Trust ITs color

Today, online businesses have become more established and dependable in our society. For online retailers (e-tailers), the question has moved from ‘am I online accessible to ‘am I online successful’. Over the past decades, many studies are performed to investigate the question ‘what makes a e-tailer successful’. Why is one visitor more willing to buy at, and be loyal to a specific e-tailer, though another customer prefers another e-tailer more? And is it possible to influence this decision process? Studies have considered trust to be most important for customers to decide with which e-tailer they will interact. Trust was even found to be more important than the price of a product (Reichheld & Schefter, 2000). Due to these results, it have become important to gain trust by modifying/improving the website.

Many factors were found that influence trust, such as the information quality and the interface design of a website, e.g. color. If a website is perceived to be of high quality, the visitor is more likely to have a high level of trust in that e-tailer and become more loyal to it (Park, et al., 2012). Thus, color can influence the customer to perceive the website as trustworthy or not, or even evoke distrust.

Problem statement

A resulting problem is that both trust and color are known to be subjective and context-dependent. Therefore it seems hard to investigate which color works best for a particular company, to gain trust and thus, become successful. However, some studies did investigate the preferences of several users, by carrying out surveys. Often, these studies made a distinction in cultures to avoid any cultural bias. Note, for example, that in China the color red is generally associated with happiness, though in the United Stated the color red is frequently associated with danger. Studies have found a significant relation between color, culture and trust, e.g., Germans preferring blue and Canadian preferring grey (Cyr, et al., 2010).

However, only specific colors have been selected to test on a select number of cultures. Furthermore, different definitions of trust have been used, as one study assumed low trust indicate high distrust, though other studies have defined distrust as a distinct concept, with its own antecedents and consequences. Another limitation, is the artificial environment in which the respondents have completed the survey. Based on this unnatural (and forced) environment it might be that the respondents reacted differently, as the context was different to their usual online browse context.

From these limitations, the following research questions emerge:

- How can we define trust and distrust in the online environment towards websites?
- What is the influence of trust on the successfulness of websites?
- What is the influence of color on the perception of a specific type of websites and how does this affect the levels of both trust and distrust towards those websites?

The results of this study might be relevant for e-tailers to be more responsive to their customers. Note that the interaction between e-tailer and customer is most frequently in a neutral environment for the customer. Hence, this study will pay extra attention to the environment of participants.
**Approach**

To analyze the influence of color on the perception of a website for a user, and from that the influence on the trustworthiness of a website, this study will use A/B testing. An A/B test shows two versions of a design (version A and version B) and tests which version is most satisfying for visitors.

**Data collection**

This study might use two different data sets. Primarily, the intent is to receive data concerning performed online A/B tests. However, at the moment of writing, contact have been made with possible data providers. Unfortunately, currently it is not known whether they are willing to collaborate with this research. Nor is the format and attributes. A known fact is that their data is based on observations of website visitors. Hence, the data is all recorded in the habitats of the corresponding participants, without them knowing to be observed. Due to this, there is no possibility of a bias from the participant to respond differently.

The other data set can either be a sequel to the data analysis above (to verify what have been found), or can be a substitute, if no data will be provided. This approach is also based on A/B tests, but in a slightly different way. Instead of using existing data or gaining data by carrying out a survey, the idea is to gain data by developing a web application in which a user have to choose between two layouts, as shown in Figure 1.

**Customized web application**

The web application will be developed to record the color preferences of a participant. This section thoroughly discusses all functionalities, the arguments for certain choices and possible pitfalls.

The main functionality is the selection of the layout which the participant attracts most. The selection should be made within 5 seconds. If the participant takes longer, a pause page will encourage the user to respond within 5 seconds. This page disappears when the participant specifically click ‘Continue’.

The idea is to force the user to choose rapidly, as the choice is preferred to be based on subconscious preferences. Hence, the natural habitat of the user is simulated, in which the user does not consciously think about his/her preferences, “it is just the feeling we want to know”.

The idea to show a pause page is to prevent a participant of being distracted by his/her (offline) environment and miss multiple comparisons, which could influence the results.

Possible pitfalls: *When requiring a selection within 5 seconds, the user might feel rushed wherefore it will select the layouts randomly. Hence, the optimal number of seconds should to be investigated.*

![Figure 1](Figure 1 Layout web application, including a possible comparison of layouts (based on LinkedIn.nl))
When the participant selects one of the layouts, the application saves the choice as record in a (local) database, including the response time of the user. Simultaneously, the web application randomly loads the next comparison (pair of two layouts).

By saving the choices locally, there is no influence of a network, which prevents potential delays. The next comparisons are loaded randomly, to prevent a possible bias in response. Please also read Additional features in web application.

Comparing two layouts, the user might prefer one layout, by e.g. having more trust in it, or it might have an aversion towards the other layout (e.g., based on distrust). To identify, there are 2 possible solutions:

1. Show an overlay after the selection has been made. Here, the user is asked whether the previous choice was made based on preference, or whether it was the ‘best option’, as the other one was disliked. However, this might become a bottle-neck, as the velocity of the test will decrease.
2. Ask the user, for the first comparisons, to select the layouts he/she prefers most. Then, ask, for the same number of comparisons, to select the layouts to which he/she feels the highest aversion to.

The number of layouts asked will approximately be a total of 25 comparisons in case of solution 1 and 40 comparisons (20 comparisons each type (like vs. dislike)) in case of solution 2.

Hence, the test will approximately take 3 or 4 minutes.

To know the culture of the user, the participant is asked to provide both his/her nationality and the nationality of his/her parents, at the end of the test. Besides, also the age category of the user is asked.

The nationality of the parents might have influenced the youth/education of a respondent and therefore, it might also be of interest.

These informative questions will be asked at the end of the test to make the test more accessible and thereby more attractive.

**Data analyzes**

All data retrieved will be cleaned, by filtering the invalid and incorrect records. Then, the data will be analyzed using data mining techniques to discover possible factors influencing trust/success. Especially the effects of color will be investigated, with respect to the culture/nationality. When a relatively similar result is achieved, statistical tests will be used to verify whether culture is indeed a significant factor for the preference of color, related to the trustworthiness of a website.

**Target group**

One of the disadvantages of performing a test, is the (biased) selection of the target group. Primarily, a study tries to select participants, based on the underlying thoughts to generalize the results to a broader society than only the target group. Therefore, it is important that every person satisfying the target requirements have equal chance to participate. Due to this limitation, the plan is to executed the test in public environments, such as the main halls of universities, high schools and business offices. Furthermore, a request will be send to foreign contacts, whether they can ask people in their surroundings to complete the test.
A major disadvantage of this latter, is that respondents cannot be supported. Secondly, it might be that one person will complete the test multiple times, when there is no control on who made the selections. Finally, the survey will be used online, wherefore network quality can become a bias, as of the built-in time limit. The major advantage of using an online test is the scope of respondents. Foreign participants in The Netherlands, might already be influenced by the Dutch culture and therefore respond differently than their fellow citizens.

Since, both target groups, online and offline, have advantages and disadvantages, the approach is to use both channels, but include the type of group in the record in the database. Then, a distinction can be made between the different channels and a possible correlation can be found.

For the offline target group the following approach will be used. 1) contact a possible participant and ask whether he or she is willing to do a selection test for 3 or 4 minutes. 2) Explain how the test works and let the participant do a test/demo to fully understand the intention. 3) After the fixed number of comparisons, ask the participant to fill the form truthfully (including Name, Age range, nationality, nationality of father and nationality of mother and Comments, where the italic styled attributes are optional). 4) Thank the participant and prepare for the next one, by setting up the demo.

**Additional features in web application**

A possibility for the web application is to add an algorithm which selects the next comparison, instead of randomness. This intelligence might be desirable to prevent ambiguous results. This can be best explained by a short example: Figure 1 shows two layouts in which the right version has two differences in comparison to the left version. When a user selects version B, this might be the preference for red buttons, but also for a colored heading, or for the color red in general. To prevent misinterpreting the decision making, it is possible to narrow down the possibilities, by for example showing some extra layouts with a red header and blue buttons, or a white heading and a red button. This intelligence should not be too obvious and the main pitfall would be to influence/bias the users’ response. Therefore more research is needed before a decision is made.

**Planning**

The Ghantt table above (created with Tomsplanner.com) shows the schedule for the months April till July. The decision of the use of external data will be made before April 2, 2014. If we will use the data, these analysis will be executed in May, to prevent the results biasing the implementation of the web application.
Bibliography


