The Influence of Color, Shape, and Font Formatting on Consumers’ Perception of Online Drugstores

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This study shows that the application of circular design elements instead of angular ones at an online drugstore increases consumers’ perceived integrity and security about the store. Furthermore, using bold font formatting instead of standard font formatting increases the perceived competence and security and leads to more satisfaction and loyalty.

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ABSTRACT

On-line retailing has created a global marketplace in which a large number of companies compete, consequently providing consumers with easy access to a wide variety of choices. As consumers increasingly rely on the internet in order to gain information, website trust is one of the key differentiators that will determine the success or failure of many retail companies (Bart et al. 2006; Benedicktus et al. 2010; Urban, Sultan, and Qualls 2000).

In order to create long-term relationships, successful marketing strategies attempt to understand how website trust is developed and how trust influences consumers’ behavioral intentions. Particularly when consumers face some degree of risk in a purchase situation, trust in the retailer’s website plays a vital role (Doney and Cannon 1997; Jarvenpaa, Tractinsky, and Vitale 2000; Schlosser, White, and Lloyd 2006). In the marketing literature, trust has been predominantly studied in the context of relationship marketing (Doney and Cannon 1997; Ganesan 1994), relying on exchange theory. Exchange theory (Thibaut and Kelley 1959) proposes that individuals form associations on the basis of trust and try to avoid exchange relationships that are likely to bring more pain than pleasure. Trust is at its highest when the trustor (consumer) believes the trustee (company) is credible and is willing to be sympathetic to the actions of the trustor (Mayer, Davis, and Schoorman 1995; Rousseau et al. 1998).

In the literature trust is defined as a multi-dimensional construct (Doney and Cannon 1997; Ganesan 1994; Mayer et al. 1995; McKnight, Choudhury, and Kacmar 2002; Rousseau et al. 1998). Thus, trust measures are typically comprised of competence, benevolence and integrity. Competence beliefs reflect the consumer’s confidence that the firm has the skills necessary to perform the job (Mayer et al. 1995). Benevolence beliefs reflect confidence that the firm has a positive orientation towards its consumers beyond an ego-centric profit motive (Mayer et al. 1995). Integrity beliefs reflect confidence that the firm adheres to a set of moral principles or professional standards that guide its interactions with consumers. This conceptualization can also be extended to online trust (Schlosser et al. 2006; Yen and Gwinner 2003).

There is wide agreement that web site design is an important component in building consumer trust (Hoffman, Novak, and Peralta 1999; Schlosser et al. 2006; Shankar, Urban, and Sultan 2002; Urban et al. 2000). A body of research proposes that the development of online trust goes beyond security and privacy and is closely connected with the perception of website aesthetics (Bart et al. 2005; Gupta, Yadav, and Varadarajan 2009; Harris and Goode 2010; Urban, et al. 2000). When surfing a website the first time, consumers judge the attractiveness in fractions of seconds. This first impression is crucial in determining the usability and trustworthiness of a website (Tractinsky et al. 2006; Tractinsky and Lowengart 2007) and influences consumers’ intention to re-purchase.

Empirical findings in the online aesthetics literature highlight visual complexity and color schemes as being the most salient design features for consumers (Cyr, Head and Larios 2010). Evidence exists that color schemes affect consumers’ trust in a website (Cyr et al. 2010; Kim and Moon 1998). Long-wavelength colors (e.g., blue and green) are viewed more favorably, more aesthetically appealing and more trustworthy than short-wavelength colors (e.g., yellow and red) (Goldberg and Kotval 1999; Latomia and Happ 1987). According to Lichtle (2007), blue is generally associated with security and trust. Cyr et al. (2010) explored how various website color schemes (blue, yellow, grey) affect consumers’ color appeal in website design. They found that increased color appeal influences trust and satisfaction, which results in e-loyalty. We therefore propose that the color of a website has an influence on consumers’ trust perception.

Interestingly, the influence of shape and font formatting on trust has thus far been neglected in marketing research. The literature reveals that formal structures reduce risk and uncertainty (Sitkin 1995). Various shapes engender differential responses across individuals (Arnheim 1974). Circular shapes are associated with softness, love, warmth, and harmony whereas angular shapes are associated with hardness, coldness, hate, aggressiveness, and conflict (Bar and Neta 2006; Berlyn 1960; Berlyn 1976; Liu 1997; Zhang, Feick, and Price 2006). In the product design literature, for instance, Zhang et al. (2006) reveal that angular shapes for picture frames and company logos are more attractive than are circular shapes. Bar and Neta (2006) and Westerman et al. (2012), however, paint a different picture, highlighting a general preference for circular shapes with a subsequently higher intention to purchase. However, there is general agreement that circular shapes trigger positive emotions whereas angular shapes cause negative emotions (Bar and Neta 2006; Zhu and Argo 2014). We therefore propose that trust as an emotion is influenced by angular versus circular shape of a website.

Typeface design, as well, significantly influences consumers’ valued impressions and their perceptions of web aesthetics and trust (Hagvist 2011; Henderson, Giese, and Cote 2004). Especially font formatting as a sub-category of typeface design is a widely neglected research area. One of the most commonly used formatting distinctions is bold versus standard. To our knowledge no study exists measuring the influence of font formatting on consumers’ trust perception.

Referring to trust-related theory, we define trust as a multi-dimensional construct consisting of competence, benevolence and integrity. Besides trust in a website, transaction security is another important issue, as consumers prefer secure transactions when surfing and buying online. Transaction security assumes a low risk exposure and is therefore closely connected with the formation of online trust and the confidence of consumers in the online seller (Bart et al. 2005; Cho 2006; Grewal et al. 2003; Harris and Goode 2010; Schlosser et al. 2006). Especially in the context of drug websites, purchasing goods is related to high risk, and therefore conveying transaction security is a strategic tool to better satisfy consumers.

According to recent research in website design, trust is also strongly connected to customer satisfaction and loyalty (Cyr et al. 2010; Garbarino and Johnson 1999). Studies have found a significant relationship between satisfaction with the service provider and commitment to trust a relationship (Rusbulit et al. 1991). Satisfaction in this regard is the main antecedent of consumer trust in the company’s capability (San Martin and Camarero 2005).

In summary, this raises the question whether consumers’ trust in a website, their satisfaction and loyalty as well as their security perception can be influenced by website design elements like color, shapes, and font formatting style. We therefore hypothesize that the color of a website (yellow vs. blue), its shape (circular vs angular) and the font formatting style (standard vs. bold) will have an influence on (a) perceived benevolence, (b) perceived competence, (c) perceived integrity, (d) and perceived security, as well as on consumer’ (e) satisfaction with, and (f)
loyalty towards, an online drugs retailer, named e-doctor. To test this we conducted the following experiment.

**METHOD**

**Participants and Design**

Participants were 396 students from a European university (125 males and 271 females). The study employed a 2 (website color: yellow vs. blue) x 2 (web site design: circular vs. angular) x 2 (font formatting: standard vs. bold) between-subjects factorial design. Participants were randomly assigned to one of the eight different experimental groups. Dependent variables were participants’ assessments of e-doctor’s benevolence, competence, integrity, and security, as well as participant satisfaction with, and loyalty towards, e-doctor.

**Measures**

Dependent Variables: Perception of benevolence was measured with a 5-item scale (Cronbach’s alpha = .87) which was adapted from Mayer and Davis (1999). Measures for competence were also adapted from Mayer and Davis (1999), also via employment of a 5-item scale (Cronbach’s alpha = .92). For integrity we used a 3-item scale (Cronbach’s alpha = .89) adapted from Mayer and Davis (1999). Security (Cronbach’s alpha = .88) was measured with a 2-item scale adapted from Grewal et al. (2003). Consumer response was measured by two constructs of purchase behavior: customer satisfaction (Cronbach’s alpha = .89) was measured via five items adapted from Fornell et al. (1996), whereas loyalty (Cronbach’s alpha = .96) (3-items) was measured via the scale of Zeithaml, Berry, and Parasuraman (1996).

Confounding variables: Measurement of participants’ online experience (1 item) was achieved via an adapted version of Barr et al. (2005). In order to assess online experience with drugstores we used one ad-hoc item. Online risk awareness (Cronbach’s alpha = .82) was measured with the 3-item scale of Schlosser et al. (2006). Risk aversion (Cronbach’s alpha = .75) was measured by a 3-item scale adapted from Donthu and Gilliland (1996). Preference for the colors yellow and blue, preference for angular and circular designs, and preference for standard and bold fonts were each measured by one ad-hoc item. All items were measured with 6-point rating scales (1 = I do not agree at all; 6 = I totally agree).

**Materials and Procedure**

Participants took part in the experiment individually, via a PC. They were instructed to view several analgesics on the web page “e-doctor” and subsequently—but not before 60 seconds had elapsed—were given the opportunity to select one of these analgesics for their medicine cabinet. Following this they were required to answer the questions pertaining to the dependent variables, confounding variables, and demographics.

**RESULTS**

2 x 2 x 2 ANCOVAs were conducted in order to evaluate the effects of the three between-participant factors of web page color (yellow vs. blue), web page design (circular vs. angular) and font formatting (standard vs. bold) on e-doctor’s perceived benevolence, competence, integrity, and security, as well as participants’ satisfaction and loyalty. Participants’ online experience, online experience with drugstores, online risk awareness, risk aversion, preference for the color yellow and blue, preference for angular and circular designs and preference for standard and bold fonts were included as covariates.

None of the ANCOVAs indicated significant interaction effects. ANCOVA with competence as the dependent variable yielded a significant main effect for the variable font, $F(1, 378) = 7.27, p = .007$, indicating that participants perceived the web page e-doctor to be more competent when a bold font was used ($M = 3.92, SE = 0.09$) in the stead of a standard font ($M = 3.57, SE = 0.09$). ANCOVA, with integrity as the dependent variable, indicated a significant main effect for the variable design, $F(1, 378) = 7.19, p = .008$, which indicates that participants ascribed more integrity to the web page e-doctor when it contained circular elements ($M = 3.87, SE = 0.09$) instead of angular ones ($M = 3.52, SE = 0.09$). ANCOVA, with security as the dependent variable, indicated a significant main effect for the variable design, $F(1, 378) = 5.96, p = .015$, indicating that participants considered e-doctor to be a more secure web page when it contained circular elements ($M = 3.58, SE = 0.11$) instead of angular ones ($M = 3.21, SE = 0.11$). ANCOVA also revealed a significant main effect for the variable font, $F(1, 378) = 5.72, p = .017$, indicating that participants perceived e-doctor to be a more secure web page when a bold font was employed ($M = 3.58, SE = 0.11$) in stead of a standard font ($M = 3.22, SE = 0.11$). ANCOVA, with loyalty as the dependent variable, yielded a significant main effect for the variable font, $F(1, 378) = 6.19, p = .013$, indicating that participants expressed more loyalty towards e-doctor when a bold font was used ($M = 2.71, SE = 0.11$) in stead of a standard font ($M = 2.33, SE = 0.11$). ANCOVA, with satisfaction as the dependent variable, yielded a marginally significant main effect for the variable font, $F(1, 378) = 2.95, p = .087$, indicating that participants experienced more satisfaction with e-doctor when a bold font was used ($M = 3.45, SE = 0.09$) instead of a standard font ($M = 3.23, SE = 0.09$). ANCOVA, with benevolence as the dependent variable, did not yield significant main effects.

For the manipulation check respondents evaluated the following statements: “Yellow is the dominant color of this website,” “blue is the dominant color of the website”, “the website consists mainly of angular shapes”, “the website consists mainly of circular shapes,” “the font formatting is mainly bold”, “the font formatting is mainly standard”. All items were measured with 6-point rating scales (1 = I do not agree at all; 6 = I totally agree).

Results indicate that the color yellow was perceived as being more dominant in the yellow color condition than in the blue color condition (5.81 vs. 1.95; $t(366) = 23.42, p < .001$), whereas the color blue was perceived as being more dominant in the blue color condition versus in the yellow color condition (6.22 vs. 2.49; $t(335) = 23.87, p < .001$). Angular shapes were perceived as being more dominant in the angular shape condition than they were in the circular shape condition (5.82 vs. 4.24; $t(351) = 8.03, p < .001$), and circular shapes were perceived as being more dominant in the circular shape condition than they were in the angular shape condition (3.85 vs. 2.18; $t(348) = 8.44, p < .001$). Bold font formatting was perceived as being more dominant in the bold formatting condition than it was in the standard formatting condition (4.38 vs. 3.31; $t(394) = 5.34, p < .001$), whereas standard font formatting was perceived to be more dominant in the standard formatting condition versus in the bold formatting condition (4.84 vs. 4.06; $t(390) = 3.91, p < .001$).

**DISCUSSION**

The aim of this study was to investigate whether the aesthetic features of color, shape, and font formatting influence consumers’ appraisal of the benevolence, competence, integrity, and security of, as well as consumer satisfaction with, and loyalty to, an online drugstore.

The findings indicate that consumers perceive an online drugstore to be more competent when a bold font is used instead of standard font. Furthermore they ascribe more integrity to an online drugstore when the website contains circular elements instead of angular ones. Consumers’ perceptions of an online drugstore’s benevolence were not influenced by the color, shape or font formatting used in this study. Furthermore, consumers are more loyal to, and tend to be more satisfied with, an online drugstore if a bold font is used instead of a standard font on its website. Finally an online drugstore is perceived as being more secure if circular
shapes are used instead of angular shapes, and if a bold font is used instead of a standard font. Contrary to current research concerning colors we did not find any effect of color on our dependent variables. Although Cyr et al. (2010) also used the colors yellow and blue, and found that they had effects on trust and loyalty, in our study there were no effects. One reason for this could be that those particular colors have no special significance in the context of the drug sector.

In contrast to color, the shape of website design elements had an influence on perceived integrity and security. In the product design literature, Zhang et al. (2006) revealed that angular shapes of picture frames and company logos are perceived as being more attractive than are circular shapes. Our results are different. Circular shapes led to perceptions of greater integrity and security pertaining to the drug retailer. This is in line with studies by Bar and Neta (2006) and Westerman et al. (2012) which propose a general preference for circular shapes and subsequently a higher intention to purchase.

Marketing research on formatting style as a design element influencing consumer behavior has thus far been neglected. Nonetheless our study did find effects: Bold formatting leads to a greater perception of competence and security as it pertains to the retailers’ website, as well as to more loyalty towards, and satisfaction with, the online retailer.

For online drug retailers this has the following managerial implications: particularly with respect to the drug sector, security and competence have a major impact. Therefore a bold formatting style for fonts should be used; as bold fonts also imply loyalty and satisfaction, users may also potentially recommend the online drug retailer to others. Security is a significant factor not only in the field of online drug retail but also in internet matters in general. For this reason circular shapes should be integrated into website designs. Integrity, that is, abiding by one’s word and treating stakeholders in a fair manner, can thus be suggested through the use of circular design elements. Furthermore, it could be implied that consumers who perceive trust, security, and satisfaction when buying analgesics at an online drugstore might feel less pain and therefore might more easily come back to fun.

LIMITATIONS AND FURTHER RESEARCH
The findings from this research should be considered in the light of certain limitations. Firstly, we employed only two different colors. Further research could integrate a wider variety of colors and combinations of colors. Secondly, we did not include trust supporting elements on that website, such as seals of approvals, customer reviews, or secure-browsing icons, to prove whether font formatting, color, and shape have any measurable impact in such a context. Thirdly, we recruited exclusively from a student population which is obviously not fully representative of the whole population. Fourthly, the study represented an artificial situation because the participants were not able to actually buy drugs from that retailer. Finally, the study was restricted to online drugstores. In order to obtain more generalizable results, further studies should also be conducted in other retail sectors.

REFERENCES


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**TABLE 1**

**SUMMARY OF RESULTS**

<table>
<thead>
<tr>
<th>Construct</th>
<th>Color</th>
<th>M</th>
<th>Design</th>
<th>M</th>
<th>Font</th>
<th>M</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benevolence</td>
<td>Blue</td>
<td>3.542</td>
<td>Angular</td>
<td>3.376</td>
<td>Standard</td>
<td>3.435</td>
</tr>
<tr>
<td></td>
<td>Yellow</td>
<td>3.396</td>
<td>Circular</td>
<td>3.562</td>
<td>Bold</td>
<td>3.503</td>
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<tr>
<td>Competence</td>
<td>Blue</td>
<td>3.817</td>
<td>Angular</td>
<td>3.657</td>
<td>Standard</td>
<td>3.565**</td>
</tr>
<tr>
<td></td>
<td>Yellow</td>
<td>3.667</td>
<td>Circular</td>
<td>3.827</td>
<td>Bold</td>
<td>3.919</td>
</tr>
<tr>
<td>Integrity</td>
<td>Blue</td>
<td>3.724</td>
<td>Angular</td>
<td>3.522**</td>
<td>Standard</td>
<td>3.616</td>
</tr>
<tr>
<td></td>
<td>Yellow</td>
<td>3.668</td>
<td>Circular</td>
<td>3.870</td>
<td>Bold</td>
<td>3.776</td>
</tr>
<tr>
<td>Security</td>
<td>Blue</td>
<td>3.514</td>
<td>Angular</td>
<td>3.214**</td>
<td>Standard</td>
<td>3.218**</td>
</tr>
<tr>
<td></td>
<td>Yellow</td>
<td>3.280</td>
<td>Circular</td>
<td>3.580</td>
<td>Bold</td>
<td>3.576</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>Blue</td>
<td>3.334</td>
<td>Angular</td>
<td>3.259</td>
<td>Standard</td>
<td>3.227*</td>
</tr>
<tr>
<td></td>
<td>Yellow</td>
<td>3.343</td>
<td>Circular</td>
<td>3.419</td>
<td>Bold</td>
<td>3.450</td>
</tr>
<tr>
<td>Loyalty</td>
<td>Blue</td>
<td>2.584</td>
<td>Angular</td>
<td>2.445</td>
<td>Standard</td>
<td>2.329**</td>
</tr>
<tr>
<td></td>
<td>Yellow</td>
<td>2.453</td>
<td>Circular</td>
<td>2.592</td>
<td>Bold</td>
<td>2.708</td>
</tr>
</tbody>
</table>

*M* = estimated marginal means

** = significant main effect (*p < .05*)

* = marginally significant main effect (*p* is between .05 and .10)