

Cultures of Trust: A Cross-Cultural Study on the Formation of Trust in an Electronic Environment

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ABSTRACT

In this paper we present a cross-cultural comparison on users' perception on computer security issues, with a special emphasis on the notion of trust. The study was conducted by bringing together two previous approaches on trust: the user studies conducted previously in Finland were repeated in Sweden, with only slight alterations to account for national features, such as language and choice of national examples, in order to track down cultural variation in how users perceive trust in the electronic world. The outcome is a to-the-point description of when, where, and how the designer or system builder should take cultural issues into account when trying to convince an online shopper of his trustworthiness. Also, the checklist for the designer, presented as the outcome of the Finnish user study, is further elaborated and refined based on these new results.

KEYWORDS: trust, culture, cross-cultural, globalization, usability, user interviews, computer security, BATE model

1. INTRODUCTION

Computer security has become one of the hottest areas of debate as well as of scientific research recently. Internet is developing to maturity as a market-place, and the safety of making transactions online is of crucial importance for this development, since it will bring along the online customers needed for the market to exist in the first place. Providing technological solutions for the security is not enough. Providing easy-to-use, understandable services, where the customer knows what he is doing and is successful in using these solutions properly is a necessity. This is why we need to enhance the usability of computer security systems. Not only do we have to make these services usable, in the sense that they will be effective, efficient and satisfying to use [14],

but also we must make the users aware of the lurking security risks through our design. Also, the users' decision-making in security-sensitive situations should be aided and supported by appropriate user interface design. Last but not least, we need to do this for *all* our users from *all* over the world. And this is why we must enter cultural studies as part of our methodology for creating usability in a truly global environment that the Internet essentially is.

Culture plays an important role in how people interpret information [7],[4]. It is true also of how users perceive security-related issues, such as feeling secure, feeling private, and feeling trustful. For example, trusting someone or something is likely to be a wholly different matter in Finland, than it is, say, in Japan or in Peru. This creates a difficulty for the user interface design, as it should be able to communicate the security information to users with various cultural backgrounds in an unambiguous, well-defined and clear-cut way, in the multi-cultural environment of electronic transactions.

In order to create a suitable user interface for various cultures, changing the language is probably not enough. Instead, also the *visual language*, as well as the basic assumptions behind the interface design will have to undergo some serious transformations. What, then, would be the right way to create the kind of user environments that would be considered as secure and private, and would enhance use of services online? Should there be various UIs for various users – should we *localise* our services as much as possible – or is it possible to find a one-solution-fits-all approach – a truly *global* design, understandable to everyone? Furthermore, what are the visual cues that will promote trust in these users, and how to find the right tools and to use them in an appropriate way?

For the present study, the following questions seem most relevant and interesting:

- How can we investigate into the effects of culture in understanding computer security?
- How should we define "culture" in this context? What is it, exactly, made of?
- How should we define security-related concepts, such as privacy, or trust, for multi-cultural environments?
- How can we make cultural comparisons across users from various countries? What is relevant for the study of cultural effects?
- How "weighty" are cultural considerations for the overall design of security-prone systems?
- What will the future culture of secure Internet and secure and private mobility be like?

It is important to note that at the same time as we are studying the existing cultures on the Net, we are ourselves creating a culture of secure transactions online. While enquiring into the users' worlds and interpreting and transforming their understanding of security, privacy and trust into visual and systems design, we are also creating the language of computer security. If successful, our pursuit to create trustworthy user environment may help to create a new Internet culture based on assumptions of trustworthiness, instead of untrustworthiness [15]. What this would mean for how Internet will be perceived in the future by the users, is an enticing and intriguing theme for presumptions, research and theory.

Age is another variable that seems interesting also in the case of studying the formation of trust. Grouping users on basis of their age only is a crude mistake, for aging is very much an individual process. However, age is also a unifying concept to some extent, and offers an interesting field of study also here. What we are trying to do is to find out about what makes things trustworthy, and then implement this knowledge into appropriate design. To give an example, for an elderly user, the simple fact that the text on the website of his bank is big enough to read may form an initial basis for trust, whereas for younger users such features may seem altogether irrelevant.

The rest of this paper is organised as follows: In chapter 2 we will have a short look at the research background and the methodologies applied to the current study. Next, we will discuss the impact of culture in general for UI design. In chapter 4 we will describe the first part of the

user studies we conducted, the user interviews, and in chapter 5 we will present and analyse the second part of our study, evaluating existing Web sites. Chapter 6 lists down our design suggestions based on the results of the user studies, and chapter 7 suggests some directions for further research. Chapter 8 presents our conclusion.

2. BACKGROUND AND METHODOLOGY

Let us first have a short look on the background of the two approaches brought together for the current study.

In the TeSSA project at Helsinki University of Technology, we have created a security architecture based on strong cryptography for online transactions, to be used, for example, in mobile devices, and to bring the facilities and services of the Internet to mobile use also [17]. Our approach aims at including the usability aspects as an essential ingredient of the design in all levels of this security, not just in the user interface design, to make this use as secure as possible. To enable this, it is necessary to get to know the users' world through user studies.

Our approach is in essence based on traditions of ethnographic research, and includes both interviewing techniques and non-participatory as well as participatory observing, but also some quantitative data is gathered, whenever it is possible and considered relevant. We have studied the users in numerous studies [12],[16],[13] in Finland, and have here extended these studies by conducting a comparative user study in Sweden, combining our previous work with research conducted in Sweden [2]. On basis of these studies, we are trying to come up with some essential differences in how users from these two cultures vary in their attitudes towards and understanding of security-related issues. The results of this study are reported here in this paper, analysed within the framework provided by the BATE model (see below).

The original design for the Finnish user study was strongly influenced by the ECommerce Trust Study and its findings [6], [12]. Previously, we have also tried to consider the importance of the ethicality of such an approach: is it ethically justifiable to use such visual cues, once found, to promote trust - can we really guarantee that we are trustworthy and secured against outside, malicious hackers [13]? What would this moral justification be like in a global context?

The BATE model developed by Cardholm [2] incorporates the four elements presumed to present the vital aspects of trust-building. These include the notions

of Business trust, Administrative trust, Technical trust and Experience-based trust. Business and Experience-based trust are time-dependent, forming slowly over time and through repetitive encounters with the subject to be trusted. Administrative and Technical trust, however, are quicker, and give an immediate effect. Here, the BATE model was used as a second framework against which to analyse the results of the user studies, along with the ECommerce Trust Study [6], to compare them with each other, and to further verify the results of these user studies through subjecting them for two sets of analytical machines provided by these frameworks.

2.1. Conducting User Studies from a Distance: Remote Usability Testing

The Finnish partner provided the usability expertise in this study. The Swedish interviewers received detailed instructions for how to conduct the user studies, starting with instructions for selecting the users, putting up the setup for the interviews and the Web site testing, as well as providing general instructions about interviewing techniques. Also, the two Swedish interviewers first conducted initial interviews, which they then discussed and analysed together, in order to ensure that the two of them followed a similar procedure for conducting the interviews. The Finnish usability expert also provided some e-mail backup for the Swedish interviewers, answering questions about unclear issues, as well as fixing of some test set-up details.

Even though the Swedish interviewers had not conducted very many user studies or usability testing prior to the study at hand, it seems that they were able to maintain a high quality in their interviewing technique, if this can be judged by the similarity to the Finnish results, in the answers they received. The advances of having natural Swedish-speaking interviewers was considered important to facilitate discussing such delicate and personal research topic as “trust” or “trusting” is. In order to create a trusting atmosphere during the interviews and testing, having native-born Swedes as conversation partners is likely to have enhanced the intimacy and level of detail of the discussions with the interviewees.

Giving instructions for inexperienced, foreign interviewers is one of the “accepted” methods for conducting cultural user studies from a distance listed down by usability guru Jacob Nielsen, in one of the rare sources on how to study cultural effects on usability issues that we have – and the only handbook on this topic [4]. Some other work on the topic of studying cultural issues on the Net naturally exists. Next, we will have a short look at the some existing research on this theme.

3. STUDYING THE IMPACT OF CULTURE

The importance of cultural effects for both UI and systems design is rather well known in the HCI field (e.g., [4],[5],[7],[11],[16]). Recognising the cultural elements is necessary both for localised as well as globalised services, and their existence stresses the need for getting to know the world or worlds of the users, instead of relying on one’s own intuition during the design process [5]. Day [3] includes a level of “internationalization” between the global and local level of customization, when describing the relative importance that culture can play in the UI design strategy. In the analysis of his famous and often-cited study on 116,000 IBM employees in 72 countries, Hofstede suggested four dimensions crucial for understanding the impact culture may have on the basic values of users with multi-cultural backgrounds. These are power distance; collectivism vs. individualism; femininity vs. masculinity; and avoiding uncertainty [5]. Especially in case of trust formation and maintenance, the last category seems quite relevant. A simple example on the impact of cultural variation in this case might be that for example in India, uncertainty is a part of everyday life – uncertainty about timetables, uncertainty about the political situation, even uncertainty about life is a natural part of daily life in a country where the average healthy life expectancy is a low 53.2¹, compared with the Finnish 73 for males and 80 for females². Uncertainty is something common, and this is why people can cope with it without much of stress, whereas in Finland, for example, people are so used to everything happening exactly as planned in exactly the pre-scheduled time that they have a hard time tolerating delaying of a train, for example. In fact, in Finland everything *is* planned to begin with, while this might not be the case in India, where people live more “for the moment”. The advantages of the latter tendency is greater flexibility and swift reactions to any situation, whereas the former has the advantage of greater predictability of actions, and also, enabling of better long-term planning. Such differences have lately been often considered to be at the root of the sudden boom of the so-called “computer-Indians” that are unexpectedly streaming into the computer labour force. The swiftness of this phenomenon would, then, according to some, in part result from this *laissez faire* quality of the Indian way of life.

Whatever the case, were an Indian and a Finn to switch places, a cultural shock would be more than likely, and both would experience a lot of stress while accommodating to the new culture – during the *acculturation* process. Acculturation is the label for the

¹ See, e.g. the WHO report at

<http://www.timesofindia.com/050600/05hlth1.htm>

² <http://www.who.int/whr/1999/en/annex1.htm>

adjusting that takes place when a person is transferred from one culture to another. Before, this shock could really only take place when *physically* moving from one country, and culture, to another. Nowadays, however, one mouse click on the computer screen is enough to take us to the other end of the world – and to expose us to this cultural variation. Since Internet service providers strive to have a global business with a global audience, they should be wise enough not to shock their multi-cultural users away by ignoring their cultural predetermines, but should rather conform their service to serve users from all nationalities and cultures as well as possible. Especially in the case of such an emotional issue as trust, shocking your users unintentionally is not a good idea, for trust once lost is difficult to build back [6],[15]. Our job, then, is to diminish this shock to minimum effect through culture-sensitive design for trusting matters.

In accomplishing culture-sensitive design, it is important to notice that also the understanding of and navigating in time is culture-dependent to a great extent. For example, in “African” thinking in general, the emphasis is often considered to be more towards the past events, and the present day comes only next in importance. Future is something non-existent, so not so much attention has been paid to it in the traditional way of thinking in these cultures. This orientation towards the past is clearly visible in the greater respect for traditions we find in African cultures, at least in comparison with the Western culture, as well as in the way these cultures consider the dead – that they are as much in existence, if not more, than those alive today. Also the elderly are perhaps better respected in these cultures, for their possession of more history than the young, than in the Western societies.

The reason we are discussing these issues here is because they might be important for understanding the Web behaviour of users from these cultures, and taking into account their traditions might give fruitful design ideas for the Web designer. For example, the importance of the past might be reflected in the services that can attract these users in some way. The impact of cultural background is not, however, simple or straightforward, and we should be wise enough not to try to acculturate our service design in some superficial way that will only act as proof of our ignorance to these users. Often, the cultural variation is dealt in this way – when globalising a service, only the more or less “objective” determinants of culture [5] are considered. These include ethnic background, mother tongue, age, and gender. The “subjective” determinants are often left out, since they are harder to define, and cannot be measured so easily – these include cognitive style, user satisfaction, and aesthetic taste, for example.

It is also possible, and likely, that to some extent the way multicultural users look at the Web services is through a kind of “global pair of glasses”, where they will not expect the system to be built according their set of rules, but to either take its style and conventions from another culture, most likely American culture, or to obey the rules of the culture of its own, the “cyberculture” – whatever this might be. Taking the undeniable cultural variety into account might, however, enhance the use of Web services among the users, and especially, it is likely to promote the trust in the users towards the service – thus promoting the use of e-commerce, for example. This is why it is useful to find out about and embed the cultural variety into systems and UI design.

In our study, we are comparing the cultures of neighbouring countries in the Nordic region: Finland and Sweden. Due to sharing in part the same history (Finland was a part of Sweden for almost 700 years till 1809), we expect these two countries to have a greater amount of common denominators in their respective cultures than some more distant countries might share with one another. Thus, we expect to find a lot of similarities also in our user study about online trust, but also some significant differences that can, then, form a basis for a further enquiry into the world of cultural diversity in trust issues.

4. THE USER STUDIES IN SWEDEN

The user interviews took place in spring 2000. As already mentioned, the study was based on the previous user study in Finland, as well as the frameworks of two other studies, namely the BATE model [2], and the ECommerce Trust Study [6]. With the help of the written instructions from the Finnish usability expert, a set of altogether 10 user interviews was planned. As research method we used ethnographic methods for interviewing the users face-to-face. We also made them have a look some web pages of existing web services (see below). The results were then analysed and compared with the results of the previous study, as well as existing literature.

4.1. Users

In this study, we wanted to extend our user representativeness of the general population by studying people over, rather than under, 30 years. The youngest interviewee was 34, and the eldest users participating in the study were 56 years old, and all were academic with a university degree. In this way, we thought we could start to have a look on how the perception of trust might be also age-dependant (naturally, age is an important variable for usability in general also – see e.g. [8]). Originally, we chose as our users young academic people because it was thought that they would be most likely to use services online. Our users also had computers at their disposal, together with an easy access to the Internet. Our

18 Finnish users were aged 22-32 years, with 10 female and 8 male users. All had years of experience on using both computers and the Internet. The Swedish users, on the other hand, fell between 34 and 56, with approximately same amount of use experience of both computers and the Internet. According to most usability experts (see, e.g. [14]), 3 to 5 users is usually enough to spot most usability phenomena – to start getting repetitive results. We had 10 users, so this amount should be more than enough.

4.2. Questions Asked

As background questions the users were asked a number of questions covering a wide array of areas that seemed relevant for investigating into the usability of online security. Banking habits, use of the Internet, use of e-mail and relation to automata were just some of these areas. These user habits were investigated in order to find out what it is the user use as their referential mental model when they consider the privacy and security of transactions on the Internet. Is it the habits of using money, or does it have more to do with the routines they have developed while surfing on the Internet or, more specifically, while using e-mail? Or is it something completely different? This origin of the relevant mental model was considered to bear the key to understanding how trust is formed and how it evolves in the users.

Below are some examples of the questions asked from the interviewees:

- What in your opinion are the most significant differences between different means of payment?
- In what situations would you use cash instead of using your credit card?
- Does your bank have an on-line service? If yes, do you use it? Why? Why not?
- Where do you get information on the safety of these services? Do your friends or colleagues use these services?
- Have you purchased anything on the Internet? How willing are you to give personal information about yourself on the Internet? Does it make any difference to you whether the service provider is Finnish or foreign?
- How often do you use e-mail? What mail service do you use? Do you write about sensitive matters in your e-mail? Do you think someone else, a third party, might be observing your mail? Would you care if this were the case?
- How do you feel about using passwords? Is it easy to remember them? Do you have your password written down somewhere?

4.3. Analysis of the User Interviews

Here, we present an analysis of this first part of the user study, before going into the second part of evaluating the existing Web services. In reality, the interviews were performed as a continuum, with first discussing the relevant problem areas described above, and immediately afterwards entering the evaluation part.

The analysis of the user interviews is structured according the question areas.

Differences between Different Means of Payment

Most users had many different kinds of bankcards and credit cards. Most preferred to use cash or bankcard for daily purchases, and reserve the credit card use for more expensive purchases. This was due to willingness to control the use of money. There was a slight difference in the attitudes towards using the credit card as means of payment between our Finnish and Swedish users. The Finnish users felt that they lose count of their amount of spending if they use their credit card frequently, but the Swedish users did not express such worries – in fact, one user commented on quite the opposite: she felt she could better control her spending by using credit card. However, in general, the credit card seemed to act as a safety guarantee for all users, to be used in case the user ran out of cash or was travelling abroad and suddenly encountered some big expense. In all, users seemed rather happy with the existing paying possibilities. However, a wish for just one, unified card that would have all the properties of cash cards, bank cards, credits cards, and customer loyalty cards, was repeated by many Swedish users.

Electronic Bank Service

In Finland, the users were not willing to do purchases online, but most had tried out the electronic account of their bank online. However, many had stopped this use, because they felt it was too complicated. In Sweden, some users were both shopping online, and using their bank's online service. Both Finnish and Swedish users seemed to trust the services provided by their bank. This was so because

- It was felt that banks usually take care of their business well, and the users had never encountered any problems with their bank
- The users were aware that the banks have to follow the law in all their actions and were ready to trust the bank because of this.
- The users felt that the bank has to provide secure services also online, because otherwise they will lose their reputation completely.

In both countries, it seemed important to have real-life experience with the bank before going online, to trust the service. No one was ready to trust an unknown bank found while surfing on the Net.

The clumsiness of the service procedures of the banks' online services had caused some people in both Finland and Sweden to stop using them – they had felt that the system was too complicated, and difficult, and slow to be pleasant to use. Giving up the usage happened quite soon after these users had been introduced to the online service. In Sweden, it seemed that this might be in part due to the fact that the users had not been really motivated to use the online service, but had only started this usage, when it had been suggested to them by a salesman. The fact that they could get the service for free of charge was also an important consideration. Low level of initial motivation may, then, be one cause for giving up using the service easily. In Finland, the motivation to use the service came more often through discussions with other people, who had started using these services, and who were pleased with them.

Ecommerce

The user interviews revealed that even though all the users had lots of experience with both computers and Internet and were well aware of the existence of web-based services, the use of ecommerce was small among the Swedish users and non-existent among our Finnish users. Books, or music, but also clothes and travels were among the shopping areas that the Swedish users were using online. However, paying online also, rather than just ordering the merchandise, was less frequent – most users expressed a worry about giving their credit card number to an online service, and were reluctant to do so. However, one user who did pay with his credit card commented that “it was quite ok. I got what I wanted and no one stole my money” – again mentioning this possibility.

Obviously, users did not trust the safety of online transactions. The users in general paid for their purchases with invoice, after receiving the merchandise. Some users commented on that they could find everything they wanted in a shop nearby, so why bother about online shopping? Also, to be able to touch the merchandise before buying was important to some users. A recent study in Finland³ revealed that for novice users, the worries about the security of online transactions was one of the biggest they had, but after becoming a habitual user, the trustworthiness of the services was no longer an issue. Instead, these users had smaller worries they cared about, such as not being able to touch the merchandise

(as mentioned also here), or about the details of the delivery procedures (as was also the case with our more experienced Swedish users). So it seems that the user makes up his mind about trusting the service (or not trusting it) right in the beginning of usage, and then stops questioning it anymore. This is in accordance with the analysis of the Ecommerce Trust Study about trust formation as a function of time also [6], and conforms also to the principles of the Experience-based trust in the BATE model [2].

All users were reluctant to give information about themselves when the service enquired for it. Reasons for this were many-fold: The users were afraid this information might be misused; they did not want to receive direct marketing mail; in Finland the users felt it was troublesome to fill in the blank fields. However, the users in all did not seem to be too worried about any possible misuse of this information.

E-mail

The users assumed their e-mail account to be private and safe. The users compared e-mail to phone calls considering both to be private. None had ever seriously suspected that someone might be eavesdropping on their e-mail. Yet they were aware that this might be possible, but it was generally felt that the contents of the e-mail was not so personal that it would really be of interest to a third party. Some users also wrote sensitive and very personal matters in their e-mail, whereas others refrained from writing very personal matters in e-mail - "personal personal matters", as one user put it - such as information about health or intimate relationships. One user said that she would not discuss such matters over the phone either, but would rather talk about them only in a face-to-face contact. Most users laughed at the possibility of someone taking an interest in their e-mail. One user commented on this by saying, "I have a clean conscience!" meaning that he did not have to care about the privacy of his mails.

Passwords

The need to use passwords is one of the weak links of computer security (see, e.g. [1]). Passwords have to be artificial (instead of natural) in order to resist cracking and guessing, but for users, such passwords are hard to keep in mind. Most users found passwords as a good way to secure their privacy. Even though they sometimes forgot their passwords, they did not find this a big problem. Both Finnish and Swedish users considered remembering the passwords as everyone's own responsibility. They also used the kind of passwords recommended by the system - partly because the system would not accept any other kind of passwords that would consist of names or words that would be easier to remember. About half of the users used the same

³ Available online at <http://www.gallupweb.com/press16.htm> (in Finnish)

password in many places "so many that it is almost embarrassing", was one user comment on this. They also used more easy passwords for services they did not consider so important, such as access to some service on the Internet that required user name and password. The user preferences for most pleasant form of passwords varied a great deal. In Sweden, some would have preferred personal names, some numerical data such as a "the death date of Charles the XII", some would be very happy to use their fingerprint or eye scanning as means of identification.

4.4. A Summary of the User Interviews

Interviewing the users showed again that the users' current understanding of the security of transactions online was imperfect. The decisions about whether to do business online or not were to a great extent based on information gathered from friends, colleagues and other media, such as newspapers, computer popular journals and so on. Also, the brand name and existence in the physical world were important for the formation of trust: the users were more ready to trust a service that also existed outside the Net, and that they already had good experiences with, such as their own bank. In the case of the use of e-mail, the habits of making phone calls and sending regular mail seems to provide the background for a general feeling of trust towards the mail service, for users often mention these other means of communication, when explaining about their online behaviour.

The privacy needs in the case of e-mail seemed not to be very high, so only a rather low level of trust was needed. Again, as with the Finnish users, also the willingness to

trade-off with privacy for having fluent communication at

hand might be one reason for this readiness to accept the possible threats to privacy that using e-mail might entail.

The trusting decision seemed to be of emotional nature, not based on as rational a choice as one might presume. Many users admitted to trust on basis of "intuitive feelings" that a service is trustworthy. Most users also answered "yes" when asked if they trust their bank, but when asked why they trust their bank, they usually could not really explicate this trust into any definite principles, and also often started to question this trust altogether.

5. EVALUATING THE EXISTING WEB SITES

The users went through in all two existing web services with the interviewer. They could choose one category in four. In each category there were two different shops to go through. The four categories were 1. food markets (<http://www.billhalls.se> and <http://www.matpojarna.com>), 2. music shops (<http://www.boxman.se> and <http://www.bengans.se>), 3. travel shops (<http://www.resfeber.com> and <http://www.sj.se>) and 4. book shops (<http://www.amazon.com> and <http://sverige.bokus.com/>).

Questions Asked

These questions were made in such a way that they would cover the six primary components found in the eCommerce Trust study to communicate trust. A correspondence is, then, further drawn between these elements and the four aspects of trust laid down in the BATE model. These questions are presented in *Table 1*.

Table 1: The questions of the user evaluations, together with comparison of Ecommerce Trust Study and BATE model considerations

<i>Question</i>	<i>BATE</i>	<i>ECommerce</i>
Do you find the layout of the pages stylish/unstylish?	Technical	Presentation
Are you pleased/displeased with the layout? Does it "attract the eye"?	Technical	Presentation
Do you find the pages being outstanding and professional, or rather quite the opposite? Why?	Technical	Presentation
What would you design differently? How would you improve the pages?	Technical	Presentation
Is navigation easy?	Technical	Navigation
Can you find what you are looking for?	Technical	Navigation
Do you know How to get back to the main page?	Technical	Navigation
Does something annoy you?	Technical	Navigation
Do you have any ideas How to change the structure of the pages?	Technical	Navigation

<i>Question</i>	<i>BATE</i>	<i>ECommerce</i>
Have you heard of this service provider before? Where from?	Business	Brand
Have you heard of this service before? Where from?	Experience-based	Brand
Have you seen these pages before?	Experience-based	Brand
Have you used this service before? Why?	Experience-based	Brand
Have you used any other services from the service provider? What and Why?	Business	Brand
Do the pages seem convincing?	Administrative	Brand
Would you consider purchasing something? Why?	Business	Brand
(Does the user seem to know what Is going on? Is she surfing in an ordered or in a random way?)	Technical	Fulfillment
Do you get what you want?	Technical	Fulfillment
Can you somehow cancel a transaction that has already been done?	Administrative	Fulfillment
Can you find more information about How the pages or the service work?	Administrative	Fulfillment
Is there something that you would like to know but cannot find any information about?	Administrative	Fulfillment
Do you find the pages trustworthy or untrustworthy? Can you say why?	Administrative	Fulfillment
What if there Is problem? What Can be done?Can you find any advice on that?	Administrative	Fulfillment
Do you feel treated as an ordinary customer in a “shop on the street” or more like a mail order customer concerning your consumer rights etc? Why?	Administrative	Fulfillment
Do you find the pages technology-wise backward or high-tech? What makes you think so?	Technical	Up-to-Date Technology
Do you find the service easy-to-use? Why?	Technical	Up-to-Date Technology
Are there some technical features missing on the service that you would like to find there?	Technical	Up-to-Date Technology
Which one of the tried webservices in this study Do you find the most high-tech?	Technical	Up-to-Date Technology
(Does it seem like the user knows what she is doing? Can she use all the features of the service, e.g. search engines? Does she appear confused?)	Technical	Up-to-Date Technology
Do you know what seals of approval are? (explain if she doesn't)	Experience-based	Seals of Approval
Do you ever remember seeing any seals of approval ever before, while surfing?	Experience-based	Seals of Approval
Are there any seals of approval on these pages?	Experience-based	Seals of Approval
Did you notice the seals of approval before I asked?	Technical	Seals of Approval
<i>Question</i>	<i>BATE</i>	<i>ECommerce</i>

(Does the user read the information of the seals on the Net?)	Experience-based	Seals of Approval
How Do you feel about seals of approval? Do they seem trustworthy to you? Why?	Experience-based	Seals of Approval
Are there any Seals of Approval from the real world that you think might fit in here? (i.e. ISO9000 or “innehar F-skattebevis”)	Experience-based	Seals of Approval

5.1. A Summary of the User Evaluations

The interviews with the Swedish users did not reveal any striking differences between the Finnish and the Swedish users, when it comes to the questions regarding the use of different means of payment, e-commerce, e-mail and passwords. Also the observations made by the Swedish users about the existing web services were rather similar to those received in Finland. Both were worried about making purchases online, Finnish users more so than the Swedish. Also, some of the Swedish users had made purchases online, whereas none of the Finnish users had made any. Is age an issue here? Perhaps, but it is hard to say how. The users were eager to evaluate the existing services, but their answers stayed on a very general level and were not specifically trust-oriented. The Finnish users were unaware of the existence of any kinds of seals of approval, and when asked about the sense of trust communicated through them, they remained rather suspicious. Some of the Swedish users were aware of how the seals work. Both Finnish and Swedish users felt that they had no means to evaluate the security of any website – they acknowledged that the trust decision is based on rather an intuitive feeling of trustworthiness – but also on basis of *need*. If the users could find the merchandise easily outside the Net, most users would rather pick it up from a real-life shop than buy it online. Also, the possibility to touch the objects in a physical shop was considered important by most users. One user evaluating the music stores commented that he liked “the feeling of flipping through records and...opening the covers to read the information in the leaflets”.

Many users would have wanted to get more information about the products of interest, but there was often not much information available or easily accessible.

One user also mentioned the fact that in real life, shopping is much more than buying a specific product – it includes walking and wandering around in the shops, stopping for a cup of coffee in-between, and so forth. Buying on the Web was described as “hard core shopping”, where the buying procedure is stripped to its minimum, and in a way the online shopping and the real-world shopping might serve purposes altogether different.

6. DESIGN SUGGESTIONS FOR TRUSTWORTHINESS

Going back to our original research question on how to design a secure user interface that would communicate trustworthiness to the user, a checklist of design features was made on basis of the information gathered from the users. This list is intended as an aid for the design of a user interface for any system dealing with security-sensitive issues.

6.1. A Checklist for the Designer *Revised*

Currently, most users do not know much about the security risks nor the security techniques that exist. They are also not primarily interested in the security in itself, but in what it *enables* them to do - to conduct safe online transactions. Thus it is a good idea to take care of the security for the most for the user automatically, when possible, and only bother him with the technical details when absolutely necessary. Most security mechanisms are still far too difficult for the average user to manage (see, e.g. [1] and [19]). Thus all trouble for making a system safe is in vain if the user is left in charge of the security, without proper guidance and usable interfaces to help to manage these security features.

In the previous report on the Finnish user studies, we presented a checklist for the designer of security-prone services. On basis of our study with the Swedish users, we would like to comment on these previous suggestions. (The comments are in italic):

- Know your user. Go to the user's environment and talk to him to find out about his level of knowledge regarding technical issues as well as his specific needs and expectations from the system. *This is naturally still very true, forming the very core for creating trust-promoting services.*
- Start with listing all the possible security issues embedded in the system. *Still a good starting point.*
- Automate as much of the security as possible, to guarantee an easy flow of navigation. The user should be involved with security decisions as little as possible. *However, to retain the feeling of control, the user should be informed about some security*

“taking place” through some kind of feedback, and he should have some security options to choose from. The latter hold especially for more experienced users.

- Remaining risks should appear as constraints: the user is not allowed to continue working with the system before confirming about the security. However, too much strain is too much. The user must not be prompted about the security too frequently. Instead, the security issues should be taken care of as a whole when user is first introduced to the system. *Introducing a selection of user profiles might be a good way to go about this (see below).*
- If possible, create a meaningful metaphor through which the user can approach the security issues. Most users are unfamiliar with and afraid of technical issues. Telling them about cryptographic details in technical language is of no use and is more likely to decrease the level of trust towards the system than to enhance it. *Using technical language only scares the users away. Instead, a fit metaphor will help the user to understand how the system as a whole operates. Finding the right metaphor is not an easy task, however, and various user groups might need different metaphors. The choice of the metaphor is also likely to be among the most culture-dependent elements in designing the UI. Basically, all that most users want to know is that the transaction is safe. However, as users grow more familiar with the security features, they may start showing an interest for information about them. It would be a good idea to have such information easily available.*

We would also like to lengthen our checklist based on the new findings on the current study to include the following:

- *Simple design should be used in order to enhance the feeling of trust. Both Finnish and Swedish users declared that they liked designs that were “clear” or “clean” and “simple”. In practice, this meant that the designs were text-based, quick and swift to navigate, had few if any advertisements, and preferably no animated banners. Left-hand side navigation aids were mentioned by some Swedish users as pleasant and easy-to-use.*
- *Creating various user profiles might be a good solution for handling security information. Choosing between novel-intermediary-advanced use modes, we could present the users with various levels of automatisations, from almost invisible, automatic*

security for novices to list of options for the experienced user.

- *Swiftness is crucial for trust promoting. Many users reported on the slowness of a service being one of the biggest reasons for not being interested in using them. Also, in the case of conducting transactions of money or private information, such as a credit card number online, long downloading times eat on the feeling of trustworthiness. Promoting simple design is an answer to this need also, for avoiding too many elements on the pages, and especially animated features, will speed up the service a great deal.*
- *Provide for an easy flow of action. A part of the design which seems important is that the technical design should be made in accordance with the “purchase process”. For example, most sites that had a so-called “flow” in their ordering system, so that the purchase process seemed to proceed in a natural way and through logical steps (but not too many steps!) were popular among the users, whereas the ones just having a simple “send an e-mail to us to order” advice were felt as being less trustworthy. This indicates that a proper balance between the simplicity of design, swiftness of navigation, and providing feedback on user action is necessary to promote trust towards the service, and make the user feel “in control” of the situation at hand.*

The user interface design for secure user interfaces is still taking its first steps (see, e.g. [19]), and our work is far from finished here. To get to the core of trustworthy design has proven a hard nut to crack. The six primary components to promote trustworthiness in the user listed by the eCommerce study [1] were among the first to try this. The present study in part verifies the findings of that study, but also points out that there is a need for administrative- and experience-based trust components when creating trusted webservices.

7. FUTURE WORK

Other Cultures

Next, we will continue our line of study by conducting the more or less same interviews with individual users from various other cultures, as well as observing these users in real use situations similar to the ones described here – performing tasks on the existing, security-prone services, and evaluating their trustworthiness. In doing this, we expect to find greater differences than were encountered here. Special attention will be paid to the theme of “simple design” - what this might mean in different cultures, and whether it comes up as a design hope also with users from other cultures.

Widening the Scope of the Study

We will also extend the user study on Website analysis, by creating a full range of questions responding not only to the technical part of designing a trusted service, but rather on the full approach, to cover the areas of reputation and competition, to encryption and legal liability issues.

Marginal Groups

Also of interest for future study would be to investigate the needs of groups with specific needs, as regards the feelings of trust, security and privacy. The variables covered should include race, and gender, and perhaps sexuality, but also subcultures of various kinds, in the spirit of "universal usability" promoted by usability guru Ben Shneiderman [17].

8. CONCLUSIONS

The purpose of this study was to investigate the role culture plays in the formation of trust on the users as regards the use of web-based services. As our method we used qualitative user interviews. We repeated a study conducted previously with Finnish users in Sweden, to find out some differences among these users that might depend on the different cultural background. The users were also presented with existing Web services to trigger conversation about e-commerce and security issues related to the transactions of money or private information online. The users were enquired about their current knowledge of computers and banking habits, in order to find out about the possible similarities in behaviour in the case of using money regardless of the media. The notion of trust was discussed upon on many levels, including questions about trusting friends, work colleagues, a bank or a service-provider on the Web.

The framework for analysing the results of the study was provided by the Ecommerce Trust Study [6], completed with a comparison with the framework provided by the BATE model [2]. In all, the BATE model encompasses the same elements as the ECommerce Trust Study, in slightly different form and emphasis. The emphasis on Business Trust and the touch on Administrative trust is most strikingly new in what BATE model introduces to the study of trust, and should be further investigated. In this study, the Administrative trust corresponds closest to the Fulfillment section of the ECommerce Trust Study, but goes further than that by introducing the legal aspect of trusting that came up also during the user interviewing. The Business Trust was not fully addressed in the study, as it was important that the Swedish part of the study was correlating to the Finnish part.

On basis of the user interviews we took the designer's or system builder's checklist laid down as the outcome of the

earlier study [12], and revised it on basis of the results of the current study. The checklist consists of design qualities that could help to create this trust in the user towards the service in security-prone use situations. The checklist could then be used in the actual design of a user interface for a web-based service to enhance the users of the security of their transactions on that service – it could be used to promote trust.

Finally, some suggestions for further research topics and focus points were made. These included taking the study of cultural variation further. As we had expected, the differences among our Finnish and Swedish user groups were not too great, but there were some. It is thus likely that there would be a bigger difference in how users from various parts of the globe, with different cultural background, would perceive trustworthiness. The case of users from marginal groups was also mentioned. The perception of trust and feeling of trustworthiness were suggested to vary within these special user groups. "Age and trust" is a combination that should also be further investigated, for with its limited number of participants, this study also showed that age most likely will be an important variable in the formation of trust also, as it is in other usability measures.

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