

Chapter

AUTOMATED ATTENTION ANALYSIS ACROSS BRANDS AND CULTURES IN ONLINE BEER MARKETING

Tomáš Kincl¹, Michal Novák², Pavel Štrach³, Michal Charvát⁴

¹ Faculty of Management, University of Economics, Prague. Jarošovská 1117/II, 377 01 Jindřichův Hradec, Czech Republic. kincl.tomas@gmail.com.

² Faculty of Management, University of Economics, Prague. Jarošovská 1117/II, 377 01 Jindřichův Hradec, Czech Republic. novak@michalnovak.eu.

³ Škoda Auto University, Tř. V. Klementa 869, 293 60 Mladá Boleslav, Czech Republic. Pavel.Strach@skoda-auto.cz.

⁴ Faculty of Management, University of Economics, Prague. Jarošovská 1117/II, 377 01 Jindřichův Hradec, Czech Republic. charvatmi@gmail.com.

Abstract: This chapter presents an extended study focused on application of automated attention analysis in online marketing. The research question we are trying to address is whether automated tools can be used to depict differences between brand related websites of beer companies. Automated and quick comparison of websites from different markets and cultures might provide stimulating and instructive feedback and thus become an invaluable tool for online marketers. In spite of being exploratory in nature, the study and indicates that the automated tools instead of human-centered attention analysis could be an inexpensive yet relevant tool for brand site development.

Keywords: attention analysis, automated tool, cultural differences, eye-tracking simulation, online marketing, web design

1. INTRODUCTION

Technology opens new perspectives or can substitute for human element. New technologies in modern marketing have stimulated emergence of several innovative interdisciplinary approaches. For example, measuring responses to marketing stimuli through technologies such as functional magnetic resonance imaging forms the base of neuromarketing¹ which is on the intersection of neuroscience and marketing. Automated eye-tracking represents an interdisciplinary connection between marketing and visual perception/cognitive psychology and is an integral part of visual marketing².

Traditional human-based eye-tracking has been a research method focused on monitoring the eye activity. Research in (then low-tech experimental) eye-tracking became a scientific discipline more than 100 years ago. Rayner³ dates the early beginnings of the research back to the end of 19th century when many characteristics of eye movements were discovered. During and after the 1930s, more applied research has emerged, encompassing e.g. experimental psychology or behavioral theories. From 1970s more improvements, especially in eye movement recording systems, have been achieved. Additional accurate measurements included in a wide variety of eye-tracking systems are now easily available⁴. Eye-tracking methods are broadly used in many disciplines such as neuroscience, psychology, or computer science and have been utilized in several applied fields, including engineering and marketing/advertising⁵.

Marketing researchers and practitioners use a variety of methods to evaluate consumer reactions (physical or physiological) to advertising stimuli⁶. Marketing research involves the eye-tracking methods to determine consumer's visual attention over advertisements – in order to follow and process a visual marketing stimulus, consumers move their eyes⁷. Eye movement consists of two different components: saccades are rapid eye movements focusing at a specific area, while the fixations are relatively still moments during detailed visual processing⁸.

The sequence of saccades and fixations across the visual stimulus (such as advertisement) is called a scanpath⁹. Recording and analyzing a scanpath can reveal objects which “pop-out” from the image. The order of objects and the path between them outlines how the observer perceives each scene or image. Although costs of eye-tracking experiments are high, advertising clutter means that ad pretesting becomes crucial to ensure the effectiveness¹⁰. The use of eye-tracking is not limited to print only, evaluated advertisements can be tv spots or online objects as well¹¹.

Wide-spread use of eye-tracking in online marketing also brings in a call for cheaper and less time consuming alternatives. There are studies indicating high correlation between movements of user's eyes and mouse pointer¹². The results are promising, however the accuracy has still yet to be

elevated as there are differences between where users look and where they point the mouse when browsing the website¹³. Almost two-decades of research in neuroscience and natural vision processing resulted in automated systems which can simulate the human attention more accurately. Such systems produce similar results to a common eye-tracking study. Attention heatmaps are comparable to eye-tracking maps and can be interpreted in a similar way. The comparison is shown in Figure #-1.



Figure #-1. Eye-tracking output (left) and automated attention analysis¹⁴

Captured snapshots of a website can be automatically analyzed on various features such as color, orientation, density, contrast, intensity, size, weight, intersection, closure, length, width and curve of displayed objects. Text, skin color and face detection are also included¹⁵. Other tools may identify as many as 50 other features which attract human attention the most¹⁶.

Automated tools for user-centered website assessment have been a recent phenomenon¹⁷. The most popular systems which allow uploading an image (e.g. screenshot) and get a visualization of estimated attention include EyeQuant (<http://eyequant.com>), Feng-Gui (<http://www.feng-gui.com/>) or Attention Wizzard (<http://attentionwizzard.com/>). However much debate¹⁸ has evolved around their ability to simulate human perception and robust evidence is still missing. Authors of those automated tools claim 75–90 % correlation with real eye-tracking data¹⁹. The aim of this study is to contribute and expand²⁰ on this debate and to explore whether cultural differences in web design can be captured through automated eye-tracking tools. The study first discusses how the research was conducted, what results were achieved and final thoughts will be offered for further research inquiry.

2. RESEARCH DESIGN AND METHODOLOGY

The impact of culture on consumer behavior has been researched for decades. Market interdependence has prompted the emergence of theories, which attempt to explain differences between markets²¹. Studies of cultural differences introduced by Hall²², Hofstede²³ or Trompenaars and Hampden-Turner²⁴ have become the classics of academic literature and the prominence of intercultural studies has survived or even grown in research interest²⁵ and there are new theories and approaches emerging (i.e. GLOBE study²⁶).

Discussions about cultural specificity affected all components of marketing mix, including online marketing. Web designers began reflecting and adjusting to user's cultural characteristics²⁷. Internet customers are different across the world according to their culture²⁸, however their online behavior can be similar in some ways²⁹. Cultural differences between web designers and users determine success of web-based applications³⁰, however companies, origin of which is known, design their websites in a way that reflects their culture of origin rather than cultural norms of targeted customers³¹. Culture impacts on web design as well as on web content³². Websites need to be culturally adapted³³, although several cultures incline to adapt global patterns, behaviors or brands³⁴.

Literature highlights strong impact of high- and low-context communication styles on web design and website content organization and similar effects have been attributed to individualism-collectivism and power distance³³. Websites in high context cultures display fewer interactive features³⁵, less varied and more shallow content³⁶ and are less informative³⁷. High context website are usually less clear and less attractive³³. Websites from more individualistic cultures often offer more opportunities for face-to-face communication, because viewers feel more comfortable with impersonal communication³⁸. Channels for mutual communication between clients and vendors are readily available in cultures with low power distance; the websites are rich on information as secretiveness would not be a source of advantage or power³⁵. Evidence from studies focusing on the impact uncertainty avoidance on web design is ambiguous: the evidence is either inconclusive³⁰ or partially supportive for overall website attractiveness, content depth and information richness³³. However, uncertainty avoidance influences the way users accept technological advancements³⁹.

Studies on cultural differences in web design confirmed that consumers from different cultures have different expectations and preferences about web design, which is also reflected by web design^{40,41}. This has been also confirmed by eye-tracking studies⁴². Therefore comes the research question:

Could be the cultural differences in web design revealed by automated attention analysis tools?

Research sample consisted of commercial websites presenting beer brands. Alcohol consumption has been wide-spread across cultures, although motivation to drink alcohol differs⁴³. Beer has been popular with consumers across countries and has been the most widespread alcohol drink⁴⁴. Local beer markets offer opportunity to global as well as local brands, whereas brand cultural belongingness is usually well articulated. Beer is also a product with similar price and societal positioning in most cultures⁴⁵.

Beer consumption per capita has been the highest in Czech Republic⁴⁶ (however this small country ranks 21st in Beer Production Ranking⁴⁷). Germany has been Nr. 2 in consumption per capita and is the 5th largest beer producer. Great Britain ranked 18th on the list of biggest per capita beer drinkers and is the 8th largest brewer in the world. These countries share strong beer culture and tradition⁴⁸, although national cultures differ²⁶. Brazil represents Latin American culture²⁶ and also belongs to the group of the largest beer producers (comes 4th in beer production⁴⁷ and 27th in beer consumption per capita⁴⁶). Japan represents a country with different approach to beer drinking⁴⁹. Although the beer market has been well developed and beer drinking has become popular alongside of traditional liquors⁵⁰, Japan scores 35th in beer consumption ranking (but the 7th largest brewer absolutely). Culturally, Japan belongs to the Confucian group²⁶.

To establish a control group, in addition to selected markets, the study included a group of prime international brands with highest worldwide consumption (in case the brand featured on the local top consumption list as well, it was surveyed with the international group only as international brands could promote different than local cultural values). List of all websites included in the study is shown in Table #-1. Selected websites were tested for similarity of user interface.

Table #-1. List of Surveyed Websites

Czech Republic ⁵¹	Great Britain ⁵²	Japan ^{53, 54}
Gambrinus	Carling	Asahi
Radegast	John Smith's	Kirin
Staropramen	Old Speckled Hen	Suntory
Krušovice	Cobra	Sapporo
Pilsner Urquell	Newcastle Brown	Orion
Budějovický Budvar	Fuller's London Pride	Baird
Bernard	Hobgoblin	Taisetsu Ji Bīru
Velkopopovický Kozel	Marston's Pedigree	Okhotsk Bīru
Starobrno	Abbot Alle	Tokachi Bīru
Ostravar	Tanglefoot	Otaru Bīru
Germany ⁵⁵	Brazil ⁵⁶	International ⁵⁷
Oettinger	Brahma	Snow (China)

Krombacher	Antártica	Budlight (USA)
Bitburger	Cintra	Budweiser (USA)
Warsteiner	Bohemia	Skol (Brazil)
Beck's	Bavaria	Corona (Mexico)
Hasseröder	Nova Schin	Heineken (Netherlands)
Veltins	Kaiser	Miller Lite (USA)
Paulaner	Xingu	Guinness (UK)
Radeberger	Colonia	Coors (USA)
Erdinger	Stella Artois	Fosters (Australia)

Opening introductory websites were surveyed unless there was a requirement to acknowledge user legal age first; in that case sites appearing after age check were analyzed. Opening website usually presents the key features kept for other sub-sites⁵⁸. Analyzed websites were captured in 1280×1024 pixel resolution, which (or higher) was the most typical user resolution at the time of research⁵⁹. Websites were then analyzed through Feng-Gui tool for the number of points of interest (AOIs) which would be likely the focal areas of user eye activity. The number of AOIs was captures as well as the overall area occupied by AOIs (in pixels). Analytical results can be visually displayed in a form of heat map (see example on Figure #-2).



Figure #-2. Example of Feng-Gui Analysis

It was expected that Japanese websites would be less visually appealing in comparison to Czech, German or British sites³³, less interactive⁶⁰ and offering less content³⁷. International websites should than reflect and be more similar to presentations from countries with longer beer tradition. Most Czech brewers use a combination of dark colors, creating a feel of authority and seriousness, and one other color, which is either green (Radegast, Staropramen, Pilsner Urquell) sensing (in western cultures) nature and freshness, or brown/wine red (Gambrinus, Krusovice, Budweiser Budvar) intuiting health, earthiness or tradition⁶¹. Color choice has been consistent with long Czech brewing tradition. Websites use sizeable and illustrative pictures in vivid colors, in alignment with low context cultural habit⁶².

Among top ten brands only one seems to take a different approach with combination of blue and white.

British and most German websites are similar to the Czech ones. Dominant colors refer to tradition, wholesomeness, earthiness, dependableness, steadiness, and healthiness⁶³. Green or brown color is used quite often with the British sites (John Smith's, Old Speckled Hen, Newcastle Brown, Hobgoblin or Marston's Pedigree) and other markers of low context cultures are also present. Even though rich and vibrant colors are present on the German websites, the colors vary more from light hues (white, yellow – Erdinger, Bitburger, Veltins) to dark ones (dark grey and black – Warsteiner, Radeberger). The German websites resemble (in the variation of color usage) in that sense the group of Brazilian or International websites.

Brazilian websites use mostly warm and lighter colors. Among top ten brands only one takes a different approach and uses a dark color scheme (Xingu). Displayed motives are almost strictly limited to bottles of beer. There are no objects intuiting the naturalness, earthiness or healthiness on Brazilian websites which is another main distinction from Czech, British or German websites.

Color scheme of Japanese beer websites speaks a completely different language. The dominant color is white. In western countries, this would be the choice for sensing simplicity, neatness and precision. However in Asian countries white is perceived as color of death, mourning and spirit⁶¹. A little different are websites of Baird and Taisetsu Ji Beer, which remind websites of European brands and choose combinations featuring black or dark colors.

International websites are a diverse bunch of brands, originating from distant parts of the world. The first place goes to Chinese Snow, North America is represented by Budweiser, Central America by Corona; Heineken and Guinness hold European flags and Fosters comes from Australia. International brands push the feeling of uniqueness. Combinations of darker and another color are very frequent: Heineken – green, Budweiser – red, Fosters – blue, Guinness – blue. Other brands (Corona, Miller Lite, Coors Light, Bud Light) take a different route and prefer blue. Blue is a popular corporate color creating impression of trustworthiness. Very different is Snow website – its Chinese origin is reflected in color choice and dominant white reminds several Japanese brands.

3. RESULTS AND DISCUSSION

Paired similarity in number and area of AOIs was tested through non-parametric Mann-Whitney test⁶⁴ which is deemed suitable for this type of

observations. The analysis was performed through SPSS Statistical Software. Websites from two different countries/groups were compared against each other. A complete picture depicting dyadic variations was compiled. Table #-2 shows the key findings.

Difference in number of AOIs between the Czech Republic and Great Britain is not statistically significant (p-value = 0.167) as well as the difference in AOI size (p-value = 0.257). Czech and British beer sites are similar in terms of number and size of focal points. German websites are also similar in both surveyed aspects (number of AOIs p-value = 0.303; AOIs size p-value = 0.326) Czech, British and German beer websites seem to be a homogenous group in terms of these two focal attributes.

Although cultural classification²⁶ assign different cultural profiles to each nation, all three countries belong to the European Union and share the strong beer culture propped by lasting beer drinking tradition⁴⁸. All three markets are labeled as low context²²; hence approaching consumers through websites might be similar. All three website groups feature rich and vibrant colors with shades emphasizing trust, tradition or nature. Number of interactive objects is high complemented by rich information content. Such findings are in line with previous studies detailing low context online environments^{65, 60}.

Table #-2. The Results of AOI Analysis

	Great Britain	Japan	Germany	Brazil	International
Czech AOIs	same	different	same	different	different
Republic AOIs size	same	different	same	same	same
Great AOIs		different	same	different	different
Britain AOIs size		different	same	same	same
Japan AOIs			same	same	same
AOIs size			same	different	different
Germany AOIs				same	same
AOIs size				same	same
Brazil AOIs					same
AOIs size					same

Number of AOIs is significantly different for Czech sites and for the Japanese ones (p-value = 0.032). The difference is significant even for the size of AOIs (p-value = 0.007). The difference is not only in the number of AOIs (fewer of them in Japan) but in their size (larger ones in Japan). Japan is considered one of the most high context cultures. Absence of interactive features (such as consumer-consumer interactivity, fewer objects with smaller information content) could be explained through the lens of Japanese

cultural distinctiveness^{35, 36}. Whereas traditional beer cultures use rich and vibrant colors bringing forward serious, natural and calming impressions, Japanese beer websites utilize clean and plain white color which reduces first-impression attractiveness.

Number of AOIs is different for Brazilian and International brands and for Czech leading beers (p-value = 0.004 for Brazilian group and p-value = 0.008 for the International). However, the sites are not different in the area taken by AOIs (p-value = 0.369 for Brazilian websites and p-value = 0.406 for the International group). Czech websites were similar to International and Brazilian ones in the area occupied by AOIs but had higher amount of them. Several international brands do not originate from western low-context cultures but from Asia or Latin America featuring fewer interactive qualities^{35, 60}, less diverse and informative content³⁶ and are less informative in general³⁷. Their main purpose may be intentional to cover large and diverse international audiences without targeting or offending any particular culture or adversely building on the global consumer.

There is no difference in number of focal elements (AOIs) and their size between British and German websites. P-values do not reach the selected threshold (p-value = 0.07 for number of AOIs; p-value = 0.762 for AOIs size). As suggested before, Czech, British and German beer websites are a homogenous group in terms of selected attributes.

Number of AOIs is significantly different for British and Japanese beer websites (p-value = 0.007). AOI size is different on the edge of statistical significance (p-value = 0.059). The finding is consistent with the similarity found between Czech and British websites. Japanese websites contain fewer interactive options and fewer focal objects than the British ones.

Number of AOIs is significantly different for Great Britain – Brazilian and International brands comparison (p-value = 0.001 for Brazilian and p-value = 0.002 for International group). However, the screen area seized by AOIs does not seem to be dissimilar (p-value = 0.364). British and International (Brazilian) brands are presented differently in terms of number of focal points but the overall space taken by key features is similar. Representation of non-Western brands from high context cultures (Asia, Latin America) which do not have English websites (or English language versions) could explain some of the differences.

The number of AOIs is higher on German websites and the AOIs are smaller than on Japanese websites. This corresponds with the results of the Czech and British group of websites. However, there is some variation in the number of AOIs and their size between Japanese and German websites, the analysis has not discovered any statistically significant difference between groups (p-value = 0.266 for number of AOIs; p-value = 0.131 for AOIs size). The situation is all the same when comparing German websites with

Brazilian and International websites. Our study found also no statistical difference between the number of AOIs (p-value = 0.380 for Brazilian group and p-value = 0.175 for International websites) or their size (p-value = 0.683 for Brazilian websites and p-value = 0.705 for International group). German websites seems to be half way between traditional brewing countries (Czech and Great Britain) and the other groups.

The difference in number of AOIs is statistically insignificant for the analysis of Japanese and International (and Brazilian) brands (p value = 0.908 for International and p-value = 0.835 for Brazilian group). In contrary, the difference is significant when comparing AOI size (p-value = 0.023 for International and p-value = 0.035 for Brazilian websites). Japanese and International (and Brazilian) websites are different in the screen area taken by AOIs (Japanese ones are bigger).

International (and Brazilian) websites stand on the edge between East and West. There was no statistical difference in number of AOIs (p-value = 0.646) or their size (p-value = 0.806) between Brazilian and International websites. International and Brazilian brands apparently do not target consumers from traditional beer cultures specifically. It may well be that developing or emerging markets seem more promising for international beer brewers. Traditional beer cultures typically host several strong local brands which outperform international ones. International and also Brazilian websites present similar color schemes to traditional beer cultures, capitalizing on vibrant colors rather than on plain white.

4. CONCLUSION AND LIMITATIONS

Cultural differences between websites can be deduced not only through demanding resource-consuming user testing or through expert panels. Cultural differences can be diagnosed via automated tools which simulate natural vision processing. Automated tools do not reflect local fluctuations or context and are prone to inappropriate sampling and personal bias. On the other hand, automated approaches offer less rich findings. The results could be also interpreted another way, since the automated tools do not perform testing on the same basis – user testing is based on specified task and eye-tracking results could be different according to different user scenarios. The results are also influenced by prior user experience or task with the website⁶⁶. None of these factors are included in automated attention analysis and automated tools are not suited to depict such contingencies. Nevertheless, automated tools for website assessment have been a recent and increasingly popular phenomenon and have become prominent in other areas of web design. For instance, the CWS tool for harvesting visual cultural markers on the web⁶⁷ provides guidance for website layout and color

scheme.

Automated tools can never fully substitute human experts in assessing human-computer interaction or user experience. Automated tools may provide fast and relatively inexpensive results for initial assessment of e-commerce and online marketing interfaces. The tools digest management-relevant outcomes for marketing managers or web designers who oversee and take decisions about the international portfolio of brand websites. Using initial automated testing may significantly reduce website development cost and contribute to more efficient marketing communications. The results of our study are consistent with studies suggesting that individualism has been the key cultural dimension³³. More individualistic cultures may need a greater number of eye catchers, impulses, whereas less individualistic cultures may focus longer on a smaller number of attention areas and rather explore interconnection between them.

Although the findings are stimulating, they should be interpreted with common scientific pre-caution. Correlation between traditional eye-tracking and automated eye-tracking has still been a matter of academic debate.

Our findings also may not reflect cultural differences only and could be based on designer's personal taste. Designer's personal bias is immanent to all website-based studies conducted outside closed labs and can be mitigated through inclusion of multiple websites residing in one cultural region. Cultural bias of automated tools also remains to be empirically verified. System calibration for other cultures would be useful feature and could enhance its predictive power. Further restrictions may rest on a relatively limited amount of output measurements – in comparison with rich findings from human eye-tracking^{68, 69}. Automated tools usually offer just a handful of indicators: identification of areas of interests, their size and process of transition between various AOIs.

Future research could address some of the limitations; replicate our study on a set of different globally similar products, with real eye tracking or with utilization of multiple eye-tracking automated tools. Similarly, research in neuromarketing^{1, 70} could become a viable avenue for future studies. Before any further work is done, academia as well as practitioners can utilize automated tools as an easy partial answer to a complex issue.

ACKNOWLEDGMENT

This work has been supported by GACR grant no. P403/12/2175 and IGA VŠE 14/2012.

REFERENCES

1. Lee, N.; Broderick, A. J.; Chamberlain, L., What is neuromarketing? A discussion and agenda for future research. *International Journal of Psychophysiology* **2007**, 63 (2), 199-204.
2. Wedel, M.; Pieters, R., *Eye tracking for visual marketing*. Now Publishers Inc: 2008.
3. Rayner, K., Eye movements in reading and information processing: 20 years of research. *Psychological bulletin* **1998**, 124 (3), 372.
4. Duchowski, A. T., A breadth-first survey of eye-tracking applications. *Behavior Research Methods* **2002**, 34 (4), 455-470.
5. Rayner, K.; Rotello, C. M.; Stewart, A. J.; Keir, J.; Duffy, S. A., Integrating text and pictorial information: Eye movements when looking at print advertisements. *Journal of Experimental Psychology: Applied* **2001**, 7 (3), 219.
6. Zikmund, W. G.; Babin, B. J., *Exploring marketing research*. South-Western Pub: 2006.
7. Wedel, M.; Pieters, R., A review of eye-tracking research in marketing. *Review of marketing research* **2007**, 4, 123-47.
8. Buswell, G. T., How people look at pictures: a study of the psychology and perception in art. **1935**.
9. Noton, D.; Stark, L., Eye movements and visual perception. *Scientific American; Scientific American* **1971**.
10. Berger, S.; Wagner, U.; Schwand, C., Assessing Advertising Effectiveness: The Potential of Goal-Directed Behavior. *Psychology and Marketing* **2012**, 29 (6), 411-421.
11. Duchowski, A. T., *Eye tracking methodology: Theory and practice*. Springer-Verlag New York Inc: 2007.
12. Chen, M. C.; Anderson, J. R.; Sohn, M. H. In *What can a mouse cursor tell us more?: correlation of eye/mouse movements on web browsing*, CHI'01 extended abstracts on Human factors in computing systems, ACM: 2001; pp 281-282.
13. Byrne, M. D.; Anderson, J. R.; Douglass, S.; Matessa, M. In *Eye tracking the visual search of click-down menus*, ACM: 1999; pp 402-409.
14. WhiteMatterLabs Over 90% of an Eye-Tracking study's accuracy – at less than 1% of the time and cost. <http://eyequant.com/accuracy#samples> (accessed 06/27).
15. Mancas, M. Computational Attention: Modelisation&Application to Audio and Image Processing. Faculty of Engineering, Mons, Belgium, Mons, Belgium, 2007.
16. WhiteMatterLabs Understanding the world's most complex search engine: the human visual system. <http://eyequant.com/science> (accessed 06/27).
17. Kondratova, I.; Goldfarb, I., Cultural Interface Design Advisor Tool: Research Methodology and Practical Development Efforts. *Internationalization, Design and Global Development* **2009**, 259-265.
18. Harty, J., Finding usability bugs with automated tests. *Communications of the ACM* **2011**, 54 (2), 44-49.
19. Feng-Gui How does it work? <http://www.feng-gui.com/science.htm> (accessed 06/27).
20. Kincl, T.; Novák, M.; Strach, P. In *Automated Attention Analysis: a Valuable Tool for Online Marketers?*, Lecture Notes in Engineering and Computer Science: Proceedings of The World Congress on Engineering and Computer Science 2012, WCECS 2012, 24-26 October, 2012, San Francisco, USA, San Francisco, USA, 2012; pp 386-391.
21. Maheswaran, D.; Shavitt, S., Issues and new directions in global consumer psychology. *Journal of Consumer Psychology* **2000**, 9 (2), 59-66.
22. Hall, E. T., *The silent language*. Doubleday New York: 1959; Vol. 3.

23. Hofstede, G. H., *Culture's consequences: International differences in work-related values*. Sage Publications, Inc: 1984.
24. Trompenaars, F.; Hampden-Turner, C., *The seven cultures of capitalism: Value systems for creating wealth in Britain, the United States, Germany, France, Japan, Sweden and the Netherlands*. London: Judy Piatkus Publishers Ltd: 1995.
25. Engelen, A.; Brettel, M., Assessing cross-cultural marketing theory and research. *Journal of Business Research* **2010**.
26. House, R. J., *Culture, leadership, and organizations: The GLOBE study of 62 societies*. Sage Publications, Inc: 2004.
27. Hsieh, H.; Holland, R.; Young, M., A Theoretical Model for Cross-Cultural Web Design. In *Human Centered Design*, Kurosu, M., Ed. Springer Berlin / Heidelberg: 2009; Vol. 5619, pp 712-721.
28. Vuylsteke, A.; Wen, Z.; Baesens, B.; Poelmans, J., Consumers' search for information on the internet: how and why China differs from Western Europe. *Journal of Interactive Marketing* **2010**, *24* (4), 309-331.
29. Brashear, T. G.; Kashyap, V.; Musante, M. D.; Donthu, N., A profile of the internet shopper: evidence from six countries. *The Journal of Marketing Theory and Practice* **2009**, *17* (3), 267-282.
30. Baack, D. W.; Singh, N., Culture and web communications. *Journal of Business Research* **2007**, *60* (3), 181-188.
31. Saffu, K.; Walker, J. H.; Hinson, R., Strategic value and electronic commerce adoption among small and medium-sized enterprises in a transitional economy. *Journal of Business & Industrial Marketing* **2008**, *23* (6), 395-404.
32. Blake, B. F.; Shamatta, C.; Neuendorf, K. A.; Hamilton, R. L., The cross-national comparison of website feature preferences: a practical approach. *International Journal of Internet Marketing and Advertising* **2009**, *5* (3), 145-165.
33. Usunier, J. C.; Roulin, N.; Ivens, B. S., Cultural, National, and Industry-Level Differences in B2B Web Site Design and Content. *International Journal of Electronic Commerce* **2009**, *14* (2), 41-88.
34. Kjeldgaard, D.; Askegaard, S., The glocalization of youth culture: The global youth segment as structures of common difference. *Journal of Consumer Research* **2006**, *33* (2), 231-247.
35. Cho, C. H.; Cheon, H. J., Cross-Cultural Comparisons of Interactivity on Corporate Web Sites: The United States, the United Kingdom, Japan, and South Korea. *Journal of Advertising* **2005**, *34* (2), 99-115.
36. Würtz, E., Intercultural Communication on Web sites: A Cross Cultural Analysis of Web sites from High Context Cultures and Low Context Cultures. *Journal of Computer Mediated Communication* **2005**, *11* (1), 274-299.
37. Suh, K. W.; Taylor, C. R.; Lee, D. H., Empirical classification of Web site structure: A cross-national comparison. **2007**.
38. Liao, H.; Proctor, R.; Salvendy, G., Content preparation for cross-cultural e-commerce: a review and a model. *Behaviour & Information Technology* **2008**, *27* (1), 43-61.
39. Lee, I.; Choi, B.; Kim, J.; Hong, S. J., Culture-technology fit: Effects of cultural characteristics on the post-adoption beliefs of mobile Internet users. *International Journal of Electronic Commerce* **2007**, *11* (4), 11-51.
40. Callahan, E., Cultural similarities and differences in the design of university web sites. *Journal of Computer-Mediated Communication* **2005**, *11* (1), 239-273.
41. Goyal, N.; Miner, W.; Nawathe, N. In *Cultural differences across governmental website design*, ACM: 2012; pp 149-152.

42. Cyr, D.; Head, M.; Larios, H., Colour appeal in website design within and across cultures: A multi-method evaluation. *International Journal of Human-Computer Studies* **2010**, *68* (1-2), 1-21.
43. Kuntsche, E.; Knibbe, R.; Gmel, G.; Engels, R., Who drinks and why? A review of socio-demographic, personality, and contextual issues behind the drinking motives in young people. *Addictive behaviors* **2006**, *31* (10), 1844-1857.
44. Ferreira, M. P.; Willoughby, D., Alcohol consumption: the good, the bad, and the indifferent. *Applied Physiology, Nutrition, and Metabolism* **2008**, *33* (1), 12-20.
45. Dimofte, C.; Zeugner-Roth, K.; Johansson, J. In *Local or Global Brand Choice: Do Travelers Really Prefer Global Brands?*, Global Brand Management Conference 2010.
46. Kirin Institute Kirin Institute of Food and Lifestyle Report Vol. 33.
http://www.kirinholdings.co.jp/english/news/2011/1221_01.html (accessed 1/8).
47. Kirin Institute Report Vol. 26. Global Beer Production by Country in 2009.
http://www.kirinholdings.co.jp/english/news/2010/0810_01.html#table2 (accessed 1/8).
48. Mäkelä, P.; Gmel, G.; Grittner, U.; Kuendig, H. É.; Kuntsche, S.; Bloomfield, K.; Room, R., Drinking patterns and their gender differences in Europe. *Alcohol and Alcoholism* **2006**, *41* (suppl 1), i8.
49. Wilson, T. M., *Drinking cultures: alcohol and identity*. Berg Publishers: 2005.
50. Francks, P., Inconspicuous consumption: sake, beer, and the birth of the consumer in Japan. *The Journal of Asian Studies* **2009**, *68* (01), 135-164.
51. E15 Heineken pohlti Zlatopramen. <http://www.e15.cz/byznys/heineken-pohlti-zlatopramen-18421/> (accessed 8/1).
52. The Publican Desert Island Brands.
<http://www.thepublican.com/story.asp?storycode=63086> (accessed 8/1).
53. Japan Today Asahi retakes top slot in Japan's beer market.
<http://www.japantoday.com/category/business/view/asahi-retakes-top-slot-in-japans-beer-market> (accessed 8/1).
54. Gloag, D. Japanese beer brands. <http://www.united-nations-of-beer.com/japanese-beer-brands.html> (accessed 8/1).
55. BrauWelt, Inlandsabsatz der 56 größten Biermarken. *BrauWelt* **2011**, *151* (14), 418-420.
56. BrazilianBubble Overview: Brazil's beer market at a glance.
<http://brazilianbubble.com/overview-brazils-beer-market-at-a-glance/> (accessed 10/1/2011).
57. Jones, D. Snow jumps Bud Light to be world No 1.
<http://www.reuters.com/article/2009/03/31/us-world-idUSTRE52U60B20090331> (accessed 8/1).
58. Leavitt, M. O.; Shneiderman, B., Research-Based Web Design & Usability Guidelines. In *Washington, DC: US Government Printing Office. Online at:*
<http://www.usability.gov/pdfs/guidelines.html>, 2006; Vol. 1.
59. W3Schools Browser Display Statistics 2010.
http://www.w3schools.com/browsers/browsers_display.asp (accessed 8/1).
60. Cyr, D., Modeling Web site design across cultures: Relationships to trust, satisfaction, and e-loyalty. *Journal of management information systems* **2008**, *24* (4), 47-72.
61. Thorell, L. G.; Smith, W. J., *Using computer color effectively: an illustrated reference*. Prentice-Hall, Inc. Upper Saddle River, NJ, USA: 1990.

62. Simon, S. J., The impact of culture and gender on web sites: an empirical study. *ACM SIGMIS Database* **2000**, 32 (1), 18-37.
63. Hope, A.; Walch, M., *The color compendium*. Van Nostrand Reinhold New York: 1990.
64. Black, K., *Business statistics: Contemporary decision making*. Wiley: 2009.
65. Singh, N.; Zhao, H.; Hu, X., Analyzing the cultural content of web sites: A cross-national comparison of China, India, Japan, and US. *International Marketing Review* **2005**, 22 (2), 129-146.
66. Pan, B.; Hembrooke, H. A.; Gay, G. K.; Granka, L. A.; Feusner, M. K.; Newman, J. K. In *The determinants of web page viewing behavior: an eye-tracking study*, ACM: 2004; pp 147-154.
67. Kondratova, I.; Goldfarb, I.; Gervais, R.; Fournier, L. In *Culturally appropriate web interface design: web crawler study*, 2010; pp 359-364.
68. Poole, A.; Ball, L. J., Eye tracking in human-computer interaction and usability research: current status and future prospects. *Encyclopedia of human computer interaction* **2005**, 211-219.
69. Jacob, R. J. K.; Karn, K. S., Eye tracking in human-computer interaction and usability research: Ready to deliver the promises. *Mind* **2003**, 2 (3), 4.
70. Reimann, M.; Schilke, O.; Weber, B.; Neuhaus, C.; Zaichkowsky, J., Functional magnetic resonance imaging in consumer research: A review and application. *Psychology and Marketing* **2011**, 28 (6), 608-637.