



Aaron Marcus and Associates, Inc.
1196 Euclid Avenue, Suite 1F
Berkeley, CA 94708-1640, USA

Experience 25 Years of Design Intelligence
User-Interface Development
Information Visualization

Email: Aaron.Marcus@AMandA.com
Tel: +1-510-601-0994, Fax: +1-510-527-1994
Web: www.AMandA.com

Culture's Impact on Arabic Website Design

Date and Status

19 May 2009, Copyright © 2009 by AM+A.

This white paper is published in a revised form as a paper in the *Proceedings* of Human-Computer Interface International 2009:

Marcus, Aaron (2009). "The Impact of Culture on the Design of Arabic Websites." *Proc. HCI International Conference*, 19-24 July 2009, Town and Country Resort and Convention Center, San Diego, CA, pp. TBD, published by Springer Verlag, © Copyright 2009 by Springer Verlag.

Contact Information

Mr. Aaron Marcus, President

Aaron Marcus and Associates, Inc. (AM+A)
1196 Euclid Avenue, Berkeley, CA 94708-1640, USA
Tel: +1-510-601-0994, Fax: +1-510-527-1994
E-mail: "Marcus, Aaron" <Aaron.Marcus@AMandA.com>
Web: www.AMandA.com

Ms. Sundus Hamoodi

Arab Academy for Banking and Financial Science
Faculty of Information Systems and Technology
P.O. Box 13190, Amman 11942, Jordan
E-mail: "Hamoodi, Sundus" <Sundus.Hamodi@yahoo.com>

Abstract

This paper discusses issues regarding the influence of culture on Arabic Websites. Arabic Websites from three countries serve as an initial sample for this study. Do the Websites of Arabic countries reflect their culture? How specifically? Do they share attitudes about design? Can an Arabic designer achieve what users in other cultures need and want? What are differences reflected in the differences between Arabic countries in the Eastern world and Western countries? This paper discusses these and other issues.

1. Introduction

In this study, we analyze selected Websites from different Arabic countries that may provide fundamental concepts for analyzing most other Arabic Websites. There is a little ambiguity among the terms Arab, Arabic, and Arabian. We shall generally use the term Arabic, pertaining to the language, but also the culture. We start with three Arabic countries (Jordan, Egypt, and the United Arab Emirates, or UAE). We plan to expand our research in the future to include other Arabic countries.

We consider different educational Websites and analyze them according to a combination of Geert Hofstede's theory of culture dimensions with one of the author's (Aaron Marcus') theory of user-interface components [3]. We follow

the assumptions about culture markers that Marcus introduced in previous studies [4, 5].

1.1 Hofstede's Model of Culture

One of the culture models more widely used by researchers and Web designers is Hofstede's model [2]. Hofstede formulated his model of culture dimensions based on surveys and interviews with several hundred IBM employees, originally in 53 countries during (1978-1983), since expanded to 74 countries in the second edition of his book describing his theory. Using his survey, augmented by later studies, Hofstede determined pattern of similarities and differences in how signs, rituals, heroes/heroines, and values are expressed by group members. Hofstede's culture dimensions, or indices, are the following:

- **Power Distance:** high vs. low.
- **Individuality:** high vs. low (i. e., Collectivist).
- **Uncertainty Avoidance:** high vs. low.
- **Gender Role Differences:** masculinity vs. femininity.
- **Time Orientation:** long-term vs. short-term.

1.2 Marcus's Model of User Interfaces

Human-computer interface designers try to determine the most usable (effective, efficient, and satisfying, according to the definition of the International Standards Organization in Geneva) means to communicate the functions and data, or tools and content, of computer-based media. Every phase of development must consider users' needs, wants, requirements, and expectations. The development tasks (essentially verbs modeled on software development tasks) include planning, researching, analyzing, designing, implementing, evaluating, documenting, training, and maintaining. Ultimately, these tasks must account for the cultural attributes of the target market of users. Marcus developed five essential components (or nouns) of user-centered, user-interface development. Those components are useful in all stages of development:

- **Metaphors:** Essential concepts conveyed through images, words, sounds, touches, and even smells.
- **Mental model:** Organization of data, functions, content, tools, tasks, roles, and people.
- **Navigation:** Techniques of moving through the mental model, such as links, buttons, dialogue boxes, panels, and windows.
- **Interaction:** Techniques of input, output, and the overall behavior of systems.
- **Presentation:** Visual appearance characteristics, such as typography, color, layout, sequencing; verbal characteristics, tactile characteristics, sonic characteristics, and aromatic characteristics.

1.3 Objectives of the Study

This paper has several objectives:

- Analyze Arabic Websites in three different Arabic countries in order to determine whether or not the Websites reflect Arabic culture.
- Stimulate discussion and the sharing of ideas among Arabic designers.
- Help designers to design for users and to compare these designs with others from different countries, including non-Arabic.
- Formulate guidelines that help not only Arabic Website developers, but also non-Arabic Website developers, if they need to localize their Websites for Arabic users.

2. Arabic Websites

The following examples show Arabic Websites and comment on the culture factors that seem to have influenced their design. Following the discussion of individual sites, comparisons of the sites elaborate on similarities and differences.



Figure 1: Cairo University (Egypt), <http://www.cu.edu.eg>

The Websites of Figures 1 and 2, which are similar in design to most Arabic educational Websites, seem to have simple user-interface components. The primary images, located prominently on the Website, show official buildings, and the official seal of the university, which represents the university's history and importance. These two components are typical elements of university Websites.

There are many notable characteristics. The Website of Figure 1 seems to emphasize team management, not individuals, with less authentication and password apparatus. The site also contains much detailed information that seems to meet the needs of high-uncertainty-avoidance users, who may need more information resources to be comfortable. The site distinguishes itself as a goal-oriented Web site, because it focuses on employee and student skills-development. The Website helps the user to obtain all

information he/she needs. The official university logo reflects the historical background of the country and the civilization. This connotation may satisfy those who wish to emphasize high-power orientation and perhaps to emphasize a long-term time orientation. The colors of the Website are dark, and the Website seems to reflect a strong masculine orientation.

Many links and menus can be found in this Website. The orientation of the site towards tasks and roles suggest a masculine perspective. Full information, easy navigation, and easy access to information all help to clarify the user's understanding and provide a strong incentive to remain at the Website.



Figure 2: Al-Zaytoonah University (Jordan), <http://www.alzaytoonah.edu.jo>



Figure 3: Applied Science University (Jordan), <http://aspj.edu.jo>

Like many similar university Websites, the images of this university architecture and a logo in Figure 3 represent the university's history and importance. The metaphorical references to the university are simple and clear: university monuments and laboratories. The Website does not provide a challenge to the user; rather it reflects a calm experience, through its color and relative simplicity. Throughout the Website, there are many pictures of the university's leaders, but these do not appear in the Home page. There also seem to be many distinct passwords mentioned, but they do not interfere with rapidly exploring the content. Passwords generally indicate a high power-distance value, with some moderation in this site.

The mental model seems clear, and the content is classified, organized, and distributed effectively throughout the Website. For example, a section offers answers to frequently asked questions. Menus presented in a clear way help the user to keep in control and navigate effectively. This Website seems to emphasize concern with social issues and culture, satisfying people with high uncertainty-avoidance.

The site could be classified as a long-term time-orientation Website, because it maintains its relation with students who have graduated. In addition, the site allows users to deliver their questions and opinions through E-mail in different ways. This feature emphasizes the Website as more interactive. The Web served the individualism for both students and other users, and it could be considered as a task-oriented Website.



Figure 4: Al Isra University (Jordan), <http://www.isra.edu.jo>

The Website of Figure 4 displays a logo that represents the university's importance at the top right side. The mental model has is richly categorized and deeply structured. Many links and menus appear in the Home page to help with navigation. There are issues of security, as indicated by offering the

option of restricting access (for university students and employees) in this Website.

This site appears masculine in design because of its orientation towards tasks and roles. The primary colors used for this website are white and blue.

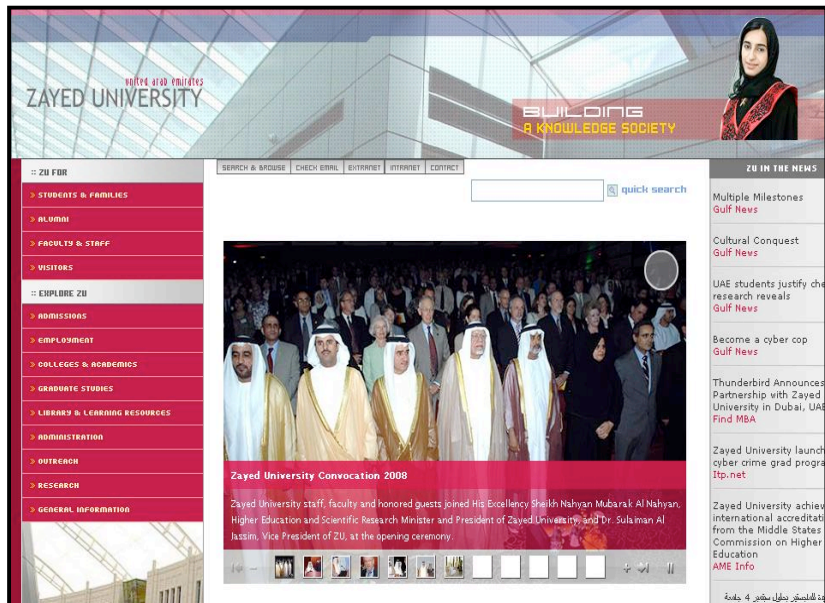


Figure 5: Zayed University (UAE), <http://www.zu.ac.ae>

The Home page in Figure 5 shows an image of leaders along with multimedia animation effects. What makes this site different is that the university specializes in female students; therefore, images of female students appear on the Home page.

The well-designed site in Figure 5 is accessed with fewer authentication and password rituals, unless they are necessary, making it seem less high power-distance oriented. The links to internal and external Websites seem easily found and selected, making navigation easy. The links or menus provide a clear hierarchy and complete information, making the site suitable for high-uncertainty-avoidance users. Visitors can reach any information and functions they require. Multimedia effects found at the site seem suitable for a wide range of visitors. The primary colors of the Website are red and white. The only language used in the Website is English, which may be a barrier to some Arabic-speaking students.

3. Comparisons of Websites

3.1 General Observations

Some general observations about these Websites are the following: According to [1], Callahan's study of university Website design, most university Websites have a banner with the name of the university, a university logo and/or university seal, and images of university buildings and people. Most of the universities treat the Website as a visible representation

of their values, and of their “products”, namely, students and education. Therefore, Callahan found strong similarities in Website design across countries within this single genre. The authors found educational Arabic Websites shared these characteristics with most university Websites.

Most Arabic Websites also shared the characteristic of reflecting high power-distance through the pictures, the structure or organization of the design, and access to information. The authors also found similarities in the way the sites offer navigation through links and menus to reach different internal pages and external sites.

In terms of individualism or collectivism, it appears that most of the Arabic Websites studied gave more attentions to individuals than to groups, which is somewhat atypical, perhaps arising from the educated community of users. Arabic university Websites may use different languages (Arabic and/or English). The English-language usage raises the question of whether the language presents a barrier to local Arabic visitors or not, especially if the design is only in English.

Graphics (images) appear in most of these Arabic university Web sites. They are not purely text-oriented.

3.2 Use of Color

Color is an essential characteristic of appearance that is influenced by culture. According to Callahan [1] in the study “Cultural Similarities and Differences in the Design of University Websites,” Callahan made the following observations:

- In Malaysian sites, a white background was commonly chosen in (17 sites), but in three other cases, the background was purple or blue.
- Swedish sites displayed a strong preference, also, for a white background (18 sites). Colors were used carefully as a background for links. Blue and yellow, the Swedish national colors are a frequent theme, in addition to grey, purple, pink, and dark red.
- In Greek university Websites, two color schemes are often used. Nine Websites were designed in various shades of blue. 11 Websites used various shades of brown and yellow, and many of those sites used ancient Greek art as a central visual theme of the page design. Only two sites displayed brighter, livelier colors.
- In the present study of Arabic university Websites, two color schemes seem to dominate, the use of blue and green, which is a frequent theme of Arabic visual communication. A white background was also commonly chosen for Arabic Web sites.

3.3 Mental Model or Information Architecture

In regard to the mental model, or the structure of content, Callahan [1] found that two of the most important criteria of Web design are page orientation (horizontal vs. vertical) and the number of links existing within the pages.

Regarding orientation, Austria and Denmark have a preference for horizontal page design, while Japan and Malaysia have a preference for a vertical layout. The current study shows that most of Arabic university Website pages use a horizontal orientation and a large number of links within the Website.

4. Conclusions and Future Directions

As stated in the objectives above, this initial study seeks to discover what differences and similarities in design are apparent within Arabic Websites and whether these differences and similarities correspond to characteristics predicted by culture models. The examples shown do seem to exhibit patterns that correspond to those described in discussions of culture dimensions based on culture models.

From this initial study, the authors found that Arabic Websites exhibit certain characteristics and may need to consider changes:

- Most pictures focus on university buildings. Arabic Websites may wish to consider more representative pictures.
- Most do not feature multimedia. They may wish to consider more multimedia content.
- Most do not invite student activities and input. They may wish to consider more sharing and student activity.
- Most offer limited external links. They may wish to add more links to external Websites.
- Most offer less Help and documentation. They may wish to add more to their Website designs.
- They may wish to consider adding more multilingual content. Designing an Arabic Website in English-only may be considered a barrier to access for Arabic users.

Based on a small number of interviews with students who use the Websites for doing tasks, the following comments were collected:

- Students want/need more pictures of university buildings and students in different areas of the university.
- Students want/need more frequently updated information and more specific content that can answer frequently asked question by both new and experienced students.
- Most users would like to see blue and gray colors in the Websites.
- Websites need more interactive design features.

Based on the analysis thus far, the study of Arabic Websites needs to be expanded to cover different types of Websites, other Arabic countries, and more extensive interviews with students and faculty to gather usage data. In future analysis, the authors plan to examine university Websites in greater detail and to expand the analysis to other Website genres (*e.g.*, e-commerce sites, government sites, travel sites, *etc.*) and to other Arabic countries not covered in the present study.

5. References

The following are references cited in the text.

- [1] Callahan, E.: Cultural Similarities and Differences in the Design of University Websites. *Journal of Computer-Mediated Communication*, Vol. 11(1), No.1, Article 12. <http://jcmc.indiana.edu/vol11/issue1/callahan.html> (2005)
- [2] Hofstede, G., Hofstede, G.J.: *Cultures and Organizations: Software of the Mind*. New York: McGraw-Hill. See also: <http://www.geert-hofstede.com> (2005)
- [3] Marcus, A.: Globalization of User-Interface Design for the Web. *Proceedings of 1st International Conference on Internationalization of Products and Systems (IWIPS)*, Girish Probhu and Elisa M. Delgado, eds., 22-22 May, 1999, Rochester, NY, Backhouse Press, Rochester, NY, USA, ISBN: 0-965691-2-2, 165--172 (1999)
- [4] Marcus, A., Gould, E.W.: *Crosscurrents: Cultural Dimensions and Global Web User-Interface Design*. Interactions, ACM Publisher, www.acm.org, Vol. 7, No. 4, July/August 2000, 32--46 (2000)
- [5] Marcus, A., Baumgartner, V.J.: *Mapping User-Interface Design Components vs. Culture Dimensions in Corporate Websites*. *Visible Language*, MIT Press, 38:1, 1--65 (2004)

6. Supplementary References

The following are references relevant to the paper.

- [6] Evers, V.: Cross-Cultural Understanding of Graphical Elements on the DirectED Website. *Proceedings of Annual Workshop on Cultural Issues on HCI*, 5 December 2001, 3--8 (2001)
- [7] Fitzgerald, W.: *Models for Cross-Cultural Communications for Cross-Cultural Website Design*. National Research Council of Canada, NRC-CNRC, 2004, 3--8 (2004)
- [8] Hamoodi, S., Sheikh, A.E.: The Impact of Culture on Design and Usability International. *Proceedings of International Conference on Information and Knowledge Engineering*, Las Vegas, NV, USA, June 25-28 2007, 285--288 (2007)
- [9] Khaslavsky, J.: Integrating Culture into Interface Design. *CHI 98 Conference Summary on Human Factors in Computing Systems*, Los Angeles, CA, ACM Press, 1998, 365--366 (1998)
- [10] Komlodi, A., Carlin, M.: Identifying Cultural Variables in Information-Seeking. *Proceedings of the Tenth Americans Conference on Information Systems*, New York, August 2004, 3--5 (2004)
- [11] Lo, B.W.N., Gong, P.: Cultural Impact on the Design of e-Commerce Websites, Part 1: Site Format and Layout. *Issues in Information Systems*, 6:2, 2005, 182--189 (2005)
- [12] Simon, S.J.: The Impact of Culture and Gender on Web Sites: An Empirical Study. *The Data Base for Advances in Information Systems*, Vol.32, No.1, 2001, 21--27 (2001)
- [13] Zahedi, F."Marim", Van Pelt, W.V., Song, H.: A Conceptual Framework for International Web Design. *IEEE Transaction on Professional Communication*, Vol. 44, No.2, 2001, 83--86 (2001)