties. Some of these lay completely outside the scope of usability. Usability is not the only key to success; rather it is a partner with trust. Both are necessary for E-commerce to thrive.

## 6. REFERENCES

- [1] Ang, L., Dubelaar, C., & Lee, B. To Trust or Not to Trust? A Model of Internet Trust from the Customer's Point of View. In *Proceedings of the 14th Bled Electronic Commerce Conference*. Macquarie University, Bled, Slovenia, 2001, 40-52.
- [2] Ang, L., Lee, B. Influencing Perceptions of Trustworthiness in Internet Commerce: A Rational Choice Framework. In *Proceedings, Fifth COLLECTer Conference on Electronic Commerce*, Brisbane, 13-14 December 2000.
- [3] Barber, B. *Logic and Limits of Trust*. Rutgers University Press, New Jersey, 1983
- [4] Consumer WebWatch Research Report. A Matter of Trust: What Users Want From Web Sites. Princeton Survey Research Associates, April 16, 2002, <http://www.consumerwebwatch.org>.
- [5] Egger, F. N. Affective Design of E-Commerce User Interfaces: How to maximise perceived trustworthiness. *Conference on Affective Human Factors Design*. Singapore, June 27-29, 2001, pp. 317-324.
- [6] Govier, T. *Dilemmas of Trust*. McGill-Queen's University Press, Montreal, 1998.
- [7] Hardin, R. Conceptions and Explanations of Trust. In Cook, K. ed. *Trust in Society*. Russell Sage Foundation, New York, 2001, 3-39
- [8] Hübscher, R., Pittarese, T. and Lanford, P. Navigation in e-Business Web Sites. In Nansi, S. ed. *Architectural Issues of Web-Enabled Electronic Business*, Idea Group Publishing, 2003, 184-196.
- [9] Jarvenpaa, S. & Tractinsky, N. Consumer Trust in an Internet Store: A Cross-Cultural Validation. *JCMC*, 5:2, December 1999.
- [10] Lynch, P. J. & Horton, S. *Web Style Guide*, 2nd ed. Yale University Press, New Haven, 2002.
- [11] Nielsen, J. Did Poor Usability Kill E-Commerce? [www.useit.com/alertbox/20010819.html](http://www.useit.com/alertbox/20010819.html), August 19, 2001.
- [12] Nielsen, J. *Usability Engineering*. Morgan Kaufman, San Francisco, 1994.
- [13] Tan, Y.H., and Thoen, W. Formal Aspects of a Generic Model of Trust for Electronic Commerce. In *Proceedings of the 33rd Hawaii International Conference on System Sciences*, IEEE 2000.
- [14] Weiss, E. Online express line hard to find. <http://www.usatoday.com/lif/cyber/bonus/1200/cb002.htm>. USA Today, 2000.