2

Trustbuilders and Trustbusters

The Role of Trust Cues in Interfaces to e-Commerce Applications

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Abstract: This paper investigates how interface design can help to overcome the proclaimed 'lack of trust' in e-commerce sites. Based on existing social science knowledge on trust, and our own exploratory study using Grounded Theory methods, we developed a model of consumer decision making in on-line shopping. Due to the separation in space and time when engaging in e-commerce, there is an *increased need for trust, rather than the oft-proclaimed lack of trust.* Based on this model we then review design guidelines through empirical tests. We focus on approaches that aim to increase trust by increasing the *social presence* of an interface. We identified cues in the user interface that help to build trust to some extent (*trustbuilders*), and some cues that have a great potential for destroying trust (*trustbusters*).

1.   INTRODUCTION

Consider shopping in the real world: When a customer enters a shop for the first time, she sees the interior, goods and the sales staff. The customer may not conduct any risk evaluation at all, because shopping is a habit she does not perceive as risky. But the visual cues allow her to a evaluate the shop's professionalism, competence and trustworthiness via a comparison with other shops. The situation is different for shopping on the Internet: Most people do not shop habitually on the Internet and do not understand the underlying technology, and the risks are numerous. It is thus not surprising that one of the leading advertisers on the Internet is TRUSTe [15], an organisation that assigns seals to e-commerce enterprises that it considers 'trustworthy'. Consumers' *lack of trust* in e-commerce is often assumed to be one of the main reasons for the disappointing development of B2C e-commerce [21]. The aim of the research reported in this paper was to investigate whether – and which – elements of the user interface can contribute to building trust with customers.

2.   RESEARCH APPROACH

Our research started with an exploratory approach: Firstly, we conducted a review of the sociology and social psychology literature on trust [study I]. This laid the conceptual basis for a series of in-depth interviews with 13 Internet users (8 e-shoppers, 5 non-shoppers). The interviews aimed to elicit their perception of risk, evaluation strategies for online-shops, and other intervening factors. The transcripts of the interviews were analysed using coding techniques from Grounded Theory [7, 28]. This process allowed us to construct a model of consumer decision-making in online-shopping [study II]. We analysed existing interface design guidelines for building 'trustworthy interfaces', and added the elements identified in the literature review [I] and our study [II]. This new set of guidelines was then subjected to an empirical test: Two semi-functional mock-ups of an online-shop (one incorporating the guidelines, the other not) were tested through an online experiment [study III]. 53 participants were randomly assigned to perform a trial shopping with one of the mock-ups. Their risk perceptions were elicited afterwards through an online questionnaire. The results of the interviews and answers to open-ended questions in the questionnaire indicated a high relevance of *personal interaction* for trust building. This insight formed the basis for another study, investigating how cues from human interaction can be applied to the interface to induce trust. Again, a literature review laid the foundation for further empirical research. Particular focus was given to the concept of *re-embedding* [6], and the related theories of *media richness* [20] and *social presence / telepresence* [12, 27]. We then performed an empirical test employing Walkthroughs [23, 25] with a mock-up and focussed interviews [14] with 15 participants [study IV].

3.   TRUST

Consumer decision-making is a well-researched area. The prevailing cognitive model assumes that consumers search information on risks and benefits and weigh them against each other to reach a decision [5]. This model has, however, been criticised since it does not account for habitual decisions or affective reactions, nor the effect of trust in decision-making.

In complex situations (i.e. those which involve a large number of risks, or risks that are not well understood), individuals need to base their decisions on trust – or withdraw from the situation. Essentially, trust is a *device for reducing complexity* [13]. Various definitions of trust exist, and they agree that trust depends on: (1) an individual's ability to trust, (2) conventions; and (3) cues of trustworthiness [6, 13, 30]. Cues of trustworthiness - attributes of the entity to be trusted - are the focus of our research. They form a small empirical basis for the trusting person from which she may conclude on future behaviour of the entity in question. This has two

implications: (1) to a certain extent, cues need to be seen as being given *unintentionally*, as a by-product of interaction; and (2) they need to be *congruent*: The perception of trustworthiness is easily undermined by a single cue to the contrary [13]. These results from the literature review [I] form the conceptual foundation of the model that is introduced in this paper.

4.   RISKS IN E-COMMERCE

Table 1 gives an overview on the risks that have been mentioned by respondents, grouped according to the source of the risk [II]. It has, however, been shown that risk perception and trust towards an organisation and its technology are related [1].

Table 1. Risks in e-Commerce

1. Risks that stem from the Internet include:
a)   whether credit card data gets intercepted;
b)   whether the data is transmitted correctly;
c)   their own interaction with the system- i.e. whether they use it correctly
2. Risks that are related to the physical absence of the online-retailer are:
a)   whether the personal details they supply will be passed on to other parties;
b)   whether the online-vendor will actually deliver the products or services.

On-line shopping is thus a very complex situation in which people require more trust than in traditional shopping environments most would-be e-shoppers do not have sufficient experience - and hence expertise - to fully assess the underlying technology and its risks. The fact that e-commerce transactions are dis-associated in terms of time and geographical distance increases the complexity, and adds to the risk for the parties involved. The interviews [II] showed that risk perception depends on the knowledge and experience of potential e-shoppers.

4.1   Knowledge

Knowledgeable shoppers mainly consider risks related to individual online-vendors. Here the design of the interface has the highest impact. Very inexperienced Internet users see the greatest risk in the complexity of the system; some of them believe that even a trustworthy vendor is not capable of protecting them from the risks associated with the Internet. Furthermore, respondents who lack knowledge cannot judge the veracity and accuracy of media reports on Internet security. As a result of such reports, many would-be e-shoppers worry about risks that are non-existent or very small indeed [II, III].

4.2   Experience

Lack of experience can be seen as problem on an individual and collective level [I]. On an individual level, the prime risk that stems from a lack of experience is the danger of interacting incorrectly with the system - e.g. accidentally ordering an unwanted item. On a collective level, the lack of experience translates into absence of conventions. Many authors attribute the existing lack of trust to the relative novelty of the Internet [29, 30]. Once conventions have been established and individuals perform on-line shopping habitually, they argue, the trust problem will go away. People's trust is usually based on an *expectation of continuity* [13], and the basis for trusting is not usually re-evaluated for any specific decision. Our findings, however, suggest that the novelty of the medium - and thus the lack of habit and conventions - is only one of several factors increasing the demand for trust in on-line shopping [I, II].

The fact that customer and retailer in on-line shopping are separated in time and space is inherent in the medium, and will not be overcome with time - the 'trust problem' is therefore not likely to go away with increasing collective familiarity.

4.3   Separation in Space & Time

At the core of every economic transaction lies a situation known as *prisoner's dilemma* [11]: If both parties choose to maximise their own benefit (i.e. take the other party's exchange item, but keep their own), the transaction will not take place and both participants lose out. The risk of one party acting in this way can be minimised by co-presence of both parties: If I go to a shop and I do not receive the item after paying, I could exercise physical power on the shop assistant, or I could try to grab my money back. If the shop and I are embedded in the same legal system, I can trust the legal system to enforce the rules if necessary. If the transaction is separated in space, I may not have these options; thus, the transaction bears a higher risk and an increased demand for trust [I]. Furthermore, I cannot see the shop's interior nor the shop assistant, and thus I have few cues for my decision whether to trust this retailer or not [II].

Similarly, the separation in time (e.g. payment is made before goods are received) increases the risk of the transaction. If the goods are to be received within seconds after payment, the customer will realise quickly when she is being defrauded, and take remedial action. If a product ordered on-line is to be received after 2 weeks, it might be harder to track down the other party when it does not arrive [I, II].

This separation of transactions over space and time is called *dis-embedding* - a pervasive concept in modern societies, and by no means unique to on-line shopping. Catalogue shopping, for instance, faces the same problem. Due to the global nature of e-commerce, however, the degree of dis-embedding in e-commerce is higher.

Dis-embedded social systems and complex technology depend on an increased level of trust from all participants[6, 13]. We thus suggest that the oft-proclaimed 'lack of trust' in Internet shopping needs to be re-defined as an *increased need for trust*, based on the nature of the transaction - and currently - inexperience of the e-shoppers.

5.   E-SHOPPER DECISION-MAKING

How then, we asked, do potential e-shoppers decide who to shop with in such a risky environment? The Grounded Theory analysis [II] identified three strategies that e-shoppers use, depending on their level of knowledge and experience with the Internet [Figure 1]. Ultimately, an e-shoppers' decision "*to buy, or not to buy*" is influenced by (1) the on-line retailer's performance when being evaluated by the potential e-shopper employing one of the identified strategies (e.g. whether the on-line retailer has a well-known brand), (2) the perceived benefit (e.g. how much they can save compared to other sources), and (3) their personal disposition (e.g. how high a risk they can bear)
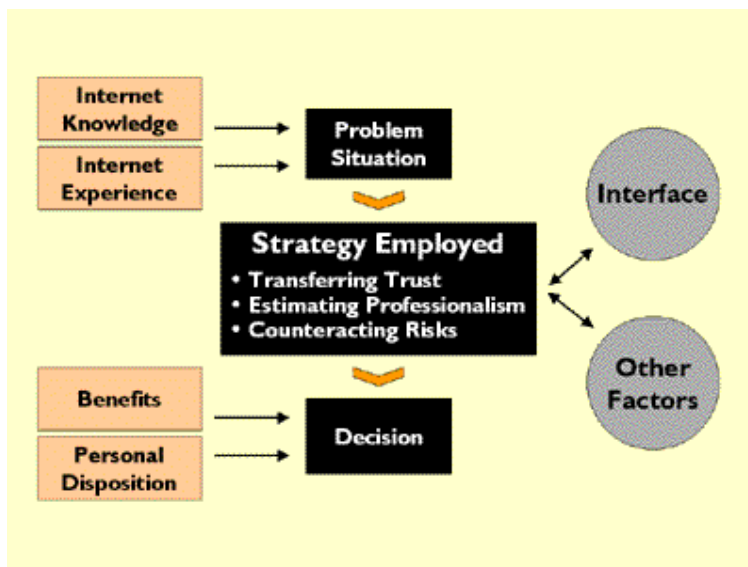

Figure 1. E-Shopper Decision Making

Inexperienced e-shoppers are likely to *transfer trust*: They will give on-line shopping a first try with retail organisations they are familiar with, or those that have

been recommended to them. *Reputation* appears to be the biggest single influence when would-be e-shoppers decide to 'loose their virginity'. This importance of transferred trust gives established players who have a strong brand an advantage in e-commerce. At the same time, it exposes their traditional business to considerable risk, because trust transfer works in the other direction, too [1]. If I have a bad experience with the on-line shop, I may begin to doubt the competence of the organisation as a whole, and stop using the physical shop as well. Experienced e-shoppers build up a *repertoire* [19] of professional-looking e-commerce sites, similar to the one they have for traditional shops, and thus base their trust evaluation on interface factors - they estimate the on-line shop's professionalism. Very experienced and knowledgeable shoppers only consider specific risks (e.g. fulfilment), and try to counteract those directly (e.g. through checking for order tracking facilities). If they can identify a benefit by shopping on-line, they may even shop with an online-retailer that looks less professional. They have a strong sense of being in control when interacting via the Internet. We can expect *trust transfer* and *professionalism* to gain in importance as less knowledgeable e-shoppers enter the e-commerce arena.

6.   CLOSING THE 'TRUST GAP'

6.1   Reducing Risk

The most obvious approach is to use technological solutions to directly address the risks involved in on-line shopping. This entails improved payment services, such as *Secure Electronic Transactions* (SET) or technological approaches to privacy like the *Platform for Privacy Preferences Project* (P3P). As mentioned before, these solutions will only be effective if the technological solutions are – at least in their basics – understood by e-shoppers. A further reduction of risks will be achieved when legal and regulatory frameworks – addressing the transaction itself, e-shoppers' privacy and statutory rights – have been established.

The risks that can be directly mitigated by interface design are *e-shoppers' own errors (1b)* and *faulty transmission (1c)*. Through good interaction design, the e-shopper can be assured that she does not accidentally commit herself to an order and that all data is received correctly. Examples include *status indicators, system feedback, displaying data already entered*, and *continuously displaying the products to be ordered* during the process.

Fulfilment risks (2b) can be reduced by giving alternative ways of contacting the online-vendor *(recourse)*, by *guaranteed response time*, or by the previously mentioned *order tracking*, which helps to minimise the impact of separation in time.

The experiment [III] with a mock online-shop showed that an interface with trust cues (including elements not specifically targeted at fulfilment risks) had the greatest effect on customers' apprehensions related to fulfilment.

6.2 Trust Transfer

There are several ways to address the inexperienced e-shopper's strategy of *trust transfer*. Here they have been grouped into *collective* and *individual* approaches. Collective approaches rely on the joint effort of several online-vendors; *trust/privacy seals* and *reputation mechanisms* are the most prevalent ones.

6.2.1 Collective Approaches

A seal is an icon assigned to an on-line retailer by an independent body, such as the previously mentioned TRUSTe. The success of such trust seal programs, however, is disputed. Results from Sapient / Studio Archetype & Cheskin [24] support the impact of trust seals, but Cranor et al. [3] and our research [II] suggest they are of limited use. E-shoppers respond to sites that proclaim their own trustworthiness with an irritated: "*well they would say that, wouldn't they.*" Rather, the site has to 'look and feel' trustworthy throughout the interaction.

Another way of transferring trust is a *reputation-sharing mechanism*, as currently used by on-line auctioneers such as eBay [11]. They aggregate individual e-shoppers' ratings of other participants' trustworthiness and, based on these, assign each participant a reputation rating. This approach could also be employed by trust seals: basing their approval on customer ratings - rather than solely on compliance with set guidelines - would increase their usefulness. Personalised reputation mechanisms that take account of how our friends rate an on-line retailer would model the real world more closely: We place the highest confidence in recommendations from friends who had prior experience with an on-line retailer [II]. This idea is incorporated in Amazon's *affiliate programme*: Providers of web sites are encouraged to link to products on Amazon.com. Thus, the trust would-be e-shoppers might have in individual sites is transferred to Amazon.com.

6.2.2 Individual Approaches

The role of an individual retailer's interface design in supporting the least experienced would-be shoppers' strategy of trust transfer is limited: Their focus is on inferring trustworthiness from personal recommendations or brand familiarity. An individual retailer's interface design here can only support trust through *endorsements* (e.g. from well-known experts), or through positive *customer comments*. The impact of these measures is, however, limited by two factors: Firstly, they themselves depend on a basic level of trust and credibility, as they could easily

be forged. Secondly, interface elements with no function beyond emphasising trustworthiness were interpreted as signifiers of untrustworthiness by some respondents, because they are seen as an attempt at manipulation [IV]. A way out of this dilemma is to incorporate elements that communicate such information- e.g. *"we have a large customer base"* almost as a side-effect. An example are Amazon's *customer recommendations*. This element has functionality on its own right (customer response to books); at the same time, many customer recommendations suggest a large customer base without making this the central message [II].

While an individual online-retailer's interface design can only play a limited role in building trust with inexperienced Internet users, it can easily create mistrust through poor usability. Breakdown situations that stem from users' misguided interaction with the system are often attributed to the vendor's malfunctioning technology. Information that is overlooked by the user (e.g. terms & conditions) can create the impression that it has been wilfully withheld. Thus, trustworthy interface design is necessary but not sufficient for inexperienced would-be e-shoppers [II, III].

6.3   Estimating professionalism

For more experienced Internet users, the quality of the user interface is the most important factor when deciding whether to shop with an online-vendor or not. By complying with off-line business standards (e.g. *consistent graphic design, absence of technological failures*, *clear assignment of responsibilities, upfront disclosure of terms & conditions, shipping costs and availability*) and with web standards (e.g. *good URL* [17], *good usability*, *privacy policy*, *similarity in interaction design to well known sites*), an on-line retailer can signal professionalism and thus appear trustworthy. [4, 16, 26].

7.   RE-EMBEDDING

We stated above that one of the consequences of separation in time and space (*dis-embedding*) is the lack of social cues available to the potential shopper (e.g. gesture or gaze). The importance of social cues as initial base for trust in human interaction has been stressed by both Luhmann and Goffmann [13, 8]. Cues that have been identified by social psychologists include non-verbal (e.g. gesture, gaze, proximity) and para-verbal ones (e.g. pitch, speed), but also content-based ones (e.g. competence, generosity) [10]. Thus, *re-embedding*, i.e. introducing face-to-face interaction in otherwise distant interaction, is a common approach to building trust: Business people and academics alike fly around the globe not only to negotiate or give presentations, but more importantly, to update their basis of trust in each others' work [6]. Experiments have shown that initial face-to-face contact in otherwise computer-mediated collaboration increases trust in workgroups. [22].

7.1 Virtual Re-embedding

The concept of re-embedding has high face validity. It is therefore not surprising that many authors champion the introduction of elements of face-to-face interaction (social cues) to the interface of online-retailers [16, 18, 26]. These recommendations are, however, rarely based on existing knowledge on the effects of mediated social cues.

These effects were first described by Short, Williams and Christie in their work on *social presence* [27] and later elaborated by Rice's work on *media richness* [20]. These concepts describe the effect of formal attributes of media on the social presence they afford (perceived similarity to face-to-face interaction). These concepts have been criticised for being too narrow because they focus on formal media attributes (e.g. fidelity of reproduction). A broader concept that also accounts for personal and situational intervening factors is that of *(tele-)presence*[12]. Based on these concepts, we assumed that an interface can transmit social cues (and thus communicate trustworthiness) when formal and content-based guidelines as stated by the above mentioned authors are adhered to. We call this approach *virtual re-embedding* [IV].

The capability of an online-vendor's interface to perform virtual re-embedding depends mainly on the modalities used (photographs, video, text, speech, etc.), and how they are implemented. A further result from research into the underlying concepts is that the effect of personal trust cues and social presence communicated through media strongly depends on personal and situational factors, of which only few have been identified (e.g. gender, media literacy, locus of control). There are two approaches to virtual re-embedding:

1. *Transparency*: Introducing staff on the online-vendor's site and providing means to communicate with them.
2. *Anthropomorphism*: Using agents that give cues of personal trustworthiness.

Anthropomorphism has been discussed in HCI for several years, however with a view to improving usability, rather than trust. The main point of criticism was that human-like agents generate expectations that which cannot be met by the system [31]. This disappointment is likely to decrease usability and trust (see above for the relation between trust and usability). Currently, there are systems being developed that allow conversation in a style similar to natural language while monitoring non- and para-verbal trust cues [2]. For Internet based e-tailing, however, they are not yet available.

7.2 Empirical test

Due to the above-mentioned problems associated with virtual re-embedding through anthropomorphism, the empirical part of study IV focused on the first approach (transparency). A mock-up incorporating various personal trust cues

(photographs and names of customer service agents, chat & call-back opportunities, photographs of the company, photographs of a customer receiving an item) was subjected to walkthroughs.

The study revealed that (1) participants perceived cues of social interaction in the interface. The photographs and names received unprompted attention while the participants were completing their tasks. However, (2) participants varied strongly in their reaction towards these interface elements. The previously identified intervening variables (gender, usage experience, previous experience with vendor) explained variance only partially. A unexpected result was that (3) participants with a high level of distrust towards online-vendors rated the increased presence of online-retailers personnel (through e.g. chat facilities) as an additional risk, making them vulnerable to manipulation. The (4) reaction from very experienced and trusting Internet users were also negative: Virtual re-embedding added little benefit for them, while it 'cluttered' the interface. (5) Comparing the elements researched, those that offered a functionality (e.g. being introduced to a personal customer service agent) were received better than those without (e.g. photograph of a customer receiving an item).

The results endorse virtual re-embedding measures for medium-experienced shoppers. These measures should, however, also have functional benefits, Or they carry the risk of decreasing usability or being perceived as an intentional strategy for winning trust. The study thus confirmed the view from sociology [6, 13] that social cues are only perceived as trustworthy when they are seen as being given unintentionally. Relating this result to the concept of (tele-)presence allows to draw the conclusion that virtual re-embedding should be implemented by using 'rich' media (e.g. video) as they leave less room for controlling the cues given and thus are better signifiers of trustworthiness. This finding postpones virtual re-embedding to a time when very high bandwidth access is more widely available.

Finally, study IV confirmed the result from previous studies that (6) professional, consistent *graphic design* and *branding* are paramount. Social cues perceived as not conforming to the brand personality of the online-vendor resulted in extremely negative reactions. Thus, at present, virtual re-embedding measures should be carefully designed and integrated as part of the overall branding strategy.

8.   CONCLUSIONS

The current 'lack of trust' in e-commerce needs be re-conceived as an *increased need for trust* due to the novelty and complexity of dis-embedded transactions on the Internet. Increased familiarity, technological and legal/regulatory solutions will help to reduce the current reluctance of customers, but cannot be expected to totally overcome it.

On an individual basis, online-vendors can decrease the risks perceived by potential shoppers by allowing them to make sure that they interact correctly with the system, and by allowing for recourse. Measures to be taken here include status bars and continuous visibility of the products ordered, as well as an order tracking facility after the order has been placed (including the possibility to cancel it).

The scope for building trust through the interface with inexperienced Internet users has been shown to be limited. They mainly rely on recommendations, brand familiarity and reputation, and are likely use trust in known retailers as a shortcut to avoid complex risk/benefit assessments. This means that established organisations will attract these e-shoppers by *trust transfer*, and they have to ensure that their online systems meet novice e-shoppers' expectations. Negative experiences will not only put individual e-shoppers off the online site, but generate the feeling that the company 'betrayed' their trust. They are likely to tell friends and relatives about the experience, thus damaging the organisation's *reputation*, which has been identified as key factor. *Endorsements* and *seals* depend on a basic level of trust and credibility. However, the negative impact of poor interface design and lack of usability on this group cannot be exaggerated.

In communicating trustworthiness to more experienced shoppers, the interface is of more help. These users have built a *repertoire* of sites and are able to evaluate an online-vendor against this repertoire. Hence, compliance with online and offline business standards is important. Important points are: upfront disclosure of availability, terms & conditions, shipping costs, breadth and depth of product offerings, absence of technological failures, speed, consistent graphic design, good usability, good URL, similarity to well known sites.

Interface elements that include elements of social interaction are also most likely to be successfully deployed in the group of medium-experienced e-shoppers. Here they have been discussed from the perspective of the sociological concept called re-embedding. However, care has to be taken not to intimidate inexperienced shoppers through higher presence, and not to disappoint experienced shoppers by elements without functionality other than giving cues of social interaction.

When discussing the problem of trust in e-commerce, it should be kept in mind that many individuals decide not to shop online simply because it does not offer enough benefits to them, and not because they distrust e-commerce. Thus, even well-crafted interfaces and virtual re-embedding elements are likely to build conversion (ration of shoppers to visitors) of one vendor relative to another – but not that of the whole market. This is likely to be reached through collective efforts (legal system, increased literacy, P3P) and through other individual efforts that are not necessarily part of the interface (brand building, unique functions offering new benefits).

Thus, most interface elements can be seen as *trust qualifiers*: They are unlikely to get non-shoppers over the 'trial-threshold'. If not taken care of, however, they have a great potential for destroying trust (***Trustbusters***) - not only trust in the e-

shop, but also in the organisation's off-line counterparts. Using Herzberg's [9] term, they could be described as the *hygiene factors* of trust. **Trustbuilders,** on the other hand, are elements that either directly counteract the risks associated with e-commerce (risk-reducers) or have shown to build trust. The strongest trustbuilders, however, are factors outside the interface. Table 2 gives an overview.

Table 2. Trustbuilders & Trustbusters

	Trustbuilders	Trustbusters
Interface Factors	– Status indicators – Displaying data already entered – Continuous visibility of products to be ordered – Order Tracking – Recourse – Trial Runs – Assignment of responsibilities – Virtual Re-embedding coupled with functionality – Communicating trust cues as by-products of functions. (e.g. user community, company history)	– Poor usability – Inconsistent design – Technological failures – Long system response time – Not complying to business & online standards – Information on terms & conditions, shipping time, product availability positioned in a way they are easily overlooked by the user – Intentional usage of personal trust cues without providing functionality – Agents that generate expectations they cannot live up to
Other Factors	– Brand – Reputation – Reputation Sharing – Affiliate Programmes	

We have to keep in mind that this list will change over time, due to the previously mentioned dependence on what is perceived as 'standard'. Furthermore, it should not be seen as a basis for over-simplification: Trust perception depends strongly on personal and cultural factors. Thus, it might well be worth to provide separate interfaces for different customer segments.

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