

A Study of Cultural Reflection in Egyptian Government Websites

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Abstract. Culture is arguably an important consideration when designing websites because it influences users' needs and expectations as they come to the site. Ten government websites from Egypt were evaluated in 2010 and 2014, before and after the break of the Arab Spring. By utilizing Hofstede's model of cultural dimensions, the objective is to identify whether cultural-specific design elements have changed over time. The results suggest that the designs of these websites have changed and that they did not fully reflect design characteristics inferred from Hofstede's model.

Keywords: Web design, Egypt, Culture, Hofstede.

1 Introduction

As the Web has emerged and evolved as a distinct media form in past years, so has the challenge of investigating it as an object of study by researchers from different social, political and cultural backgrounds [21].

Culture is considered one of the attributes affecting the usefulness and usability of websites [18, 22], therefore several studies have attempted to investigate it in relation to Web design [3, 4, 10, 13, 14, 15]. The influential cultural model of Geert Hofstede [7, 8] has been utilized at length to examine cross-cultural Web design. In his model, Hofstede assigned comparative scores for 50 individual countries and three regions on five cultural dimensions. These dimensions comprise: Power Distance, Uncertainty Avoidance, Individualism/Collectivism, Masculinity/Femininity, and Long/Short-Term Orientation.

In the case of the three regions, one of which is the Arabic-speaking region, several countries had been grouped together based on the assumption of having similar cultural traits. The Arabic-speaking region comprised Egypt, Lebanon, Libya, Kuwait, Iraq, Saudi Arabia and the United Arab Emirates. This group has been frequently used in cross-cultural interface design studies to different extents [3, 4, 25]. However, little attention has been given to these countries individually to examine whether or not they reflect the design characteristics inferred from Hofstede's model. In this exploratory study, we focus our analysis on Egypt to investigate how the design of its websites has changed over the course of four years between 2010 and 2014, a period marked by social and political changes in Egypt.

2 The Internet in Egypt

According to Internet World Stats [9], there were almost 30 million (35.6% of the population) Internet users in Egypt in 2012, an increase from the 12.5 million users (16% of the population) in 2009. Egypt has made extensive use of Internet and Communication Technology (ICT) in schools and universities, and ICT literacy programs are well integrated into education at the primary, secondary and higher education levels in order to reduce the digital divide [1].

Loch, Straub, and Kamel [12] noted that cultural obstacles to the diffusion of ICT in the Arab world, including Egypt, are significant, but there are many factors that are encouraging as well. They argued that if cultural beliefs and attitudes toward technology were better understood, then the technology itself, and more specifically the Internet, might be better adapted to the behavioral patterns of the adopting country, rather than the traditional approach of force-fitting the culture to the technology.

The series of political demonstrations and protests in the Arab world which started in Tunisia in December 2010 have affected that region in general, and Egypt in particular. On 25 January 2011, thousands of people in Egypt took to the streets demonstrating against corruption and failing economic policies in their country [5]. The Egyptian protests that led to the resignation of President Hosni Mubarak were organized through a complex network of ICT which mostly used Twitter and Facebook. During this political unrest, access to the Internet was shut down on 27 January for almost a week, preventing Egyptians from accessing websites, sending and receiving email, or using other online services [24].

3 Egypt in Cultural Web Design Studies

Cultural similarities and differences in Web design have been discussed at length in the literature. However, Arab countries, including Egypt, have received limited attention in this research area [10]. For those studies that included Arab countries, especially those using Hofstede's model of cultural dimensions, revealed that these websites reflected to different extents Arab culture on the Web based on the characteristics that are inferred from the dimensions.

Zahir et al. [25] selected national Web portals also from two countries, Egypt and Morocco. Their results showed that websites from Egypt had a strong focus on the Egyptian culture, reflecting a high Power Distance characteristic. While websites from Morocco had a good presentation of women's issues and non-Islamic reference, relating to the Masculinity and Power Distance dimensions respectively.

Callahan [4], analyzed a total of 20 interfaces from the group of seven Arab countries included in Hofstede's model in her study of cross-cultural differences in the design of university websites. Although the number of websites from each country was not specified, the results pertaining to the Arab countries overall suggest that most of the design elements on their interfaces match their description on Hofstede's cultural dimensions.

In a study conducted by Marcus and Hamoodi [15], the researchers analyzed Arabic educational websites from Jordan, Egypt, and the United Arab Emirates aiming to determine whether or not the websites reflect Arabic culture. The results of this study show again that most of the design elements on these interfaces correspond to their characteristics on Hofstede’s cultural dimensions.

4 Methodology

4.1 Web Genre Selection

Following the reasoning and usage of government websites in the study conducted by Zahir et al. [25], this study focused on government websites for two reasons. First, they are primarily intended for a particular culture or nation, rather than the worldwide Internet community. Second, websites catering to the needs of distinct cultural groups can be expected to have as one design goal the reflection of the socio-cultural, technological and economic characteristics of their intended cultures.

Ten government websites from Egypt were first evaluated in December 2010 and then in January 2014, before and after the spread of the Arab Spring in that country.

4.2 Analysis

This study employed the content analysis method, described by Krippendorff [11, p.18] as “a research technique for making replicable and valid inferences from texts (or other meaningful matter) to the contexts of their use”. The unit of analysis is the home page of each of the selected websites, because it is argued to be the most important page on any website, getting more page views than any other page [17]. The analysis focused on the graphical, organizational, and navigational elements which were related to Hofstede’s model of cultural dimensions [2, 14, 19].



Fig. 1. Ministry of Higher Education, 2010. <http://www.egy-mhe.gov.eg/>

This study, however, has a few limitations. First, only websites from Egypt were analyzed, which limits the comparison between countries that were affected by the political unrest in the Arab region. Second, the results might be influenced by the type of website chosen for analysis, as noted by Barber and Badre [3]. Third, the small number of websites included in this study might not have produced significant differences between the design elements over time.

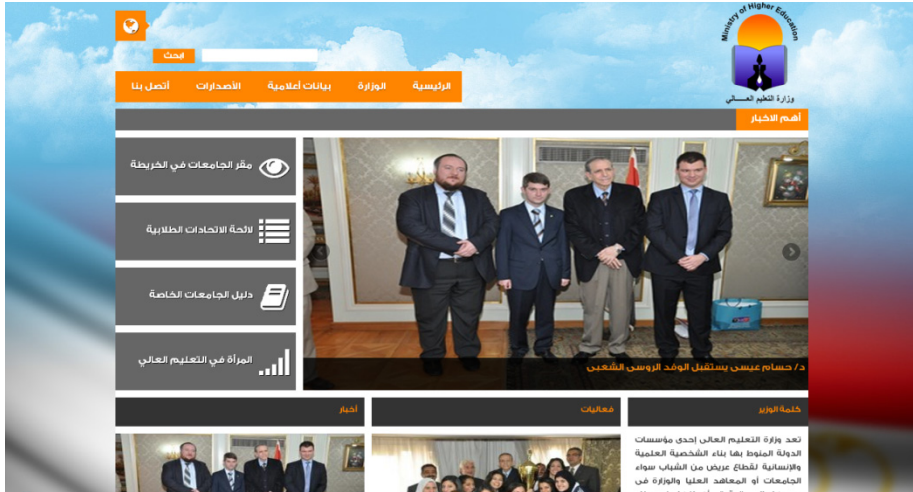


Fig. 2. Ministry of Higher Education, 2014. <http://www.egy-mhe.gov.eg/>

5 Results

The content analysis of the 10 government websites from Egypt from 2010 and 2014 generally showed a change in the design elements and visuals inferred from Hofstede’s cultural dimensions. Out of these websites, there were five that have been completely redesigned, as can be seen from the examples in Figures 1 and 2.

Table 1. Design elements associated with Power Distance

Dimension	Design element	2010	2014
Power Distance	Social models	30 %	0 %
	Restriction to access	0 %	1 %
	Images of officials	26 (M=2.6, SD=2.9)	18 (M=1.8, SD=2.3)
	vs. citizens	20 (M=2.0, SD=2.5)	34 (M=3.4, SD=6.3)
	vs. mixed	3 (M=0.3, SD=1.0)	3 (M=0.3, SD=1.0)

5.1 Power Distance

High Power Distance in Web design is manifested in the presence of social models (national and/or religious), explicit and enforced restrictions to access information, and prominence given to officials [14]. As can be seen in Table 1, the results showed a drop in the number of social models and the number of images of officials presented on these websites, but a slight increase in having restrictions to access information.

5.2 Uncertainty Avoidance

Web interfaces with high Uncertainty Avoidance are described as being simple with limited choices and a restricted amount of data [14]. This dimension is reflected in the menu structure, number of links, and presence of news. As Table 2 shows, menu structure and presence of news remained unchanged in 2010 and 2014. However, there was a drop in the total number of links between 2010 ($M=78$, $SD=44$) and 2014 ($M=66$, $SD=29$).

Table 2. Design elements associated with Uncertainty Avoidance

Dimension	Design element	2010	2014
Uncertainty Avoidance	Simple menus	30 %	30 %
	Presence of news	100 %	100 %

5.3 Individualism/Collectivism

In Web design, interfaces with high Individualism will depict more images of individuals rather than groups [14] and provide site customization for the users [2]. Table 2 shows an increase in the number of websites which provide customization options for the users, as well as a noticeable increase in the images of groups on these websites.

Table 3. Design elements associated with Collectivism

Dimension	Design element	2010	2014
Collectivism	Customization	20 %	30 %
	Images of groups	18 ($M=1.8$, $SD=2.1$)	21 ($M=2.1$, $SD=2.7$)
	vs. individuals	38 ($M=3.8$, $SD=3.6$)	35 ($M=3.5$, $SD=5.5$)

5.4 Masculinity/Femininity

Masculinity in interfaces is reflected in using images of men versus images of women, using animated images [14], and keeping a count of site visitors by using a visitor counter [19]. Table 4 shows that there was an increase in the number of websites with a visitor counter, but a drop in the number of images of men (versus

women or mixed images). On the other hand, there was an increase in the number of animated images from 2010 ($M=9$, $SD=13$) to 2014 ($M=13$, $SD=15$).

Table 4. Design elements associated with Masculinity

Dimension	Design element	2010	2014
Masculinity	Visitor counter	20 %	30 %
	Images of men	45 ($M=4.5$, $SD=4.3$)	38 ($M=3.8$, $SD=3.4$)
	vs. women	7 ($M=0.7$, $SD=1.3$)	8 ($M=0.8$, $SD=2.2$)
	vs. mixed	5 ($M=0.5$, $SD=0.7$)	13 ($M=1.3$, $SD=2.1$)

5.5 Long-/Short-Term Orientation

The content of Web interfaces with long-term orientation (LTO) focuses on patience in achieving results, and on using cultural markers such as national colors. Web design elements that reflect this dimension are site searching tools such as search engines and site maps, frequently asked questions, and national colors.

Table 5. Design elements associated with Long-Term Orientation

Dimension	Design element	2010	2014
LTO	Search engine	50 %	80 %
	Site map	60 %	70 %
	FAQ	30 %	20 %

6 Discussion and Conclusion

Culture is arguably an important consideration when designing websites because it influences users' needs and expectations as they come to the site, thus has been discussed at length in the literature [3, 6, 13, 14, 15]. However, Arab countries, including Egypt, have received limited attention in cross-cultural web analysis [10].

Egypt was one of seven countries Hofstede included in his influential model of cultural dimensions. As a group, these seven countries scored high on the Power Distance (80), Uncertainty Avoidance (68), and Masculinity (52) dimensions, while scoring low on the Individualism (38) dimension. The only dimension that does not have any score for these countries is Long/Short-Term Orientation.

Ten government websites from Egypt were first evaluated in December 2010 and then in January 2014, before and after the spread of the Arab Spring in that country. The results of this exploratory study generally showed that Web design elements and visuals which relate to Hofstede's cultural dimensions have changed over time.

As a country with a high score on Hofstede's Power Distance dimension, we would expect Egypt to have frequent use of social models, restrictions to access information, and images of officials. This was not the case either in 2010 or 2014 for all these

elements. However, there was a 12% drop in the number of images for officials compared to a 25% increase in the number of images for citizens.

Scoring low on Hofstede's Uncertainty Avoidance, we would expect Egypt to have more frequent use of simple menus, presence of news items, and relatively low number of links. News items were present on all 10 websites, but simple menus were not prominent. However, there was a drop in the total number of links between 2010 and 2014.

As belonging to a collectivist culture in Hofstede's model, websites from Egypt would be expected to show low customization (i.e. font size, color, etc.) and have more frequent images of groups rather than individuals. While the increase in the number of websites with customization options was not significant, there was a 6% increase in the number of images of groups on these websites, compared to a 3% drop in the number of images of individuals.

Egypt is described as having a relatively masculine culture in Hofstede's model. Therefore, we would expect its Web interfaces to have frequent use of visitor counters, images of men and animated images. The increase in the number of websites with a visitor counter was insignificant. However, there was a 10% drop in the number of images of men from 2010 to 2014, compared to a 14% increase in the number of images of mixed gender. On the other hand, there was an increase in the number of animated images from 2010 to 2014.

Although Egypt does not have a score on Hofstede's fifth, Long- vs. Short-Term dimension, it was interesting to find that there was an increase in the number of site-searching tools such as search engines and site maps, but a slight decrease in the use of Frequently Asked Questions.

Other studies that examined Egypt [4, 25] have suggested that most of the design elements match their description on Hofstede's cultural dimensions, including high Power Distance, Collectivism, high Uncertainty Avoidance, and Masculinity. This study on the other hand, confirms the findings of our previous research [10] which suggest that websites from Egypt do not fully reflect the characteristics inferred from Hofstede's dimensions. Moreover, it shows on the one hand that the reflection of Power Distance and Masculinity is decreasing, while on the other hand the reflection of Collectivism is increasing.

The differences in the results could be attributed to: (i) the fact that other studies had included Egypt as part of a composite group rather than individually; (ii) difference in website genre, or (iii) the small number of websites included in all these studies. The much wider question remains as to how the events in Egypt have affected the country's cultural reflection on the Web, if any.

The study results and limitations imply the need for further research. Future investigation will focus on the remainder of the countries from the group of seven, as well as other Arab countries excluded from Hofstede's model. In addition, websites from another genre than government will be included in order to yield more meaningful results and to produce valid comparisons across genres.

With the fundamental social and economic transformations that are taking place within Egypt, and with the Web becoming more global and more sophisticated in its design [20, 23], future studies need to focus on longitudinal examination of websites

from Arab countries. This kind of research is important in order to investigate whether cultural reflections on the Web are changing, and how they are changing over time. Designers would potentially benefit from this kind of research, especially when it comes to incorporating cultural considerations in the design of websites in a rapidly changing online environment.

References

1. Abdallah, S., Albadri, F.: A perspective on ICT diffusion in the Arab region. In: Abdallah, S., Albadri, F. (eds.) *ICT Acceptance, Investment and Organization: Cultural Practices and Values in the Arab World*, pp. 1–15. Information Science Reference, Hershey (2011)
2. Ackerman, S.: Mapping user interface design to culture dimensions. Paper presented at the International Workshop on Internationalization of Products and Systems, Austin, TX (2002), http://www.usj.edu.lb/moodle/stephane.bazan/obs_interculturelle/culture%20dimensions%20in%20WS.pdf
3. Barber, W., Badre, A.: Culturability: the merging of culture and usability. In: 4th Conference on Human Factors and the Web (1998), <http://research.microsoft.com/users/marycz/hfweb98/barber/> (retrieved)
4. Callahan, E.: Cultural Differences in the Design of Human-Computer Interfaces: A Multinational Study of University Websites. Published thesis, Indiana University (2007)
5. CNN Wire Staff: What's going on in Tunisia?, http://articles.cnn.com/2011-01-16/world/tunisia.explainer_1_tunisia-president-habib-bourguiba-el-abidine-ben-ali?_s=PM:WORLD (January 16, 2011)
6. Fernandes, T.: *Global interface design: A guide to designing international user interfaces*. AP Professional, Boston (1995)
7. Hofstede, G.: *Culture's Consequences: International Differences in Work-Related Values*. Sage Publications, Beverly Hills (1980)
8. Hofstede, G.: *Culture's consequences: Comparing values, behaviors, institutions, and organizations across nations*. Sage Publications, Thousand Oaks (2001)
9. Internet World Stats (2014), <http://www.internetworldstats.com/af/eg.htm>
10. Khashman, N., Large, A.: Measuring cultural markers in Arabic government websites using Hofstede's cultural dimensions. In: Marcus, A. (ed.) *HCII/DUXU 2011, Part II*. LNCS, vol. 6770, pp. 431–439. Springer, Heidelberg (2011b)
11. Krippendorff, K.: *Content analysis: An introduction to its methodology*. Sage Publications, Beverly Hills (2004)
12. Loch, K., Straub, D., Kamel, S.: Diffusing the Internet in the Arab World: The role of social norms and technological cultivation. *IEEE Transactions on Engineering Management* 50(1), 45–63 (2003)
13. Marcus, A., Alexander, C.: User validation of cultural dimensions of a website design. In: Aykin, N. (ed.) *Usability and Internationalization, Part II, HCII 2007*. LNCS, vol. 4560, pp. 160–167. Springer, Heidelberg (2007)
14. Marcus, A., Gould, E.: Cultural Dimensions and Global Web User-Interface Design: What? So What? Now What? In: *Proceedings of the 6th Conference on Human Factors and the Web*, Austin, Texas (June 2000), <http://www.amanda.com/resources/hfweb2000/hfweb00.marcus.html> (retrieved September 25, 2008)

15. Marcus, A., Hamoodi, S.: The Impact of Culture on the Design of Arabic Websites. In: Aykin, N. (ed.) *Internationalization, Design*. LNCS, vol. 5623, pp. 386–394. Springer, Heidelberg (2009)
16. Nielsen, J.: *International Use: Serving a Global Audience*. In: *Designing Web Usability*, pp. 315–344. New Riders, Indianapolis (2000)
17. Nielsen, J., Tahir, M.: *Home page usability: 50 websites deconstructed*. New Riders, Indianapolis (2002)
18. O'Connell, T., Murphy, E.: The usability engineering behind user-centered processes for website development lifecycles. In: Zaphiris, P., Kurniawan, S. (eds.) *Human Computer Interaction Research in Web Design and Evaluation*, Idea Group Pub., Hershey (2007)
19. Robbins, S., Stylianou, A.: Global corporate web sites: an empirical investigation of content and design. *Information & Management* 40(3), 205–212 (2003), [http://dx.doi.org/10.1016/S0378-7206\(02\)00002-2](http://dx.doi.org/10.1016/S0378-7206(02)00002-2)
20. Röse, K.: Globalization, culture, and usability. In: *Encyclopedia of Human Computer Interaction*, pp. 253–256. IGI Global (2006), doi:10.4018/978-1-59140-562-7
21. Schneider, S., Foot, K.: The web as an object of study. *New Media & Society* 6(1), 114–122 (2004), doi:10.1177/1461444804039912
22. Shneiderman, B.: Universal usability: Pushing human-computer interaction research to empower every citizen. *Communications of the ACM* 43(5), 84–91 (2000)
23. Warf, B.: *Global geographies of the internet*. Springer, Dordrecht (2013), doi:10.1007/978-94-007-1245-4_1
24. Williams, C.: How Egypt shut down the internet. *The Telegraph* (2011), <http://www.telegraph.co.uk/news/worldnews/africaandindianocean/egypt/8288163/How-Egypt-shut-down-the-internet.html>
25. Zahir, S., Dobing, B., Hunter, G.: Cross-Cultural Dimensions of Internet Portals. *Internet Research* 12(3), 210–220 (2002)