The effect of e-commerce websites colors on customer trust

Jean-Eric PELET
Assistant Professor
Montpellier SupAgro
UMR MOISA (1110)
Montpellier
2 Place Pierre Viala
34060 Montpellier Cedex 1
France
jepelet@yahoo.com

Panagiota PAPADOPOULOU
National and Kapodistrian University of Athens
Department of Informatics and Telecommunications
15784 Athens
Greece
peggy@di.uoa.gr
The effect of e-commerce websites colors on customer trust

Abstract
Establishing customer trust in an online vendor possibly requires the provision of an environment in which customers can overcome their fear and reluctance about shopping transactions by forming trust and positive perceptions about the online vendor. This paper aims to study the impact of the colors of e-commerce websites, as an atmospheric variable of the interface, on customer trust. The effect of the colors of e-commerce websites on customer trust has only been indirectly examined in terms of website characteristics, such as website quality and usability, where color is viewed as a key interface attribute. Thus, the relationship between color itself and trust remains largely under investigate. To address this gap, this paper presents an exploratory qualitative study on how customers develop trust in an online vendor, as a result of the colors of the e-commerce website. Our empirical findings provide theoretical and practical implications regarding the effect of web stores color on trust.

Key words: Color, Trust, E-commerce, Trusting beliefs
1. Introduction

Trust has long been recognized as a critical success factor for e-commerce (Torkzadeh and Dhillon, 2002), with surveys showing that the success of online shopping websites is mainly due to their earning the trust of users. At the same time, the lack of customer trust, identified as one of the greatest barriers inhibiting online commercial transactions (Hoffman et al., 1999; Dayal et al., 2001), continues to be high (eMarketer, 2008). Building customer trust is still a major challenge for online vendors and remains an open issue as to how it can be accomplished within an ecommerce environment.

The e-commerce web site is the primary interface between the customer and the online vendor (Gefen et al., 2003). As such, with the absence of physical contact as in traditional contexts, an e-commerce site becomes a key means for judging an e-vendor’s trustworthiness. It is therefore important to understand how a web store influences a customer trust in the online vendor.

As a research topic in literature, the effect of an online store on trust has been addressed to a limited degree, with respect to web site characteristics, such as perceived site quality (Kim and Tadisina, 2005; Corbitt et al., 2003; McKnight et al., 2004; McKnight et al., 2002) and ease-of-use (Chau et al., 2007; Gefen et al., 2003; Koufaris and Hampton-Sosa, 2004). Although such factors are important for designing web stores that enable a trust-building customer interaction, they are largely generic, in the sense that they do not explicitly involve specific interface characteristics, such as color.

Color has been identified as a pivotal component of e-commerce websites (Lemoine, 2008). Among the various variables supporting a positive customer experience in an e-commerce website, color plays an important part. Aware of the significant and widely known impact of the atmosphere inside stores on the prospective buyers’ activities and behavior in a traditional buying context (Kotler, 1973; Donovan and Rossiter, 1982; Filser, 1994, 2003a, 2003b; Lemoine, 2003), there is a need to investigate how trust is affected by of color, as an atmospheric variable and as a component of e-commerce interfaces. The role of color has been shown to be important for the readability and memorization of the information, information seeking and navigation within a web vendor site (Pelet, 2008). These color-dependent factors constitute or are closely intertwined with antecedents of trust, which are associated with a web vendor’s site. This implies that color could be related to trust, as it is a key attribute of web site characteristics that have an effect on trust.

However, color has only been implicitly associated with trust. The relationship between color itself and trust remains largely unaddressed. Color, as an important interface variable in e-commerce, is expected to be an important antecedent of customer trust in an online vendor. In particular, color could have an effect on customer’s trusting beliefs in an online vendor, specifically, the beliefs in the vendor’s benevolence, competence, integrity and predictability. However, our knowledge regarding the effect of color on trust is incomplete. Although several studies provide valuable insights for the effect of a vendor web site on trust, they seldom include color. At the same time, our understanding of the importance of color as a variable of e-commerce websites atmosphere is rather limited. There is a lack of research on the relationship between color and trust.
In an attempt to address this gap, this paper aims to shed light on the effect of color of an e-commerce website on customer trust. Drawing on literature derived background on trust as well as on color, we posit that the color of a web vendor site can be related to the trust that a customer develops in an online vendor. In order to empirically examine the effect of color of an e-commerce website on customer trust towards an online vendor, an exploratory qualitative study was conducted. Our analysis provides an insight into how customers develop trust in an online vendor, as a result of the colors of the e-commerce website, and form perceptions about an online vendor benevolence, competence, integrity and predictability. We believe that our findings can inform and guide the use of color in the design of trust-building e-commerce sites.

The structure of the paper is organized as follows. In the next section a comprehensive review of the literature of trust in e-commerce and color in e-commerce is provided. The third section presents the research design of the qualitative study which was to empirically examine the effect of color on trust. The qualitative analysis of the data and the interpretation of the results are presented next. A discussion of the findings follows and the last section provides concluding remarks.

2. Literature Review

2.1. Trust in e-commerce

Trust in e-commerce has been extensively addressed as a research topic from different viewpoints and at different levels of analysis. It is an important predictor of online consumer behavior as it influences the intended use of an e-commerce web site. As such, it has been the topic of numerous research studies in various disciplines. Among them, a significant body of literature has proposed empirically tested models that describe trust building in e-commerce, examining antecedents of trust (e.g. Kim et al., 2008; Teo and Liu, 2007).

Understanding the antecedents of trust is of vital importance so as to provide insights that will inform the design of trust-building e-commerce websites. In this direction, a stream of e-commerce research has identified the interface of the vendor web site as an important contributor to trust (Gefen et al., 2003). Several empirically tested models on trust include web site characteristics as factors that affect trust, such as perceived site quality (Kim and Tadisina, 2005; Corbitt et al., 2003; McKnight et al., 2004; McKnight et al., 2002), web site appeal (Hampton-Sosa and Koufaris, 2005), ease-of-use (Chau et al., 2007; Gefen et al., 2003; Koufaris and Hampton-Sosa, 2004), usefulness (Koufaris and Hampton-Sosa, 2004), usability (Flavian et al., 2006; Roy et al., 2001), navigation (Bart et al., 2005; Sultan et al., 2002) security (Hu et al., 2009; Bahmanzir et al., 2009; Koufaris and Hampton-Sosa, 2004; Gefen et al., 2003) and privacy (Lauer and Deng, 2007). Such factors are important characteristics of the interface design of a vendor web site and are widely adopted in the majority of current online stores. However, they can guide the design of e-commerce environment mostly in terms of general prescriptions, as, in their majority, they do not explicitly refer to specific interface
attributes, such as color. Color, as an important interface element, is expected to influence customer trust in an online vendor.

In line with research in traditional and e-commerce settings that has examined trust around the notion of belief or beliefs about a vendor (Papadopoulou and Martakos, 2008), trust is approached as a multidimensional concept and is analyzed into a set of four trusting beliefs, the beliefs in the benevolence, competence, integrity and predictability of the e-vendor. Following the typology of McKnight et al. (2002) and McKnight and Chervany (2001-2002), trusting beliefs in an online vendor are defined as follows:

- **Trusting Belief - Benevolence** is the belief that the online vendor cares about the customer and is motivated to act in the customer’s interest and not opportunistically.
- **Trusting Belief - Competence** is the belief that the online vendor has the ability or power to do for the customer what the customer needs done.
- **Trusting Belief - Integrity** is the belief that the online vendor makes agreements in good faith, communicates honesty and fulfills promises.
- **Trusting Belief - Predictability** is the belief that the online vendor’s actions (good or bad) are consistent enough that the customer can forecast them in a given situation.

The conceptualization of trust as four distinct trusting beliefs in the benevolence, competence, integrity and predictability of the online vendor, although adopted in several studies, has scarcely been maintained at the empirical level. In terms of antecedent factors of these beliefs, Gefen and Straub (2004) examined the social presence embedded in a website, and included familiarity and trusting disposition as control variables on each of these beliefs. Papadopoulou (2007) describes how each of these trusting beliefs is developed within an e-commerce environment using virtual reality technology. Therefore, there is a lack of research regarding the antecedents of the four trusting beliefs in an online vendor. This study attempts to address this gap, by examining color as an antecedent factor of trust and specifically of each of the beliefs in the benevolence, competence, integrity and predictability of an online vendor.

### 2.2. Colors as a main variable of the atmosphere associated with e-commerce websites

Color perception is a complex process in that it is more than a mere physiological or psychological fact. It is also formed by the consumer’s national culture, general education and socio-professional background. According to general psychological data (Fleury and Imbert, 1996) every individual is endowed with a physiological ability to perceive colors (Wright and Rainwater, 1962; Nakshian, 1964; Wilson, 1966; Jacobs and Suess, 1975; Kwallek et al., 1988).

Color has always been used by human beings as an aid to distinguish important information from unimportant or irrelevant information. It is essential in strategies of camouflage for example. It also aids an individual’s memory in many uses such as presenting information, assisting in education or even in the intention to purchase (Harrison, 2001).
Although color is a widely researched topic (Divard and Urien, 2001), to this day, very few studies focus on this topic within the context of the Internet. Research is limited to several studies about the impact of colors on Internet site readability providing advice about how to choose the most harmonious colors (Hill & Scharff, 1997; Hall & Hanna, 2004), while usability research experts, such as Nielsen (2000), make managerial recommendations. Coursaris et al., (2008) have studied the effects of color temperature and gender on perceptions of website aesthetics. Yet color is omnipresent in e-commerce websites. The components of atmospherics on e-commerce websites, quoted by respondents in a research study based on semi-structured interviews, included color as a pivotal variable (Lemoine, 2008). Generally speaking, it affects consumer behavior in compliance with Mehrabian and Russell's psycho environmental model, the SOR model (Stimulus Organism Response) (Mehrabian and Russell, 1974).

Color contains three principal components (Trouvé, 1999):
- Hue (or chromatic tonality), which is the attribute of the visual sensation defined according to the colors denominations such as blue, green, red etc.
- Saturation, which provides the proportion of chromatically pure color contained in the total sensation;
- Brightness, which corresponds to the component of an illuminated surface according to which the surface seems to emit more or less light.

To this day, the effects of the three-color components on the Internet have been but seldom documented. Gorn et al.'s (2004) work focusing on the impact of the three color components on downloading time perception, demonstrate that a lengthy waiting time influences the user's appraisal of the Internet site and can lessen his/her desire to recommend it to others. Kiritani and Shirai (2003) show that the effects of screen background colors on time perception vary according to the tasks performed by Internet users. When reading a text written on a white, blue or green screen background, users have the feeling that time passes by more slowly. Pelet (2008) has shown the importance of considering chromatic colors vs. achromatic ones, taking into consideration the effects of the three color's components: hue, brightness and saturation.

On a website the interface represents the graphic chart, a set of rules composed of two colors: the foreground color also called the “tonic” or “dynamic” color and the background color, named the “dominant color” by webmasters. These colors reveal the contrast, which corresponds to a strong opposition between the foreground and the background colors, as defined by W3C. (Accessiweb, 2008). The main function of the contrast is to improve the readability of the displayed information, and a fortiori the memorization process.

A clear understanding of what is written on a website, thanks to good readability based on an efficient contrast between the foreground and background colors, helps consumers behave and act more positively towards the e-vendor. As far as this feeling of clear comprehension of the interface once entering the website arises more intensively, and more often, customer trust towards the vendor becomes gradually stronger.
Unlike most empirical studies dealing with color which compare warm and cold colors (Coursaris et al., 2008; Ettis, 2008), we have decided to focus on hues, brightness and saturation so as to explore the color influence on trust and how it may vary according to the intensity of each one of those components. Various levels of brightness and saturation lead to particular contrasts according to the chosen hue, which can then enhance or disturb the readability of the whole page. This can represent an obstacle for the website's usability and consumer trust.

3. Research method

3.1. Qualitative study

An exploratory qualitative study was conducted in order to understand the relationship between color and trust. The objective of the study was to investigate how customer trust in an online vendor is influenced by the colors of an e-commerce website. The study was based on examining the empirical knowledge already gained by consumers and webmasters from e-commerce websites. We wanted to understand what made the respondents feel that they could trust an e-commerce website they visited. Our data collection aimed at identifying and classifying the elements which referred to the trust felt by consumers during an e-commerce website’s visit, as a result of the colors.

The study was conducted using semi-structured interviews with 21 persons, regular consumers and web designers, in which we asked interviewees to speak about past visits to websites of their choice. The interview guide was structured and open and allowed us to collect data related to the subjects purchase experience in e-commerce websites. We adopted a neutral attitude with regard to them so as not to influence them in the way they answered. Participants were questioned without being able to face a computer screen, in order to answer only by using their memory to restore the information evoking their navigation on an e-commerce website of their choice. Every interview, the duration of which ranged from 13 to 47 minutes, was re-transcribed resulting in a verbatim of hundreds of pages.

From these interviews, topics referring to the trust perceptions formed by the consumer in an online shopping situation emerged. In specific, these topics relate to the benevolence, competence, integrity and predictability of an online vendor as perceived by the consumers and show the importance of the colors of a website and their effect.

Interviews were conducted using what interviewees recalled from their past visit on ecommerce websites. To ensure that the respondents only used their memory to provide information about their browsing e-commerce websites, it was not possible for them to look at a screen showing an e-commerce website during the interview (Jallais, 2006). The reason for which we investigated the memory can be understood by the following example. When people shop in traditional or electronic stores by relying on what they stored in their brain regarding commercial information (price, delivery last, state of the product, etc), they rely on what they memorized. Indeed, in everyday life there is no
trigger helping consumers recall the content of an e-commerce website they visited or compare it with another offer. Most of the time, consumers can not visit the e-commerce website where they found relevant information while they shop in stores, especially traditional ones. In case they can try and compare commercial information for example, they can only trust what they stored in their long term memory. It seemed therefore relevant to conduct our interviews by respecting the same conditions as real life ones.

The objectives of the qualitative study were pursued on the basis of the following questions:
- Is color one of the atmospheric elements of e-commerce websites that is important for online consumers?
- Do consumers feel particular emotions while shopping on e-commerce websites? If yes, does color affect the emotions of the consumers?
- Do consumer trust an ecommerce website thanks to the colors as a variable of the website atmosphere?
- Does an e-commerce website’s color affect customer perceptions of an online vendor? Which trust perceptions are influenced?
- Does color affect customer trust and perceptions about an online vendor in a positive or in a negative way?

### 3.2. Respondents characteristics

The exploratory qualitative study took part in France with French respondents. A total of 21 subjects participated in the study, 43% of which were female. The age of the sample population ranged from 31 to 57 years old. The majority of the respondents (15 persons) were regular Internet users, while 6 of them were webmasters. The representation of webmasters and regular users according to the respondents numbers used in the study is summarized in Table 1.

<table>
<thead>
<tr>
<th>Respondent No</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>15</th>
<th>16</th>
<th>17</th>
<th>18</th>
<th>19</th>
<th>20</th>
<th>21</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respondent expertise</td>
<td>RU</td>
<td>RU</td>
<td>RU</td>
<td>W</td>
<td>RU</td>
<td>RU</td>
<td>W</td>
<td>RU</td>
<td>RU</td>
<td>RU</td>
<td>RU</td>
<td>W</td>
<td>W</td>
<td>RU</td>
<td>W</td>
<td>RU</td>
<td>W</td>
<td>RU</td>
<td>W</td>
<td>RU</td>
<td>RU</td>
</tr>
</tbody>
</table>

*Table 1: Respondent expertise: RU = Regular User; W = Webmaster*

The interviews were based on e-commerce websites related to different activities according to the interviewed persons and their habits. The respondents described e-commerce websites were online auctions ones (Ebay), travel agency (SNCF, Trenitalia, SNCM, Go Voyages, Nouvelles Frontières, SkyEurope), computer material websites (Apple), music discs sellers (Newloop, Groovetech, Interzone) or musical labels (BPitch). Some others were news websites, selling electronic format newspapers (Audiofanzine) whereas others were about economic news (La Tribune, Boursorama, Les Echos, Investir, MorningStar, Journal des Finances). Different websites related to everything about
selling were also used for description, such as C-Discount, Vente privée. Books and cultural e-commerce websites were also part of the described visits, with Amazon, La Fnac and Pyramide for example. Websites dedicated to downloads for webmasters also came to the discussion with the interviewed webmasters, such as Flashloaded for example. A website selling clothes (La Redoute) one selling beer (Heineken) and another one selling flowers (Sephora) were also mentioned. Finally, websites selling everything that can be sold were also mentioned such as MonsieurPrix, Kelkoo and RueduCommerce.

### 3.3. Data analysis

Data were analyzed following the different stages of content analysis suggested by Vernette and Giannelloni (1994). Interviews can be analyzed in multiple ways following the research objectives (Evrard, Pras and Roux, 2003), which in our case was to explore the importance of color in customer trust and in what ways it was important. The responses were coded and the preliminary readings (Bardin, 1996) allowed us to identify the items. A cluster by topic and frequency of appearance of the variables followed (Table 2). We respected a certain number of stages in identifying the subjects and the useful semantic units, as in any content analysis.

The qualitative data were analyzed with a table summarizing all the results of our respondents, where each construct was assigned a ‘1’ value for every instance. For each respondent, we analyzed the interview and we extracted instances of trust that were mentioned and that were related to color. We then grouped the ‘result’ columns of all our respondents in the final table in order to understand precisely what the answers meant. This corresponded to a total of 22 columns, with cells having either a ‘1’ value or being empty. Rows in this table indicated the different themes issued from the interview guide. Topics and words related to a precise field appeared in a ‘result’ column, showing the frequency of appearance of each construct.

An analysis according to the e-commerce category that a website belongs to with regard to the colors used in various types of e-commerce websites was also performed. Figure 1 shows the homepage of the 10 websites the respondents mostly referred to in the exploratory study. These websites are also, the ten most visited websites by French.
<table>
<thead>
<tr>
<th>Respondent No</th>
<th>User category (Respondent expertise)</th>
<th>Benevolence</th>
<th>Color Effect</th>
<th>Competence</th>
<th>Color Effect</th>
<th>Integrity</th>
<th>Color Effect</th>
<th>Predictability</th>
<th>Color Effect</th>
<th>General trust</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>RU</td>
<td>1</td>
<td>rich website</td>
<td>1</td>
<td>Interactivity</td>
<td>1</td>
<td>ease of retrieving information</td>
<td>1</td>
<td>Austere</td>
<td>minimalism of the interface</td>
</tr>
<tr>
<td>2</td>
<td>RU</td>
<td>2</td>
<td>reassuring</td>
<td>5</td>
<td>facilitate the link visibility</td>
<td>1</td>
<td>content is put to the fore</td>
<td>1</td>
<td>convenience of website</td>
<td>usability procures help</td>
</tr>
<tr>
<td>3</td>
<td>RU</td>
<td>4</td>
<td>delimitate zones</td>
<td>3</td>
<td>ergonomics (search engines)</td>
<td>3</td>
<td>zones facilitate tracking</td>
<td>1</td>
<td>harmonious ergonomic helps the user</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>W</td>
<td>6</td>
<td>fluid navigation</td>
<td></td>
<td></td>
<td></td>
<td>harmony</td>
<td>9</td>
<td>harmonious</td>
<td>playability to use the whole website</td>
</tr>
<tr>
<td>5</td>
<td>RU</td>
<td>6</td>
<td>reassuring</td>
<td>7</td>
<td>delimitate zones</td>
<td>2</td>
<td>sober</td>
<td>10</td>
<td>facilitate tracking of links</td>
<td>clarity of the presentation</td>
</tr>
<tr>
<td>6</td>
<td>RU</td>
<td>1</td>
<td>rapidity</td>
<td>2</td>
<td>communicate</td>
<td></td>
<td></td>
<td>5</td>
<td>enlighten</td>
<td>fluidity of actions</td>
</tr>
<tr>
<td>7</td>
<td>W</td>
<td>1</td>
<td>clear presentation</td>
<td>2</td>
<td>beautiful</td>
<td>3</td>
<td>not practical website</td>
<td>3</td>
<td>high level of information aspect</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>RU</td>
<td>2</td>
<td>enhances the content</td>
<td>4</td>
<td>boring</td>
<td>3</td>
<td>professionalism</td>
<td>1</td>
<td>beautiful</td>
<td>sober</td>
</tr>
<tr>
<td>9</td>
<td>RU</td>
<td>1</td>
<td>vivid</td>
<td>1</td>
<td>speed</td>
<td>1</td>
<td>procure advice</td>
<td>1</td>
<td>help information is simple</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>RU</td>
<td>3</td>
<td>deceive</td>
<td>2</td>
<td></td>
<td>1</td>
<td>poor information deceives</td>
<td>1</td>
<td>poverty of information deceives</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>RU</td>
<td>2</td>
<td>clarity</td>
<td>3</td>
<td>aggressive</td>
<td></td>
<td>no respect of the consumer</td>
<td>2</td>
<td>violent color aggress users</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>RU</td>
<td>1</td>
<td>neat</td>
<td>1</td>
<td></td>
<td>1</td>
<td>secure website</td>
<td>2</td>
<td>feeling of speed</td>
<td>fluidity reassures</td>
</tr>
<tr>
<td>13</td>
<td>RU</td>
<td>1</td>
<td>absorbed</td>
<td>2</td>
<td></td>
<td></td>
<td>information structure serves information content</td>
<td>4</td>
<td>information structure serves information content</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>W</td>
<td>4</td>
<td>aggressiveness</td>
<td>1</td>
<td></td>
<td></td>
<td>ease of use</td>
<td>4</td>
<td>vivid colors don’t enhance trust</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>W</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>cheap look</td>
<td>1</td>
<td>vivid colors don’t enhance trust</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>RU</td>
<td>4</td>
<td>absorbed</td>
<td>2</td>
<td>give advice</td>
<td>1</td>
<td>reliability</td>
<td>1</td>
<td>consciousness of information helps the user</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>W</td>
<td>1</td>
<td>pleasure</td>
<td>1</td>
<td></td>
<td>2</td>
<td>deception</td>
<td>1</td>
<td>too much information doesn’t serve the website</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>RU</td>
<td>2</td>
<td>attractive</td>
<td>2</td>
<td></td>
<td></td>
<td>stress</td>
<td>1</td>
<td>boredom</td>
<td>simplicity and aesthetic aspect</td>
</tr>
<tr>
<td>19</td>
<td>W</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>practicality</td>
<td>2</td>
<td>beautiful, aesthetic</td>
<td>richness of information and right choice of color family</td>
</tr>
<tr>
<td>20</td>
<td>RU</td>
<td>1</td>
<td>indecision</td>
<td>1</td>
<td></td>
<td></td>
<td>fluidity of information</td>
<td>1</td>
<td>fluidity of information</td>
<td>clear zones of explanations help users</td>
</tr>
<tr>
<td>21</td>
<td>RU</td>
<td>1</td>
<td>purchase without pressure</td>
<td>1</td>
<td></td>
<td>1</td>
<td>complex way of buying</td>
<td>1</td>
<td>conviviality</td>
<td>and simplicity</td>
</tr>
</tbody>
</table>

Table 2: Qualitative analysis results
The different websites the respondents referred to during the exploratory analysis mainly look white according to the background color presented above (Figure 1). It is easy to see that the websites they described use dynamic colors by playing on the contrast occurred as a result of the white background color and the logotype and what we consider as “hot zones”: navigation bar, search engine, shortcut links (pictures). Thereby, whatever the color of the brand is, the difference between the color of its logotype, navigation bar buttons, and other hot zones of the foreground will be considered enough to appeal the customer view and gain his/her trust. Our interviews with webmasters, however, show that this combination between these dynamic and dominant colors has not been conceived on the base of studies or other literature. It’s only based on webmasters choice, looking for the strongest contrast between the color of the product/brand, and the rest of the interface.

4. Results

The analysis and interpretation of the data revealed that color is an important variable of e-commerce web sites, influencing customer trust in an online vendor. Color was mentioned 79 times during the interviews carried out. Driven by the data and their interpretive analysis, several instances emerged explaining why and in what ways color can affect customer trust (Table 2).
Color is largely related to the presentation of products and information in a web site. It is an important parameter in offering a clear and comprehensible presentation of products and information, so that the customer has an unambiguous, concise understanding of the products or services that the online vendor sells. In addition, a high quality presentation can offer a pleasant and amusing customer experience, which will make customers trust the vendor and choose to purchase from that compared to other competitive web vendors, prolong their interaction with the vendor web site and also make them revisit the web site. Such a presentation can be an important trust inducing factor in several ways.

4.1. General trust and preference

Color selection was revealed as an important factor for customers trusting a web vendor and distinguishing it from others. Nice colors are regarded as an essential aspect of an ideal e-commerce site, and create positive perceptions about online vendor trustworthiness. According to a respondent:

“The ideal website...it’s the site that is beautiful...which is...which uses the beautiful, the right colors [...] I can be captivated by something, ....by colors, ...seduced (n° 14)”.

A colored e-commerce web site will be trusted and preferred over one which is dull and colorless. A respondent explaining her preference for her favorite website said:

“the fact that this is colored, it attracts the eye, because it’s really more pleasant to have a website which is attractive rather than a totally dull one, where you would just pass on [...] Like a color which is nice to look at, because there are websites with only one color, it’s not really nice” (n° 8).

However, a colorful website does not imply having a large number of colors. Instead the use of colors should be prudent. As a respondent commented:

“I think that there shouldn’t be too many colors” (n° 6).

On the other hand, whilst abundance in colors should be avoided, a shortage of colors in an e-commerce web site, with large monochrome areas, especially in case of bright and saturated colors, can also be negative to customer trust perceptions. A respondent said:

“I like to read something when it’s written on a white webpage, I hate when there are huge surfaces of one color like blue, red and so on. This, I hate this, I find it very aggressive, there are more or less screen backgrounds” (n° 16).

Customers will trust an online vendor influenced by colors which render a web site beautiful and aesthetically pleasant. The beauty of a web store interface is thus a necessary ingredient for customer trust. Color is a critical element of an attractive and captivating online store, which is rich in appearance, offering a shopping context where the customer feels comfortable and has a relaxing interaction. A respondent said:

“I find it very...very vivid ...with a design and columns which are well done, easy to access, it’s very clear, it’s colored, it’s...it’s attractive...Warm. It’s colorful, thus...it’s great there are many photographs...I would say red” (n° 13).
In this way, color creates an appealing shopping environment which gains customer trust in the online vendor. Another respondent emphasizing the feeling of comfort in an online store that he trusts, said:

“what I like in the Boursorama website, is that it’s a website, which, above all, from a general point of view, is comfortable. Visually comfortable I would say” (n° 16).

Natural, neutral colors can encourage a customer visit a web store and instill trust in online vendor. The same effect is also produced by bright, vivid colors when used in a matching combination. A respondent mentioned:

“I tend to prefer pastel colors, and relatively natural ones, which provide a sensation, yes, or vivid, but not aggressive. If they look homogenous all together” (n° 5).

On the contrary, a web site using vivid colors with sharp contrast can be appalling to the customer, preventing trust in the online vendor. As a respondent said:

“Color was, for me color was not fine, there were a little bit fluorescent colors, and that, I am not sure but if it was green or orange….yeah, it was a little bit violent colors” (n° 5).

4.2. Benevolence

First, colors facilitate the customer in the shopping process, providing images and links, enabling him to search for what he needs and find it in an easy and convenient way. This can be deemed as a sign of vendor’s benevolence, as the customer feels that the vendor intention is to actually help him and provide what he needs. A respondent referring to a trusted web store mentioned that:

“the color choice of the index is very neat, so yes, I have a very good memory of this particular website” (n°12)

The visibility and clarity of links is important for trusting a web vendor site. As a respondent said:

“the fact that the links are evident to click on too, […] it’s very annoying to look for which part of the text has to be clicked” (n°17)

Colors can also build customer trust in the vendor benevolence by offering a warm and friendly ambience. The same respondent, describing an e-commerce site that he trusts explained:

“concerning Boursorama, I think that it’s a hot atmosphere […] Boursorama uses yellow and blue colors” (n° 16).

Moreover, color can contribute to a customer trust in online vendor by transforming a character-less vendor’s site into an e-commerce environment that offers the customer playfulness and enjoyment. Customers will be enticed to trust a vendor and engage in online shopping activities when they interact with a web site which is enriched in color, turning a mere commercial transaction into an entertaining and amusing experience. This will be perceived as an effort of the online vendor acting in the customer interest, conveying benevolence. A respondent mentioned:
“so...yes that's it. And I like when it's colored, enjoyable, when there are pleasant categories...even funny ones. It is...it is many things at once....a pleasant website. it is very visual...for me it is very visual. In the first place...” (n° 13).

On the contrary, the use of color can have a negative impact on a customer perception about a vendor’s benevolence. A vendor using very flashy and impressive colors in a web site, can be interpreted as a vendor acting for promotion rather than acting in the customer interest. A respondent said:

“It was pleasant, yeah... very elaborated, elegant, it wasn’t....with violent colors. It was not...it was not advertising, it was not...it didn’t flash everywhere...it was sober and elegant” (n°14).

The same respondent, commented on why she would not trust an online store:

“a very...very overloaded design, or colors too much...too promotional, too ‘flashy’...” (n° 14).

This is consistent with another respondent’s comment:

“A fluorescent red, the aggressive red of promotion” (n° 5)

In addition, an e-commerce web site with strong colors can be irritating, creating negative feelings towards the vendor, which hinder the perception of a vendor’s benevolence. The previous respondent said:

“Brown, yeah I have been on this website, and once again, it scares me, I think, (silence), acid greens like lime, synthetical greens, I hate synthetical greens” (n° 5)

A customer can be annoyed, in such degree that he feels he needs to escape. Such colors can be perceived as aggressive or even violent, as one of the respondents said:

“sometimes you feel annoyed, nervous, because, because it doesn’t work, because...there are bugs...or because it attacks you....yeah, it can be aggressive, when it...when it’s too violent with regards to....to the colors.” (n° 14).

In this way, a customer feels that the online vendor as an aggressive one, whose aim is to attack the customer, rather than a benevolent one that is interested in the customer.

### 4.3. Competence

A careful selection and use of color also denotes the vendor’s competence. When color is used to provide a presentation of information which is clear and enhanced in terms of visibility, it infuses trust, forming a customer perception about the vendor’s competence. According to a respondent:

“Trust? You can feel it. I personally feel it graphically, or, by the way, the information presented, if it seems clear to me or, and...and yes, I will trust the website more easily” (n° 7).

Colors can further yield customer trust and indicate a vendor’s competence when used in a proper harmonic combination which not only provides information visibility but also elevates the information and augments its value. According to a respondent:
“using colors which are harmonious together, which leave the content free and also put the content in value and quite aerated actually and well structured” (n° 7).

In addition, color can build customer trust and project a vendor’s competence when used for an advanced product presentation. By providing a good, realistic representation of products with the appropriate use of color, the online vendor can offer a precise view of the exact product, showing that the vendor is competent and can respond to the customer demands and offer exactly what he wants. High quality images can preserve a good quality of colors with an appropriate compression rate. A respondent said:

“It seems important for me to see clean images because otherwise, it doesn’t look effectively professional” (n° 6).

Furthermore color is essential for aiding the customer locate links and find what he needs, easily and quickly.

“colors to identify a little bit what we need, how to explain this…it has to be clear and neat if we looked at the screen from a certain distance, we must recognize, we must recognize the different parts more or less” (n° 8).

Another facet of color use which emerged as significant for customer trust in an online vendor was color alteration. Switching between colors, in case of different products or different product categories provides an interface which is not uniform and monotonous. Such an interface, offers a clear presentation and allows for an interesting and effective customer experience which conveys a vendor’s competence. A respondent said:

“it’s effectively properly done, they present a new product, they change, I think they change colors, when we enter different zones, when it’s for computers or for music, they change colors” (n° 17).

On the other hand, a vendor site with excessive use of color will be judged as an ugly one. Whilst such assessments are negative for a vendor’s trustworthiness, they can be overcome if other provisions are in place, such as an effective search mechanism, which promote customer trust and belief in a vendor’s competence. A respondent said:

“I find it too, too colorful, too overloaded…but…I find that their search engine works well…that their search engine... works properly ...awful, but efficient” (n° 15).

An e-commerce web site using aggressive colors and which is not pleasant to look at will prevent a customer from trusting an online vendor, as it will discourage the customer from interacting with the vendor, not only in terms of making purchases but also for other less risky tasks, such as searching for information. In this way, a customer will form a negative perception about the vendor’s competence. Instead, avoiding aggressive colors for clarity and good design can engender customer trust by showing a vendor’s competence. According to a respondent:

“if it’s not enjoyable to look at, if it doesn’t make you go further in the search for information on a product, [...] it’s one of, it’s one of the decision which makes the
Apple store one of, of the e-commerce websites I use, because it’s clear, well designed, it’s very enjoyable to look at, eh, colors aren’t aggressive” (n° 4).

4.4. Integrity

Color can also engender trust by signaling an online vendor’s integrity. It can inspire a customer trust in online vendor when used to provide a simple and thrifty interface, instead of a heavy, overloaded one. Colors which are low in saturation convey comfort and assurance to the customer, creating thus a perception that the online vendor is honest and can be trusted. A respondent mentioned:

“what I like on an e-commerce website, it’s its precision, I mean without useless decorations, because when you are on a website in fact, you give your card number, you give many details which are, which are personal, and it’s true that you like that..., I personally I like it when it’s sober, a maximum of sobriety [...] I am not fan of flash etc. on this type of websites, I prefer colors that are a bit reassuring, you see, white, things like that” (n° 2).

Colors which are low in saturation can project seriousness and professionalism, thus shaping a customer’s trusting belief in the vendor integrity. According to another respondent:

“When you buy on the Internet, you are afraid to leave your card number, thus, it has to be quite serious, in a way, without being to...boring, with colors to make you feel like doing it, so advertising is still communication, but...it must, it has to be quite serious otherwise you won’t leave your card number on the website” (n° 8)

Customers may also come to trust an online vendor as an honest one by appreciating the simplicity, ease-of-use and content readability that can be offered by color on an e-commerce website. However, these characteristics may not be sufficient to form customer trust and belief in the vendor’s integrity. As described by one of the respondents:

“easy to use...enjoyable..., yeah, very readable.....easy.....I mean, easy enough to load...no it was all right, and it convinced me...not to buy on their website, but...I...yeah I wanted to buy the products at least...because...the fact of...of leaving...your card number on a computer which isn’t yours...or even on yours...it’s...it doesn’t inspire trust...I mean, it’s...we don’t necessarily want to because we don’t trust the website ” (n° 14).

4.5. Predictability

The use of colors which are associated with specific occasions and topics serves provide customers with trust-building cues which can be perceived as evidence of the predictability of an online vendor. According to a respondent:

“It’s clear, colors properly present what we can find in the shop for example I know the one from La Rochelle (France) and these are colors we can also see on the website [...] It’s a bit according to the seasons of the year or holidays, that colors change
(Halloween, Easter, summer), for summer, they use suns, these are brighter colors, more vivid, warmer that they use” (n° 20).

However, when colors have been associated by customers with negative cues, they can convey negative perceptions about an online vendor’s predictability. For instance, strong, intense colors can be trust-inhibiting as they can produce feelings of stress and discomfort to the customer. As a respondent said:

“This (referring to flash animations) I think that it’s what stresses me the more, after that, it will be violent colors, for example, advertisings, there will be a picture relating a trip, with a woman on the beach getting suntanned, and here it is, a red stuff, or a really vivid color, which is not peaceful. This is one of the exciting things which attract attention, but one thing that is, very unpleasant, visually unpleasant for me” (n° 5).

In addition, an e-commerce web site with lively colors can also have a negative impact on customer trust perceptions about an online vendor predictability. Colors which are high in saturation can be confusing for the customer during navigation, creating the customer a feeling of being lost and even leading the customer to abandon the shopping process and leave the web site. In this way, such colors shape negative perceptions of a vendor predictability, as a customer can not know what to expect next during interaction with the website. A respondent said:

“e-commerce websites are saturated of, of vivid colors, so there are so many that we get lost at the end” (n° 3).

5. Discussion

Our research enabled us to bring to the fore the effects of the colors used on e-commerce websites on consumer trust. As shown by the interpretation of the results, colors can influence customer trust and preference for an online store, in a positive as well as in a negative way. The colors of an e-commerce website influence customer trust perceptions in the benevolence, competence, integrity and predictability of an online vendor. Our findings indicate that colors which are low in saturation and brightness infuse trust in an online vendor and customer beliefs in the vendor’s benevolence, competence, integrity and predictability. Such colors are perceived as cues of benevolence, competence, integrity and predictability by allowing for a pleasant and comfortable interaction within an attractive and at the same time professional-looking environment. Colors which are vivid and high in saturation have a negative effect on trust and the beliefs in the four trust related attributes of online vendors, benevolence, competence, integrity and predictability, mainly because they are perceived as being too aggressive and promotional.

The possibility offered on certain e-commerce websites to see quality representations of the available products contributes to the consumer forming positive trust perceptions about the online vendor competence. The presence of images informing the consumer during an online shopping interaction can seem reassuring when trust needs to be built. In fact, images, with colors conferring an ‘authentic’ aspect to the product, were identified as an important trust-building factor among the
interviews conducted. A quality representation relies on well chosen colors and on large and clean images so that the product appears larger and the website looks professional, conveying competence. Overly small images can discourage some consumers from trusting an online vendor or even lead them to a total lack of trust. In this case, the competence of the e-vendor is greatly questioned by the consumer.

E-commerce websites designers should take into account the aesthetic and functional impact of colors in order to enhance the trust customers feel. Their contrast facilitates finding information on a webpage, which, shown by our findings, can be perceived as a cue of an online vendor’s benevolence. Moreover, low brightness fosters stronger trust perceptions and a stronger purchase intention. A web designer thus faces the difficulty of conceiving and juxtaposing on the same surface two features, visuality (Nel, 2001) - an object equipped with practical functionalities – and visibility - i.e. readable contents, the aim being to make him progress quickly to the webpage. Enabling consumers to gain knowledge which will help them during a visit move more easily in order to make their shopping experience even simpler, more pleasant and quicker could thus constitute one of the major challenges of vendors wishing to increase customer trusting beliefs in their benevolence.

A proper use of the two colors of the graphic chart (foreground and background ones) provides an e-commerce website with a professional interface and reinforces customer perception of the vendor integrity. Nevertheless, we should point out that participants did not necessarily feel like buying a product from this type of website afterwards. In this case, customers can not forecast that the online vendor’s actions are consistent enough, and their trusting belief in the online vendor predictability can not be likewise effectively established. This holds especially for chromatic colors, proving how color can be an important variable to take into account for building trust.

It is important to maintain a graphic chart which helps the visitor learn in an incremental way the organization of the information in order to trust it more. For a longer duration of time spent on an ecommerce website, it is also important for customers to be able to surf easily from one page to another (Ladwein, 2001). Moreover, the facility of seeking information or comparing prices or products is more satisfying for consumers in their purchases on the Internet and helps them to better trust the commercial website offer (Lynch and Ariely, 2000). Furthermore, ergonomics and a sought-after usability, thanks to a subtle use of colors seem, in addition, to support the likelihood of trusting and revisiting the website.

Our results from the conducted interviews on color had not been revealed in previous works studying this variable. Our exploratory study reveals the importance of chromatic colors. The provided explanations about the white background colors evoked show that chromatic colors appear to be a cornerstone in the effort to spur e-commerce and should taken more into consideration when designing websites for a successful trust-building e-commerce strategy.
6. Conclusion

Establishing customer trust in an online vendor remains an important topic in e-commerce research agenda and a challenge for e-commerce professionals. Despite the widely recognized need to understand trust antecedents, current literature appears to be scarce on how customer trust can be affected as a result of the color of an e-commerce website. The relationship between color and trust has only been addressed with respect to website interface aspects, such as web site quality, usability, website design and their effect on trust. In this direction, this paper contributes by providing an empirical, qualitative assessment of the effect of e-commerce websites colors on customer trust in an online vendor. Color was found to be an important e-commerce interface factor influencing customer trust and perceptions in the benevolence, competence, integrity and predictability of an online vendor. The analysis and interpretation of the results provided further insights as to how and why the use of color in an e-commerce environment can positively, as well as negatively, affect the development of customer trust. We expect that our findings will add to our theoretical and practical understanding of how color can be effectively be used for building trust in an online vendor.
References


International Journal of E-Business Research (forthcoming)


International Journal of E-Business Research (forthcoming)
Color effect on trust in e-commerce 22/23


