

The Impact of Testimonials on Purchase Intentions in a Mock E-commerce Web Site

Avishag Spillinger¹ and Avi Parush²

¹ Technion - Israel Institute of Technology, Faculty of Industrial Engineering and Management, Haifa, Israel, avishagsp@hotmail.com

² Carleton University, Department of Psychology, Ottawa, Canada, aparush@connect.carleton.ca

Received 6 April 2010; received in revised form 1 June 2011; accepted 12 July 2011

Abstract

Purchasing through virtual market is different from the process that takes place in the traditional market. In this market, things are less tangible and more threatening. Therefore, trust becomes crucial and it is established in a different way. This study examined the effect of testimonials on the level of trust in e-commerce. It also examined the impact of product touch level and price on the effect of testimonials. Two mock e-commerce sites were used, one with testimonials and the other without. The experimental approach simulated a complete shopping process with students whose age was between 21 and 30, on a fully functional website, with subjective and objective behavioral measures. The subjective measures were based on two questions that participants were asked along the experiment. The objective measures consisted of metrics such as navigation patterns in the site, number of products in the shopping cart, and readiness to enter credit card number. The presence of testimonials had a greater impact on users with little internet-based shopping experience, was associated with increased trust, and was more significantly pronounced for price than for product touch level. In addition, the results showed that a decreased level of trust was associated with higher prices. The impact of testimonials is accounted for in terms of history sharing and building an online community.

Keywords: Trust, Electronic commerce, Purchase intention, Testimonials, Product price, Product touch level

1 Introduction

A certain form of trust develops in any relationship between people (e.g. [5], [14], [28]-[29]) and it is particularly central when they exchange information [12]. According to Mutz [21], trust was always relevant when dealing with buying and selling of goods. However, generalized trust in others is more important nowadays when dealing with electronic commerce, where people enter a website in order to purchase a product and are required to provide personal information before they can actually make the purchase.

Based on an examination of different theoretical perspectives, the trust concept can be classified into three general categories: personality, sociology and economics, and social psychology. When dealing with trust in e-commerce, the most relevant perspective is the social-psychological one because it focuses on transactions [15]. One example of a social- psychological definition of trust, offered by Mayer, Davis and Schoorman [19], is "the willingness of a party to be vulnerable to the actions of another party based on the expectations that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party". In e-commerce sites, trust implies that the information the customer discloses (e.g., credit card number) will not be abused, that the seller will fulfill his or her promises, and that the products will have the expected quality [10], [13], [30].

Generally, trust is built through repeated interactions over time or by established social networks [3]. It is especially crucial at initial stages and its importance diminishes with experience, over time, as people learn about those with whom they interact [8]. However, in e-commerce, most of such repeated interactions are not necessarily established because many of the transactions take place between parties that have no prior relationships and the contact is a one-time interaction. New customers often enter the "virtual market" without having any familiarity with a given retailer, and retailers often do not have an established and familiar brand name. In the virtual environment, the "traditional" way of establishing trust is not realistic and might limit and reduce the flexibility of checking out new opportunities by the parties [3]. E-commerce websites need to find other ways to improve their trustworthiness in order to encourage purchases [34]. Therefore, the question of how to establish trust in the "virtual market," an environment with unique characteristics, is important and still open.

1.1 Testimonials in E-commerce

Many studies deal with different types of factors that are related to the willingness to purchase on-line (safe payment arrangements, fast Internet access, personal traits etc.) [2]. Some studies argue that buyers assess all available information in order to form trust beliefs and transaction behavior [25]. One factor that can serve as a source of information is testimonials. There is an emerging interest in the e-commerce and trust literature in the impact of testimonials (especially text testimonials) and its' impact on trust [23]. This mechanism can serve as a substitute for the required repeated interactions that make up mutual history and help customers raise their level of trust. Testimonials provide feedback and recommendations from customers that have already purchased from the site in question. Wang and Benbasat [35] dealt with recommendation agents (RAs). RAs are an Internet-based programs that act on behalf of users and provide advice for decision making. According to that definition, testimonials can be treated as a sort of RAs [35]. In other studies testimonials were defined as a third-party structure or as an institution-based trust [24]. Institutional mechanisms, such as testimonials, which are created by third party, can generate conditions that may facilitate transactions [24]. The presence of testimonials in e-commerce sites can create a reputation system. A number of e-commerce sites have developed reputation management systems that allow users to enter ratings for given transactions, and these ratings become available to all. In sites like eBay and Amazon, there is a reputation system. Customers rate the other party in a way that is available to all. At Amazon, customers are invited to write a review of books and rate them on a scale between one and five. Authors are invited to respond, but they cannot change what was written earlier about their books [26]. A study that was conducted by London and Smith [16] showed that consumers place considerable value on mechanisms that disseminate information on the past quality performance of firms. Ba and Pavlov [4] found that users were sensitive to positive and negative feedback about the seller.

Studies showed that people treat computers as if they are social actors and therefore tend to respond to them based on social relationships rules [35]. Testimonials can serve as a social cue when embedded in an e-commerce site. As Wang and Emurian summarized "researchers present a potentially effective approach to enhance online trust by adding a surrogate human presence and actual contact opportunities to the otherwise impersonal e-commerce interface" [36] p.119. According to that, it can be assumed, that in case testimonials in a specific e-commerce website are perceived trustworthy by the users, it can raise the level of trust in the website and, therefore, the willingness to purchase through it.

Although some sites like eBay and Amazon use testimonials, very few studies have empirically examined the effect of this mechanism on trust. Moreover, testimonials may have different effects in different situations, such as when buying different types of products or having to deal with high prices. To address the possible impact of testimonials, along with other variables that may influence trust such as the product type and price, we have adopted the personal threshold of trust theoretical framework.

As can be predicted by Tan and Thoen's model, when the product price is high touch with a high price, the personal threshold of trust required to enable a purchase would be higher as well. We assumed that in these cases, testimonials would play a more central role in enabling a purchase. This is because, in these cases, the testimonials would raise the level of trust beyond the personal threshold required to decide to purchase a product.

```
graph LR; PT[Product type] --> PTx[ ]; PP[Product price] --> PTx; PTx --> PT2[Perceived trust]; T[Testimonials] --> PT2; PT2 --> BI[Buying intentions];
```

The diagram illustrates the conceptual model of the study. It shows the relationships between Product type, Product price, Testimonials, Perceived trust, and Buying intentions. Product type and Product price are shown as factors influencing Perceived trust. Testimonials also influence Perceived trust. Perceived trust then leads to Buying intentions.

Avishag Spillinger
Avi Parush

2 Materials and Methods

The method section covers sample size and characteristics, experimental design, description of the experimental web site and the procedure.

2.1 Participants

The study was conducted in a usability laboratory in the Industrial Engineering and Management Faculty at the Technion- Israel, Institute of Technology, in Haifa, Israel. Data was collected from a sample of 183 students (100 female and 83 male); all were native Hebrew speakers. The age range of 93% of the sample was between 21 and 30 and the age of the rest was between 31 and 40. Most of the subjects (80%) were studying for their undergraduate degree and 20% were studying for a higher degree. 95% of the participants had previous experience with Internet usage (more than two years), thus the experiment wasn't the first time that they used this source. Around 50% knew five or more e-commerce web sites. Substantial number of the participants (84%) indicated that they purchase through the Internet less than 5 times a year if at all. 53% of the participants indicated that they purchased electronic products and 34% disks and books.

Some of the participants received course credit for participation at the experiment and others participated as part of a course they were taking (they were asked to participate by the lecturer). The two ways of remunerating participants did not influence the results.

2.2 Experimental Design and Tasks

The experimental design was a 2X2X2 (product touch level- low or high touch, product price- low or high and the existence of testimonials at the web site- yes or no), fully between-participant factorial design. The details of the experimental design and the measurements are outlined in the next sections.

2.2.1 Independent Variables

Product touch level was a categorical variable with two levels: low touch and high touch. Various products were used in this research because previous research literature was not conclusive as to which products were perceived as high vs. low touch. Products that were categorized as high touch products were: jewelry, clothing, and furniture. Products that were categorized as low touch products were: DVDs movies, music CDs, and books. In order to make sure this categorization was correct, participants were asked at the end of the experiment to express their level of difficulty when buying each one of the products. Counterbalancing was used to avoid the undesirable influence of product presentation order with the participants. Product price was a categorical variable with two levels: low price and high price. Low price ranged from several to hundreds of New Israeli Shekels (NIS). High price ranged from hundreds to thousands of NIS.

The testimonial variable was a categorical variable that included two levels: site with testimonials and site without testimonials. While we acknowledge that expert technical reviews can be highly relevant to high touch products, this experiment included customer testimonials that can be relevant in a similar manner to all product types. The testimonials were about the site, the products, and the service they received. Each testimonial included the customer's name, numeric grade (a score of zero expressed a low level of satisfaction and a score of ten expressed a high level of satisfaction), and a verbal reference. There were positive, neutral, and negative testimonials rendering the site more credible. Positive testimonials included expressions of satisfaction about the service and about the product itself. An example of a positive testimonial (translated from Hebrew) was, "Everything worked as expected. I bought beautiful shoes that fit me well. I am very pleased, thanks for the great service." Neutral testimonials included a description of a problem that was solved in a satisfactory way, meaning the testimonials were not positive, but not negative either. This is an example of a neutral testimonial: "I ordered two shirts- red and blue. There was a mistake in the delivery, and I only received one shirt. I sent an email to the customer service and I got a prompt reply. Within two days, I received the other shirt." Finally, negative testimonials included expressions of dissatisfaction about the service or the product, for example, "According the description I read on the site, the bowl serves for baking. So why did it crack the first time I used it?!" In this study, all three testimonial types (positive, neutral, and negative testimonials) appeared on the site.

The experimental task was to browse a virtual store that was developed for this study and examine three products (according to a list participants had received at the beginning of the experiment). Participants could observe and evaluate any other detail on the site (other products, customer service, etc.). They were asked to place products they were interested in into their shopping cart, fill in their personal details in a checkout form, and indicate whether they would be ready to enter their credit card number (representing readiness to buy).

2.2.2 Dependent Variables

The dependant variable was level of trust. The measures of trust were divided into subjective and objective measures. The subjective measures included one basic question that appeared twice during the experiment and one more time at the end. The purpose of this question was to reflect changes in the attitude and the level of trust while browsing the site. Participants were asked to rate the site as one which keeps its promises. Another subjective measure was a question that dealt with the difficulty to purchase different types of products (low touch, high touch, low price and high price) through an e-commerce site. At the end of the experiment, participants were asked to rate the difficulty level of buying each one of the products they examined on a scale of one (easy) to seven (difficult).

Several objective measures were included in the experiment:

- Average time for product examination, which was computed as the average length of time a participant spent on a page with a specific product. In order to calculate this measure the complete visit time in the site was divided by the number of products that the participant was asked to observe
- The number of products that ended up in the shopping cart. During the experiment, participants added and removed products from the shopping cart. This measure represented the number of products added to the shopping cart before the decision to buy (i.e., before deciding to fill in their personal details needed for purchasing)
- Browsing pattern in the site. Participants who navigated the site exactly according to the list of products they received (i.e., didn't examine other products or functions of the site) were referred to as having a minimal browsing pattern. Participants that deviated from this path (e.g., sent emails to customer service, added testimonials, read about the site, or examined other products) were referred to as having other browsing patterns
- The personal details entered by the participants (e.g., name, email address, place of residence, etc.) and an indication of their readiness to enter a credit card number (intention to buy) in the checkout form were also captured

2.3 Apparatus

Using Microsoft FrontPage 2000 and Microsoft Access 2000 database, an e-commerce site was built for this study. The programming languages were JavaScript and VBScript. The site included a broad variety of products: High touch products (e.g., clothes, televisions, etc.) and low touch products (e.g., books, music disks etc.), with different levels of price.

The home page (see Figure 2) included the following details: a short description of the site, a list of products, an advertisement for one recommended product, a link for additional information on this product, a link to customer service, a link to the shopping cart, and a search engine. The logo of the site, "Amazing.com" appeared in the upper part of the page, and nearby were a few symbols of credit card companies and the "PayPal" symbol.

After choosing a specific category of products, a list of relevant products appeared (with a catalog number beside it). The participant could access a specific product page to get more information about it. On this page, there was a picture of the product with the following details: Optional colors, sizes, and price. Two versions of the site were built for the study; one with testimonials (see Figure 3) and the other one without testimonials (same site with a blank area instead of the testimonials part). In the version that included testimonials, they appeared near the picture of the product and looked as though they were written by customers who had already bought from the site. The testimonials were composed of a verbal description and a numerical score (one- low level of satisfaction; ten- high level of satisfaction). During the experiment, the participant could enter the shopping cart and re-examine the products chosen earlier. Finally, participants were required to fill the checkout form once they decided to purchase from the site.

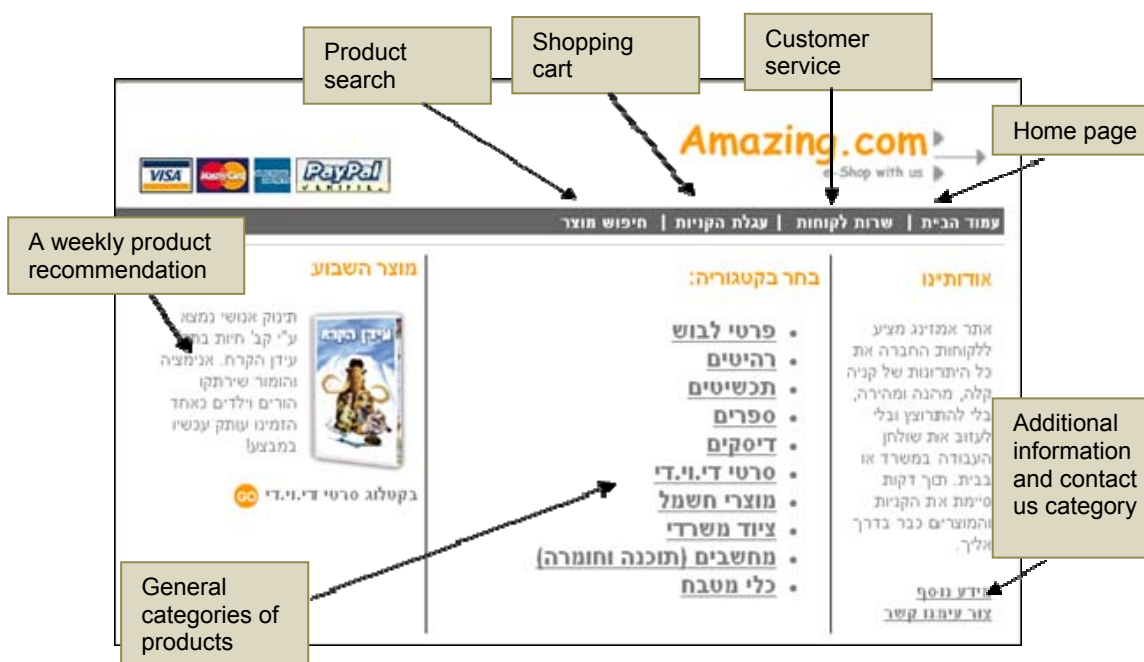


Figure 2: The experimental home page

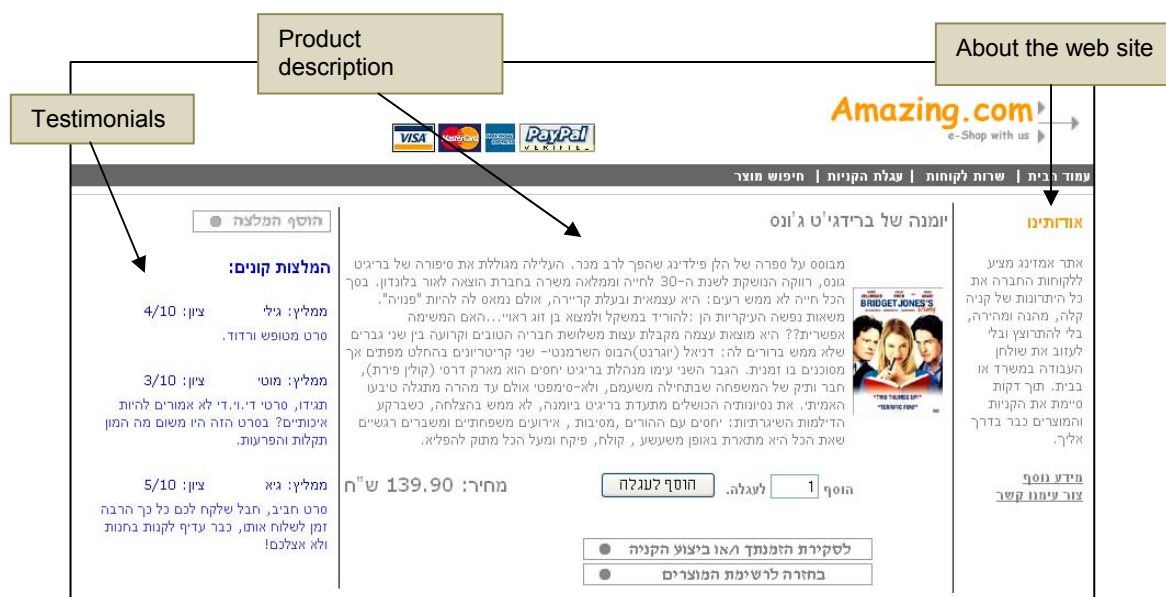


Figure 3: A page from the site with testimonials

All the participants' actions in the site and during the experiment were captured by a recording mechanism- an application written using ASP technology that records all the events to a database file. The information that was recorded included: visit time, preferred pages, navigation path, products that were added or removed from the shopping cart, details that were entered into the checkout form, and readiness to enter credit card number (yes/no question). In addition, the answers to the three questions that appeared twice during the experiment were recorded.

2.4 Procedure

Participants were randomly assigned to one of the eight experimental groups that differed in product touch level (high touch versus low touch products), level of price (low versus high price), and level of testimonials (sites with testimonials versus sites without testimonials).

When arriving to the experiment, participants received instructions and a list of three types of products (not specific products) that were characterized as high/low touch products and high/low price products, according to their assigned experimental condition. There were several items within each type of product on the site. For example, participants could choose between four possible refrigerators. Participants were asked to behave as if they were using real e-commerce sites. They were told that this was an experimental site that had been active for a short period of time and was being re-evaluated. This was ethically approved and participants were debriefed at the end of the experiment with respect to the site being only a mockup intended to examine the impact of testimonials. Participants were asked to browse the site, examine three products according to a list they had received at the beginning of the experiment, and evaluate any other detail they wished (e.g., other products, customer service, etc.). They were asked to put products they were interested in into their shopping cart, fill in their personal details in a checkout form, and indicate whether they would be ready to enter their credit card number (representing readiness to buy). The real purpose of the experiment was then explained in the post-experiment debriefing session with each participant.

3 Results

In this section, the study results are presented and analyzed. The results of the objective performance measures and the subjective measures are described.

3.1 Objective Performance Measures

This section deals with the objective performance measures. Behavioral measures, that were examined during the experiment, are described (readiness to enter credit card number and personal details, product examination time and browsing patterns).

3.1.1 Readiness to Enter Credit Card Number

The proportion of participants that indicated they were ready to enter their credit card number is presented in Figure 4 for high touch products, and in Figure 5 for low touch products. The proportions are presented for both sites, with and without testimonials.

In general, it can be seen in Figure 4 that the proportion of participants who indicated readiness to enter credit card number was higher for sites having testimonials as compared to those not having testimonials. A Chi Square test for independence, showed that with the high touch products (Figure 4), when price was high and there were testimonials, the proportion of participants that were ready to enter their credit card number was higher as compared to no testimonials in the same site [$\chi^2(1)=8.69$, $p=.003$], $\Phi=0.44$. A similar pattern was found for the low touch products. A Chi Square test for low touch products (Figure 5) showed that in high price, the relation between testimonials presence and the readiness to enter credit card number was significant [$\chi^2(1)=10.268$, $p=.001$], $\Phi=0.47$. Without testimonials, the relation between product touch level (low/ high price) and the readiness to enter credit card number was also significant [$\chi^2(1)=4.98$, $p=.03$], $\Phi=0.33$.

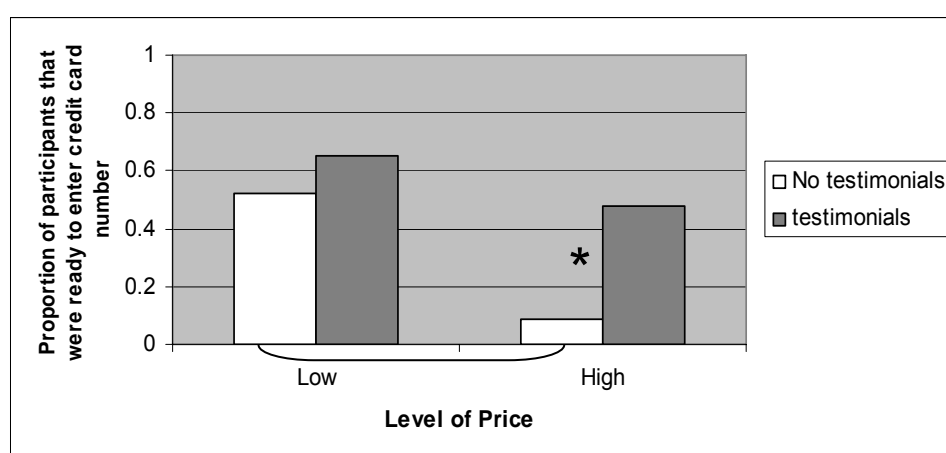


Figure 4: Readiness to enter credit card number as a function of testimonial presence and product price (for high touch products)

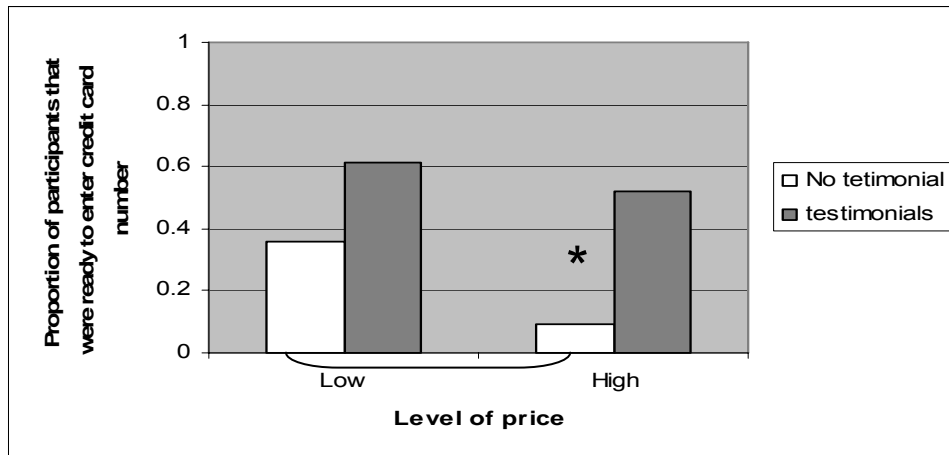


Figure 5: Readiness to enter credit card number as a function of testimonial presence and product price (for low-touch products)

In summary, when price was high and there were testimonials, more participants were ready to enter their credit card number. In addition, when there were no testimonials, the number of participants that were ready to enter their credit card number was higher only with low prices.

The impact of participants' previous experience in buying through e-commerce sites and the presence of testimonials was also examined in terms of participants' readiness to enter a credit card number. Figure 6 shows the relation between experience level and the readiness to enter credit card number when testimonials are taken into account.

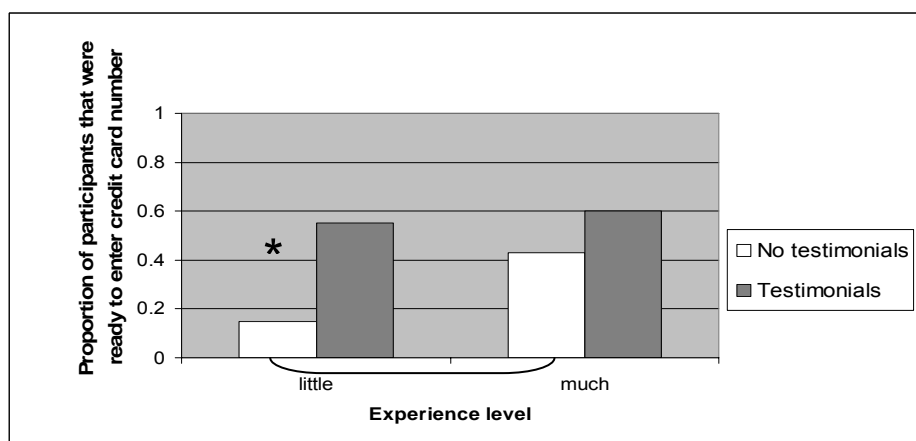


Figure 6: Experience and readiness to enter credit card number as a function of testimonial presence and experience level

Chi square test showed a significant relation between previous experience (before taking part at the experiment) and the readiness to enter a credit card number, when there were no testimonials. [$\chi^2(1)=9.14$, $p=.003$], $\Phi=0.32$. In other words, there was a lower proportion of participants with low experience ready to enter credit card number when there were no testimonials. In addition, the proportion of participants with low e-shopping experience prior to the experiment that were ready to enter a credit card number was significantly higher when there were testimonials [$\chi^2(1)=20.02$, $p=.000$], $\Phi=0.42$, as compared to no testimonials.

3.1.2 Readiness to Enter Personal Details

Similar results were found for the readiness to enter personal details. In general, when there were testimonials, more participants were ready to enter their personal details. A Chi Square test showed a significant relation between testimonials existence and the readiness to enter personal details [$\chi^2(1)=11.03$, $p=.001$], $\Phi=0.25$.

3.1.3 Product Examination Times

We conducted a one-way ANOVA on the average time participants spent in examining each product. The analysis showed significant differences as a function of product touch level, [$F(1,174)=26.53$, $P=.000$]. When the product was high touch, the duration time was longer ($M=1.26$) as compared to when it was low touch ($M=0.94$).

Similar results were found for product price. Significant differences were found between low price and high price [$F(1,174)=7.83$, $P=.006$]. When the level of price was high, the time for each product was longer ($M=1.19$) than when the price was low ($M=1.01$).

3.1.4 Browsing Patterns

In general, there were a higher proportion of participants that browsed the site beyond the minimal path to the products (see Figure 5). A Chi Square test showed a significant relation between browsing patterns and testimonials (Figure 7). [$\chi^2(1)=4.82$, $p=.03$], $\Phi=-0.16$. When there were no testimonials, the gap between the patterns of navigation was higher (0.82) than when there were testimonials (0.57) with an increased proportion of other browsing patterns without the testimonials.

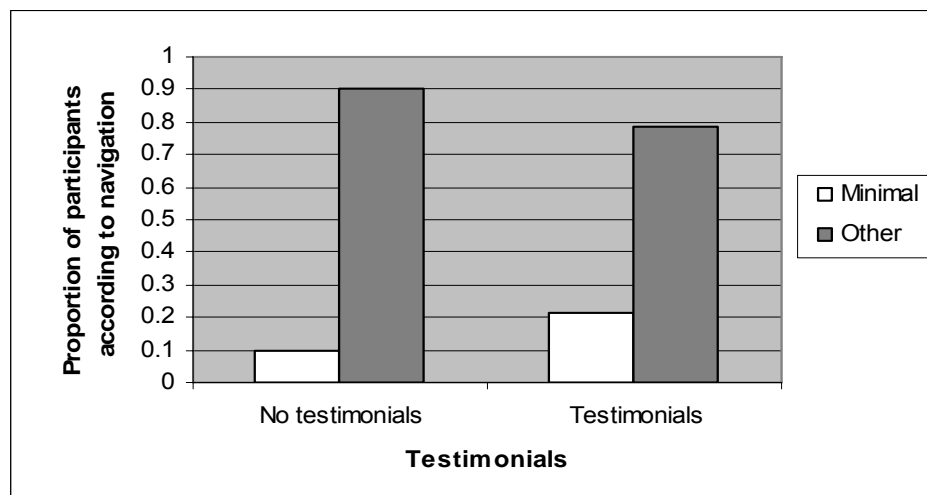


Figure 7: Types of navigation path as a function of testimonial presence and browsing patterns

3.2 Subjective Measures

This section deals with the subjective measures that were tested in the current study. Results dealing with level of trust and buying difficulty are presented.

3.2.1 Level of Trust

Participants were asked at three separate times (with a question that appeared on the screen) to rate the extent to which the site was perceived as one that keeps its promises. The question appeared twice during the experiment (i.e., while participants were still performing their tasks), and one more time at the end of it. Participants rated their answer on a seven-point Likert Scale, with one representing a low level of trust and seven- a high level of trust.

The mean rating of the extent to which the site was perceived as one that keeps its promises is presented in Figure 8 as a function of testimonial presence, for each of the three times the question was presented. In general, sites with testimonials received a higher mean rating as one that keeps its promise than sites not having testimonials. Based on the ANOVA, there was a significant interaction between testimonial presence and the time the question was asked [$F(2,344)=5.74$, $P=.004$]. In order to learn what the source of the interaction was, a post-hoc t-test for paired samples with Bonferoni Correction was performed. A significant difference was found between the first and third times the question was presented, when there were testimonials [$T(91)=3$, $P=.003$]. The mean rating was higher the third time ($M=5.33$) than the first time ($M=4.92$). In other words, it seems that the level of trust at the site increases as participants spent more time in the site with testimonials.

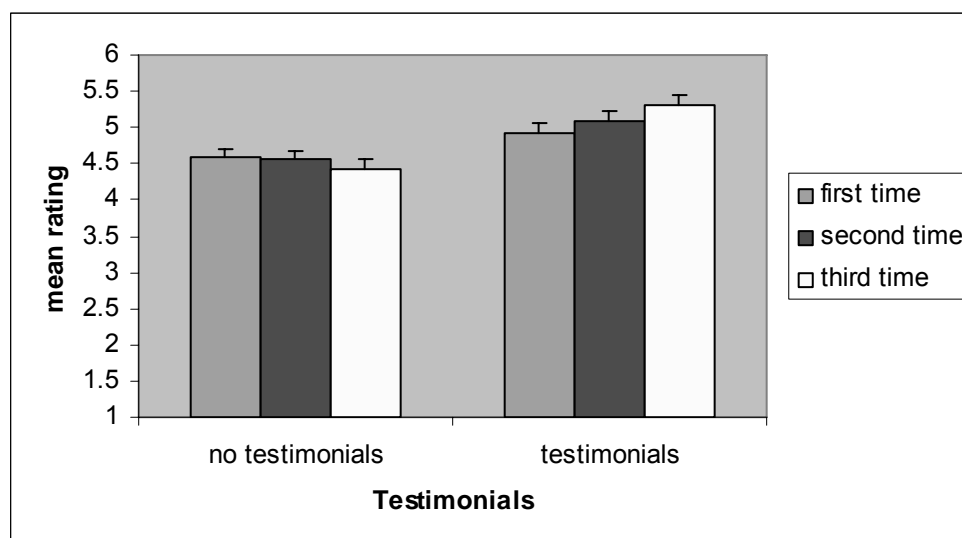


Figure 8: Rating of trust level at three points of time as a function of testimonial presence and the timing of question about trusting the site

3.2.2 Difficulty to Buy

Participants were asked at the end of the experiment to rate the buying difficulty of each one of the products they were asked to buy. ANOVA showed a significant effect of product touch level (according to the categorization that was made in the experiment) on the rating of buying difficulty- easy versus difficult to buy through e-commerce [$F(1,175)=43.93$, $P=.000$]. Participants rated high touch products as more difficult to buy through the internet ($M=4.38$) as compared to low touch products ($M=3.15$). The ratings of products as hard or easy to buy validated the categorization used in the experiment.

4 Discussion

The results are summarized and elucidated in the discussion section. Limitations and practical implications are also described.

4.1 Summary of the Results

In this paper we examined the effect of testimonials with different product types and prices on level of trust in an e-commerce website. Overall, it was found that with testimonials participants showed higher level of trust, regardless of product touch level and product price. However, the positive influence of testimonials was significantly more pronounced with more expensive products than with high-touch products.

The higher proportion of browsing beyond the minimal navigation path required to reach the products was more salient when there were no testimonials. It is reasonable to assume that when there were no testimonials, participants felt the need to search for more information and reinforcements in the site before making purchase decision. The effect of testimonials was also more apparent with the question that repeated three times during the experiment (the question in which participants were asked to rate the site as one which keeps its promises). It seems that as participants spent more time in a site with testimonials, the level of trust increased.

In general, it seems that when testimonials were present, the readiness to buy was higher as compared to sites without testimonials. More participants were ready to enter their personal details and even their credit card numbers when there were testimonials. A significant difference was found between participants that had previous experience in purchasing through internet compared to participants with little or no experience. More participants with little experience were ready to give their credit card number when testimonials were present compared to when there were no testimonials. In addition, a higher proportion of participants with more internet shopping experience were ready to give their credit card numbers even when there were no testimonials compared to participants with little experience. Similar results were found in relation to readiness to disclose personal data.

4.2 Accounting for the Findings

In general, our research findings show that testimonials providing feedbacks from other customers are important in encouraging trust in e-commerce websites. The testimonials serve as a reputation system. Trust, which develops

between two parties, and reputation systems, which established between a group of entities to a single party (the trusted party), can enable safe operation within online communities, and therefore facilitate sensitive data communication [11]. These systems are oriented to encourage trustworthy behavior and increase user satisfaction by providing means through which reputation could be computed and disseminated (like in eBay and Amazon) [9]. This raises the question: what can account for this pattern?

Testimonials may play a number of possible roles in e-commerce websites. First, in everyday life, people use their joint history in order to study the characteristics and capabilities of the parties they are in contact with. In addition, the expectation for mutual relations in the future creates an incentive for positive behavior in the present. Robert Axelrod called it the "shadow of the future" [27]. However, trust between strangers is harder to build through the internet, since usually there is no knowledge about the history of the other party and about future interactions with them. In this situation, the temptation to "hit and run" is higher than the incentive to cooperate since the future has no shadow. By using a reputation system, there is an attempt to establish the "shadow of the future". Customers that share their experiences and opinions concerning the seller with others can build a joint history on which other customers can base their buying decisions [7].

Another explanation can be found in the notion of "online communities". The perception of this concept in the virtual environment is affected by the way this concept is understood in the physical world. Different dictionary definitions referred to this concept, such as: Groups with common interests, shared goals, activities and governance; Groups and individuals who cooperate to share resources and satisfy each other's needs. Some definitions included enjoyment and pleasure, while others strongly associated community with a physical locale [26].

Online community includes people that are found in a social interaction, have a joint goal (such as, interest, need or information exchange), common policy (rules that guide the interactions between people) and electronic systems that support and mediate the social interactions and facilitate the feeling of together. The common assumption is that online communities cause people to stay at a site, and also cause them to tell each other about purchases they have done. People join communities in order to satisfy different needs, such as meeting people, discussing interest areas, receiving information, enriching knowledge, and getting support. Sometimes the relations are for long periods of time while other times they last a short period, are shallow or even almost don't exist at all (as in auctions). Customers that buy through e-commerce sites want to make sure that they will get a return on the money they paid, that their personal data will be kept safe and confidential and that they will get the product or the service they paid for on time. The ability to be assisted by other customers that belong to the online community can be encouraging and useful. Instead of basing trust on a previous personal interaction, in which the other party (the seller) acted as expected [27], it can be assumed that trust develops through the experiences of other consumers who are members in the community.

It seems that testimonials produce an environment that enables consumers to learn about previous purchases that took place through the website they are visiting by word-of-mouth (WOM) communication [23]. WOM communication is often being perceived as the most credible, objective and influential means for sharing information. It also contributes to the level of trust because it is unlikely to be biased [23]. It was found, that the more WOM communications an e-commerce website has, the higher the level of trust the customer has. It can either help establish or hurt an e-commerce website's reputation [1].

Following Lowengart and Tracitinsky's [17] research we also addressed the effect of product price and product touch level, (separately and combined), on the level of trust and eventually on the intention to buy. The finding that the level of trust that is needed rises with price and when the product is high touch is in line with Blau's [6] research. According to Blau, exchange relations develop through a slow process, when a person first takes part in simple transactions, in which a low level of trust is needed, because of the small risk that is involved. Indeed, when participants took part in complicated transactions (high touch, high price products) the first time they entered the experimental site of our study, the intention to buy was low. During the first stages of the interaction, participants were only willing to perform simple actions and buy cheaper products with a simple concept of use, in order to avoid harm. Therefore, it seems that in the virtual world, as in the physical world, similar processes occur.

However, it seems that product price had a higher influence on trust than product touch level. There are some testable hypotheses for this finding. First, it is conceivable that the prospect of losing money is more readily perceived as a high risk in comparison to not being able to physically touch the product. Second, maybe because participants did not really have to buy the products but only to report on the intention to buy, the price caught their attention more than the product touch level. Third, maybe buying from the internet is more popular today and therefore product touch level plays a lesser role in the buying decision process. This finding corresponds to other studies. In the study of Pavlou and Dimoka (2006) it was also found that text comments have an impact on price, and therefore sellers must strive for outstanding comments to build a trustable reputation [23].

Pavoulou and Dimoka [23] showed that a majority number of the study's buyers reported that they assessed the text testimonials before purchasing. Pavlou and Gefen [24] proposed the construct "perceived effectiveness of institutional mechanisms" to describe the psychological response of subjects to these mechanisms and how they evaluate their overall value. In light of these studies, and also our study, it seems that testimonials play a central role

in the purchase experience through e-commerce websites. Therefore it seems to be worthwhile to combine this mechanism in on-line stores.

4.3 Limitations of the Research and Implications for Future Research

The significance of this study is in the fact that it simulated a complete buying process and behavior patterns, in a full e-com site, as compared to the common use of questionnaires of attitudes and perceptions. Furthermore, the study strengthens the importance of using reputation systems in order to establish level of trust. This study helps to map the impact of each one of the dimensions- product touch level and product price. Finally it helps to classify specific products as products with complex concept of use, versus products with simple concept of use.

However, those implications should be taken with caution. The experiment took part in a lab which allowed controlling the effect of various influencing variables. Yet, the situation was not real and participants did not enter the site by choice. There is a possibility that their knowledge influenced on their behavior at the experiment. It is also possible that the young age range of participants include people who are more familiar and comfortable with online shopping. Therefore, to confirm our conclusions, it is important to perform a similar study in real conditions of e-commerce, with real customers from a wider age range that enter an e-commerce site in order to purchase real products for real money. Another limitation is related to the internal validity of the study. We examined intention to buy and not buying behavior itself. As known, intentions and behaviors are not always the same. Therefore it is important to examine shopping behaviors of real customers at real sites.

When referring to the reputation system, in this study we used a combination of types of testimonials for each product in a mixed way, including both numerical and verbal testimonials; as well as positive, neutral and negative testimonials. Future study should examine each type of testimonial separately in order to learn about the influence of each type on the level of trust. For example, the research of Standifird [31] indicates the important role of the reputation system in facilitating the exchange relations in e-commerce. However, the type of feedback seems to be critical. Positive feedback was found as influencing in a moderate way only after the appearance of some positive comments. However, the influence of a single negative comment was found to be significant. These findings were found in auction sites as well.

4.4 Practical implications

Should e-commerce web sites present customer testimonials? Beyond some of the methodological limitations discussed above, this study applied well known methods on the examination of effect of testimonials on the level of trust in e-commerce and thus provides empirical evidence suggesting that e-commerce web sites should present customer testimonials. At the least, it has been shown that the presence of testimonials influences intention to buy. Moreover, the findings here suggest that it would be more effective to have testimonials particularly if the e-commerce site sells expensive products. And finally, testimonials would be influential if the site caters for inexperienced e-shoppers.

References

- [1] S. S. Alam and N. M. Yasin, What factors influence online brand trust: Evidence from online tickets buyers in Malaysia, *Journal of Theoretical and Applied Electronic Commerce Research*, vol. 5, no. 3, pp. 78-89, 2010.
- [2] K. Axelsson, Exploring relationships between product characteristics and B2C interaction in electronic commerce, *Journal of Theoretical and Applied Electronic Commerce Research*, vol. 3, no. 2, pp.1-17, 2008.
- [3] S. Ba, Establishing online trust through a community responsibility system, *Decision Support Systems*, vol. 31, no. 3, pp. 323-336, 2001
- [4] S. Ba and P. A. Pavlov, Evidence of the effect of trust building technology in electronic markets: Price premiums and buyer behavior, *MIS Quarterly*, vol. 26, no. 3, pp. 243-268, 2002.
- [5] B. Barber, *The Logic and Limits of Trust*. New Brunswick: Rutgers University Press, 1983.
- [6] P. M. Blau, *Exchange and Power in Social Life*. New York: Wiley, 1964.
- [7] C. L. Corritore, B. Kracher, and S. Wiedenceck, On-line trust: Concepts, evolving themes, a model, *International Journal of Human-Computer Studies*, vol. 58, no. 6, pp. 737-758, 2003.
- [8] B. Friedman, P. H. Kahn, and D. C. Howe, Trust online, *Communications of the ACM*, vol. 43, no. 12, pp. 34-40, 2000.
- [9] V. Gaur, N. K. Sharma, and P. Bedi, Evaluating reputation systems for agent mediated e-commerce, in *Proceedings of International Conference on Advances in Computer Science*, Trivandrum, Kerala, India, 2010, pp. 220-224.
- [10] D. Gefen, I. Brnbasat, and P. A. Pavlou, A research agenda for trust in online environments, *Journal of Management Information Systems*, vol. 24, no. 4, pp. 275-286, 2008.
- [11] T. Grinshpoun, N. Gal-Oz, A. Meisels, and E. Gudes, CCR : A model for sharing reputation knowledge across virtual communities, in *Proceedings of 8th International Conference on Web Intelligence*, Milan, Italy, 2009, pp. 34-41.

- [12] W. Hampton-Sosa and M. Koufaris, The effect of web site perceptions trust in the owner company, *International Journal of Electronic Commerce*, vol. 10, no. 1, pp. 55-81, 2005.
- [13] M. Hertzum, H. H. K. Andersen, V. Andersen, and C. B. Hansen, Trust in information sources: Seeking information from people, documents, and virtual agents, *Interacting with Computers*, vol. 14, no. 5, pp. 575-599, 2002.
- [14] R. M. Kramer and T. R. Tyler, *Trust in Organizations: Frontiers of Theory and Research*. Thousand Oaks: Sage Publications, 1996.
- [15] M. K. O. Lee and E. A. Turban, Trust model for consumer internet shopping, *International Journal of Electronic Commerce*, vol. 6, no. 1, pp. 75-9, 2001.
- [16] S. London, and C. E. Smith, The use of quality and reputation indicators by consumers: The case of Bordeaux Wine, *Journal of Consumer Policy*, vol. 20, no. 3, pp. 289-323, 1997.
- [17] O. Lowengart and N. Tractinsky, Differential effects of product category on shoppers' selection of web- based stores: A probabilistic modeling approach, *Journal of Electronic Commerce Research*, vol. 2, no. 4, pp. 12-26, 2001.
- [18] P. D. Lynch, R. J. Kent, and S. S. Srinivasan, The global internet shopper: Evidence from shopping tasks in twelve countries, *Journal of Advertising Research*, vol. 41, no. 3, pp. 15-23, 2001.
- [19] R. C. Mayer, J. H. Davis, and F. D. Schoorman, An integrative model of organizational trust, *Academy of Management Review*, vol. 20, no. 3, pp. 709-734, 1995.
- [20] M. J. Metzger, Privacy, trust, and disclosure: Exploring barriers to electronic commerce, *Journal of Computer-Mediated Communication*, vol. 9, no. 4, 2004.
- [21] D. C. Mutz, Social trust and e-commerce- experimental evidence for the effects of social trust on individuals' economic behavior, *Public Opinion Quarterly*, vol. 69, no. 3, pp. 393-416, 2005.
- [22] P. Nelson, Advertising as information, *The Journal of Political Economy*, vol. 82, no. 4, pp. 729-754, 1974.
- [23] P. A. Pavlou and A. Dimoka, The nature and role of feedback text comments in online marketplaces: Implications for trust building, price premiums, and seller differentiation, *Information Systems Research*, vol. 17, no. 4, pp. 392-414, 2006.
- [24] P. A. Pavlou and D. Gefen, Building effective online marketplaces with institution- based trust, *Information Systems Research*, vol. 15, no. 1, pp. 37-59, 2004.
- [25] P. A. Pavlou, H. Liang, and Y. Xue, Understanding and mitigating uncertainty in online exchange relationships: A principal agent perspective, *MIS Quarterly*, vol. 31, no. 1, pp. 105-136, 2007.
- [26] J. Preece, *Online Communities: Designing Usability, Supporting Sociability*, Chichester: John Wiley & Sons, 2000.
- [27] P. Resnick, R. Zeckhauser, E. Friedman, and K. Kuwabara, Reputation systems, *Communications of the ACM*, vol. 43, no. 12, pp. 45-48, 2000.
- [28] A. Rosenbloom, Trusting technology, *Communication of the ACM*, vol. 43, no. 12, pp. 31-32, 2000.
- [29] D. M. Rousseau, S. B. Sitkin, R. S. Burt, and C. Camerer, Not so different after all: A cross discipline view of trust, *Academy of Management Review*, vol. 23, no. 3, pp. 391-404, 1998.
- [30] B. Shneiderman, Designing trust into online experiences, *Communications of the ACM*, vol.43, no.12, pp. 57-59, 2000.
- [31] S. S. Standifird, Reputation and e-commerce: eBay auctions and the asymmetrical impact of positive and negative ratings, *Journal of Management*, vol. 27, no. 3, pp. 279-295, 2001.
- [32] B. Suh and I. Han, The impact of customer trust and perception of security control on the acceptance of electronic commerce, *International Journal of Electronic Commerce*, vol. 7, no. 3, pp. 135-161, 2003.
- [33] Y. H. Tan and W. Thoen, Toward a generic model of trust for electronic commerce, *International Journal of Electronic Commerce*, vol. 5, no. 2, pp. 61-74, 2001.
- [34] Y. Y. Thaw, D. D. Dominic, and A. K. Mahmood, A study on the factors that influence the consumers' trust on e-commerce adoption, *International Journal of Computer Science and Information Security*, vol. 4, no. 1-2, pp. 153-159, 2009.
- [35] W. Wang, and I. Benbasat, Attributions of trust in decision support technologies: A study of recommendation agents for e-commerce, *Journal of Management Information Systems*, vol. 24, no. 4, pp. 249-273, 2008.
- [36] Y. D. Wang, and H. H Emurian, An overview of online trust: Concepts, element, and implications, *Computers in Human Behavior*, vol. 21, no. 1, pp. 105-125, 2005.