International Conference on eBusiness, eCommerce, eManagement, eLearning and eGovernance 2015 [IC5E 2015]

ISBN	978-81-929742-8-6	**VOL**	1
Website	www.ic5e.org	**eMail**	ic5e2015@ic5e.org
Received	01 - January - 2015	**Accepted**	30 - May - 2015
Article ID	IC5E018	**eAID**	IC5E.2015.018

Culturally Sensitive Customization of the Coloristic Component in Websites

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Abstract: *My study focused on website localization for online shopping, which has high economic potential in accelerating electronic commerce. I compare Russia, Finland and Germany to study how different cultural features affect the graphical user interface. In my thesis [13], five cultural models were analyzed in order to find the cultural dimensions that have the biggest influence on the user interface of websites, with outcome of 15 cultural dimensions: those by Hofstede [5], Hall [3], Lewis [8], Trompenaars [15] and the LESCANT model by Victor [16]. The online shopping websites were next analyzed to find the elements where there might be cultural interpretations, and total of 31 website elements were identified. The WebSCA (WebSite Cultural Adaptation) framework was then formulated as a table combining the cultural dimensions with website elements. The WebSCA framework was then used in an empirical study in Russia, Finland, and Germany to determine the validity of this framework and the cultural assumptions raised by the cultural models. In this article, I focus on perception of colors, as colors appear to have a strong influence on perception of information.*

Keywords: culturally sensitive websites, localization, customization, culture, cultural typology, cultural model, LESCANT, colors perception, website, GUI, graphical user interface, framework

I. INTRODUCTION

Localization involves making a product linguistically and culturally appropriate to the target country or region and language where it will be marketed and sold (according to Localization Industry Standards Association as cited by [2]). Reference [5] defines a culture as "the collective mental programming of the human mind which distinguishes one group of people from another." To analyze these programming patterns many cultural models have been built [6]. They compare the similarities and differences using cultural dimensions, which Hoft also calls international variables [6]. According to [5], a cultural dimension is an aspect of culture that can be measured and compared with corresponding indicators of other cultures. Different dimensions are used in different models of culture. They depend on the theoretical basis chosen for comparison and analysis. For example, the LESCANT model by Victor [16] focuses on Language, Environment and Technology, Social Organization, Contexting, Authority conception, Non-verbal behavior, and Temporal conception.

In this article, I focus on perception of colors, as colors appear to have a strong influence on perception of information. Colors are a part of the "Nonverbal Behavior" dimension in the LESCANT model, further divided into active and passive nonverbal behavior. Active behavior includes communication through movement, appearance, eye behavior, touching behavior, space usage, and sound. Passive nonverbal behavior is related to colors, numbers and counting indicators, symbols, and smells.

Cite this article as: Anna Smolina. "Culturally Sensitive Customization of the Coloristic Component in Websites." *International Conference on eBusiness, eCommerce, eManagement, eLearning and eGovernance* (2015): 134-138. Print.

II. Symbolism and Colors

Colors aspect seems to be one of the easily adjustable ones in graphical user-interface design. A graphical user interface (GUI) lets users interact with electronic devices through graphical icons and visual indicators such as secondary notation and color is a natural way of enlivening the interface [9].

A thorough exploration of a range of sources failed to provide comprehensive and explicit information on the most common perception of colors in different national cultures. However, some sources give information that might be useful at least for estimation [11]. According to [1], "the colors play an important role in shaping linguistic world model, as every color in different linguocultural communities involve certain associations, certain color preferences". Kudrina and Mescheryakov [7] collected and analyzed verbal associations within Russian speaking (Russia, 145 people), English speaking (USA, UK, Canada, Australia, 110 people), German speaking (Germany, Austria and Switzerland, 136 people) and mixed European cultures (France, Italy, Spain, Malta, Greece, Belgium, Finland, 65 people, speaking English). Instead of countries that are often used for defining the borders of the cultures (for instance, by Hofstede [4], that lead to some criticism from McSweeney [10]), they used language that people spoke for building cultural entities. According to Hofstede's theory, Germany, Austria and Switzerland are quite different in their behavioral component, but neither the reason for these differences was mentioned nor which of the similarities can be caused by the same language usage. Nevertheless, these results provide for an interesting comparison with my study (especially the part related to the German and Russian speaking countries). They even made the same kind of linguistic associative analysis (see Tables I, II). Moreover, their study is quite recent, which is very important since language and associations are context and time dependent. The disadvantage of their study is that the frequency for every association is not mentioned.

TABLE I

Semantic associations on colors [7] Common associations underlined by this author.

Color	Russian speaking culture	German speaking culture
Black	Elegance, sophistication, formality, solemnity, luxury, wealth, people with dark skin; calm, religious associations (including monks), cars (as a symbol of luxury), Malevich's black square, the black hole	Elegance, style, formality, solemnity, dignity, illegal, criminal, the Catholic Church, including monks, priests, youth movements (Goths, emo, anarchists), music (rock, blues, gothic music), cars, motorcycles, ink, a chimney sweep
White	A hospital, doctors, religious associations (angels, God), death, childhood, something infinite, something unknown; truce, grey hair (specific of Russian language), a polar bear, paper, ceiling, cotton wool	Religious associations (angels, etc.), a hospital, doctors, death, neutrality, emptiness, boredom, anger, contrast (black), paper, porcelain, wall color, sugar, a polar bear
Red	Beauty, beautiful, something better; celebration, the color of communism, the Soviet Union, the revolutionary activities, a symbol of danger and prohibition, the color of the speed, death, war, bullfighting, Spain, a symbol of football clubs	Left-wing political parties, the color of communism, the Soviet Union, a symbol of danger and prohibition, the color of the speed, the devil; bullfights
Yellow	Madness, insanity, betrayal, separation, warning, something that attracts attention; childhood, pastry (including pancakes).	Envy, attracting attention (warning sign), vacation, holiday, Maya the Bee (a German book), yellow as a symbol of the organization, the color of post in Germany, Borussia Dortmund soccer club
Green	Melancholy; permission, providing freedom of action; Islam, The New Year (the color of Christmas tree), ecology and animal welfare (green movement); hope	Hope, ecology, green party, permission, providing freedom of action, happiness, luck, health, money, marijuana, the color of the police and army (not anymore)
Blue	Blue as a symbol of masculinity, strength, power, positive features of temper, freedom, dream, jeans, ink and pens, ethnical color of Russia	Alcohol, drunk, trust and reliability, clarity, simplicity, logic and order, positive features of temper, business and business relationships, the color of masculinity, the preferred color of cars; jeans, ink and pens; vacation at seaside

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Reference [12] also mentioned that there are some differences between categorizing and explaining color in different cultures and languages, which can affect perception as well. Eskimos, for instance, have hundreds of ways to describe the color of snow. In Russian language, on the other hand, there is a specific word for sky-blue, which does not exist in many European languages. In addition, color combinations in some countries can produce meanings that are almost opposite to the associations with separate colors, and this should also be considered [14].

III. Research Methods

Recommendations on cultural adaptation of websites were developed with the WebSCA framework [13]. To verify these, a questionnaire consisting of 68 questions was built. The questions were translated into Russian, German and English (for Finland). I used Surveymonkey.com services to post it, share it, collect the answers and calculate some simple analytics such as percentage and trends. The total number of analyzed responses is 72 in Russia, 26 in Finland and 26 in Germany. Of the Russian participants, 80.56% are from Moscow, the capital of Russia, which can be biased, since inhabitants of one region cannot be considered sufficiently representative when analyzing such a big country as Russia. Likewise, the study was carried out in English in Finland, not in the national languages of Finnish or Swedish, and therefore the sample includes only people who can understand English.

IV. Research Results

The survey showed that pink is the color to avoid while creating a website in all three countries. Brown is to be avoided in Russia and Germany. In Russia, also yellow is disliked.

In online shops, it is important to maintain trust in the eyes of the buyer. Colors associated with trustworthiness are as follows: blue in all three countries, green in Germany and Russia, and white in Finland and Russia.

In one of the questions, people were asked to provide their emotional associations on the range of colors listed in a Table II. Their preferences can give clues for choosing the color theme for a website according to the expected effects it should produce. Numbers in brackets stand for the number of respondents who had the same association on a particular color, so the higher the number is, the higher of a value this reply has. In Table II, the associations mentioned more than once are listed.

TABLE II
EMOTIONAL ASSOCIATIONS ON COLORS

Colors/Countries	Germany	Finland	Russia
Black	death (2), plain (2), elegant (3), sad (3), dark (3), depressing (2), gloomy (5), mourning (3)	dark (5), strength(2)	neutrality (2), serenity (4), confidence (2) , sadness (13) , severity (7), sorrow (2), fear (5) intrigue (2) , power (2), mourning (3), depression (2), weight (2), elegance (4), gloom (3), shame (2)
White	plain (2), clean (4), innocent (2), bright (2), boring (2), pleasant (2), pure (5), reputable (2), wedding (2)	emptiness (3), pureness (4), clean (8), clearness (2), bright (2), innocence (2)	calmness (12), neutrality (5), appeasement (4), tenderness (4), sincerity (2), purity (8), kindness (3) lightness (2), openness (3), innocence (2) trust (3), a hospital (2), sadness (2), airy (2), indifference (3)
Blue	quietness (2), cozy (2), relaxing (2), cool (2), trust (2), wide (2), cold (2)	conservative (2) (dark blue for 1), cool (2), calmness (2), sea (2)	joy (7), serenity (2), stability (2), generosity (2), sky (2), confidence (3), appeasement (2), depth (2), freedom (5) , peace (16), sea (2)
Green	nature (2), natural (4), fresh (3), lively (2)	nature (5), natural (3), warm (2), relaxing (2), forest (2)environmental (2), calm (2),	friendliness (2), joy (12), trust (10), energy (2), calmness (15), freshness (2), emotional upheaval (3), good-nature (2), grass (2), serenity (2), hope (2)
Red	aggressive (4), attracting attention (2), fiery (3), passionate (2), warmth (5), strength (3), anger (2), love (4)	fierce (2), passion (5), dangerous (4)	aggression (10), passion (17), anxiety (2), love (6) delight (2), anger (2), rage (5), irritability (3), danger (4), alarm (3), anger (2), joy (2), attracted attention (2), excitement (4)
Yellow	warm (5), summer (3), sun (6), merry (4)	joy (2), warm (2), sun (4), happiness (9), bright (3)	positive (3), joy (25), cheerfulness (3), distrust (2), happiness (2), warmth (7), infantilism (2), irritation (3), sun (2), anguish (2), brightness (2)

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Pink	lurid (4), childish (3), girly (3), untrustworthy (2), female (3)	childishness (3), love (2), feminine (3), girly (3)	ease (3), dreaminess (2), tenderness (16), light-mindedness (2), carelessness (3), love (3), hostility (2), childhood (3), disgust (2), naivety (4), joy (4), little girls (2), irritation (3)
Purple	cozy (2), pleasant (3), beautiful (2), female (3)	religious (2)	sorrow (6), tenderness (2), interest (4) surprise (4), curiosity (2), sadness (3), mystery (2), joy (2), confidence (2), serenity (2), fatigue (2)
Brown	dirty (4), natural (4), earthy (3), warm (2)	boring (2), neutral (3), down-to-earth (4), chocolate (2), everyday (2)	comfort (5), serenity (4), warmth (4), sadness (4), neutral (2), confidence (2), envy (2), tree (2), autumn (2), stability (3), boredom (3), dirt (2), anguish (4), chocolate (2), reverie (2)

V. Analysis of the Results

Analyzing this table of associations and comparing it with some findings of Kudrina and Mescheryakov [7], some conclusions concerning the selection of a website color theme can be drawn. However, this comparison might be limited because the questions were formulated in two different ways. They use mainly nouns and things as associations, while my respondents gave often adjectives to explain their emotions and feelings. It should be noted that some color combinations produce associations that are different from the ones of separate colors.

When thinking of the black color, 19.2% of German respondents find it gloomy, and equally 11.5% - elegant, sad and dark. In Finland, it is associated with darkness for 15.6% as well, and for 6.2% - with strength. In Russia, many people mentioned sadness (14.3%) and severity (7.7%). Some also came up with fear (5.5%), elegance (4 – 4.4%), and serenity (4 - 4.4%). In a table from [7], elegance is mentioned by both German and Russian speakers as well as in my study. This color seems to fit the website for the fashion and luxury industries, like sellers of classic clothes, watches, cars and the like.

Thinking of white in Germany, the most respondents used the words clean (15.4%) and pure (19.2%). In Finland, the result was the same: clean (25%) and pureness (12.5%). In Russia, people thought rather of calmness (13.2%), purity (8.8%), neutrality (5.5%), appeasement (4.4%), and tenderness (4.4%). This color is one of the commonly used on many popular websites nowadays, and it seems to bring rather positive associations.

For blue in Germany, the respondents had many associations with rather a positive and neutral meaning, but only few people recalled the same words for describing their feeling caused by this color: quietness (7,.7%), cozy (7.7%), relaxing (7.7%), cool (7.7%), trust (7.7%), wide (7.7%), and cold (7.7%). In Finland, the situation is very similar although the color seems to have different meaning in people's minds: conservative (6.3%), cool (6.3%), calmness (6.3%), and sea (6.3%). In Russia, the main association is peace, that came in mind of 16 people out of 91 (17.6%), 7.7% thought of joy and 5.5% of freedom. In a table by Kudrina and Mescheryakov [7], masculinity and positive features of temper were the common associations for Russian and German speaking respondents. These findings do not contradict my previous conclusions that blue color might and should be used when trying to create a peaceful and trustful image of a website.

Green for many respondents from Germany means natural (15.4%) or nature (7.7%), lively (7.7%) and fresh (11.5%). In Finland, nature and natural are the popular associations as well (15.6% and 9.4% accordingly), some respondents also think of it as warm (6.3%), relaxing (6.3%), environmental (6.3%), calm (6.3%), and forest (6.3%). In Russia, green is associated with calmness (16.5%), joy (13.2%), and trust (11%). Permission, freedom, ecology and hope were mentioned both by Russian and German speakers in [7]. The same as with blue, green is a most neutral one, providing positive associations.

Red in Germany stands for warmth (19.2%), aggressive (15.4%), love (15.4%), fiery (11.5%), and strength (11.5%). In Finland, people associate it with passion (15.6%), dangerous (12.5%), and some with fierce (6.3%). In Russia, it stands for passion (18.7%) and aggression (11%) as well as for love (6.6%), rage (5.5%), danger (4.4%), and excitement (4.4%). Reference [7] also mentions danger as a common association in their study. Red is to be used rather consciously for attracting attention to the separate parts of the web page.

Yellow color has positive associations among many respondents. In Germany, when thinking of yellow people think of sun (23.1%), warm (19.2%), summer (11.5%), and merry (15.4%). In Finland, they think of happiness (28.1%), also sun (12.5%), bright (9.4%), joy (6.3%), and warm (6.3%). In Russia, in a similar way joy (27.5%) and warmth (7.7%). This is also a color for attracting attention in many countries, and the respondents from Russian and German speaking countries in the earlier study [7] confirmed that. Therefore it is rather surprising that this association was not common (although still mentioned) among the respondents in my study, making it impossible to draw an exact conclusion about possible usage of yellow in the website layout.

Pink, purple and brown were not mentioned by [7], preventing further comparison. Popular associations on pink in Germany might be expressed using the following words: lurid (15.4%), childish (11.5%), girly (11.5%), female (11.5%), and untrustworthy (7.7%). In Finland, respondents often mentioned childishness (9.4%), love (6.3%), feminine (9.4%), and girly (9.4%). In Russia, the most common association is tenderness (17.6%). Several people also agreed on ease (3.3%), carelessness (3.3%), love (3.3%), childhood

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(3.3%), naivety (4.4%), joy (4.4%), and irritation (3 - 3.3%). Even though these associations are not really negative in most of the cases they still confirm the assumptions. Pink color should be used very carefully since for most of the people, it has very specific associations and the majority in the studied countries cannot call it their favorite color. It might probably fit a very specific target audience and theme of the web project.

Purple color in Germany recalls the words such as pleasant (11.5%), female (11.5%), cozy (7.7%), and beautiful (7.7%). In Finland, no common trends were discovered, only two people agreed on "religious" (6.3%). In Russia, the situation is the same, associations are quite widely spread, and the repetitive ones are as follows: sorrow (6.6%), interest (4.4%), surprise (4.4%), and sadness (3.3%). According to these findings, purple is to be used only in Germany, but due to the limited number of respondents, and especially ones from Germany, further research is needed before any conclusions can be drawn.

Brown color is commonly associated with words like dirty (15.4%), natural (15.4%), earthy (11.5%), and warm (7.7%) in Germany; down-to-earth (12.5%), neutral (9.4%), boring (6.3%), chocolate (6.3%), and everyday (6.3%) in Finland; and comfort (5.5%), serenity (4.4%), warmth (4.4%), sadness (4.4%), and anguish (4.4%) in Russia. Hence, associations to this color are contradictory. Using brown appears very context-dependent. It might be appropriate for websites of coffee shops, chocolate or tea sellers and - when combined with green – for sites focused on environment.

VI. Conclusions

Based on the replies collected and analyzed as a result of the survey, the influence of colors on website users is shown not to be extremely strong, but significant enough to make it worth being considered, especially in the case of Russia. When creating a culturally adapted website, web developers should avoid using brown and pink for Germany, pink for Finland, and brown, yellow and pink for Russia. In all these countries green, blue and white seem to be associated with trust, thus preferable when this reaction is desirable. The emotional associations on different colors (Table II) might also be considered when developing a GUI for the particular country. There are colors that lead to positive associations in all the three studied cultures. Therefore, it is possible to develop a rather universal and international color scheme that will be pleasant for all the visitors from these countries. This can reduce the production costs for web design. Further research on colors, color combinations and color dependence on the context and content of a website is still needed. This could be efficiently carried out by using A/B (two-sample hypothesis) testing methods where during the randomized experiment the performance of different pages layouts or elements could be measured. In addition to that, more respondents could be attracted via professional paid survey panels with possibility of exact geological and language targeting.

References

[1] Basharina, A.K. (2000). The semantics of color terms in folklore texts (comparative analysis on the basis of the Yakut olonkho and Russian epics). PhD Thesis. Comparative-historical, typological and comparative linguistics. Russia, Moscow: Peoples' Friendship University of Russia

[2] Esselink, B. (2000). A practical guide to localization. John Benjamin Publishing.

[3] Hall, E. T. (1989). The dance of life. The Other Dimension of Time. New York: Doubleday

[4] Hofstede, G. (1991). Cultures and Organizations: Software of the Mind. London: McGraw-Hill

[5] Hofstede, G., Hofstede, G.J., Minkov, M. (2010). Cultures and Organizations: Software of the Mind. Revised and Expanded 3rd Edition. New York: McGraw-Hill USA

[6] Hoft, N. (1996) Developing a cultural model. In del Gado, E. M., Nielsen, J. (Eds.) International user interfaces (pp. 41-73). New York: Wiley Computer Publishing

[7] Kudrina, A.V., Mescheryakov, B.G. (2011). The semantics of color in different cultures. PsyAnima, Dubna Psychological Journal (1): 1-18. Dubna, Russia.

[8] Lewis, R.D. (2003). The Cultural Imperative: Global Trends in the 21st Century. Yarmouth, Maine, USA: Intercultural Press

[9] Martinez, W. L. (2011). Graphical user interfaces. WIREs Comp Stat, 3: 119–133. doi: 10.1002/wics.150

[10] McSweeney, B. (2000). The Fallacy of National Culture Identification. Sixth Interdisciplinary Perspectives on Accounting Conference. Manchester, UK.

[11] Russo, P., Boor, S. (1993). How fluent is your interface? Designing for international users. Proceedings of the INTERCHI '93 Conference on Human factors in Computing Systems, held in Amsterdam, the Netherlands, April 24-29, pp. 342-347, IOS Press Amsterdam, The Netherlands.

[12] Singh, N., Pereira, A. (2005). The Culturally Customized Web Site: Customizing Web Sites for the Global Marketplace. Routledge.

[13] Smolina, A. (2014). Culturally Sensitive Website Localization: Germany, Russia and Finland. Master's thesis. Åbo Akademi University, Turku, Finland.

[14] Tektronix (2007) The Color connection book series – international color guide. Retrieved October 22, 2013, from http://www.office.xerox.com/business-resources/colorconnection_book4_all.pdf

[15] Trompenaars, F., Hampden-Turner, C. (1998). Riding the Waves of Culture: Understanding Diversity in Global Business. New York: McGraw Hill.

[16] Victor, D. A. (1992). International Business Communication. New York, NY: HarperCollins Publishers Inc.

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