CULTURAL FACTORS in WEB DESIGN

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ABSTRACT

The main purpose of this paper is to contribute to the study of cultural factors through the needs, wants, preferences, and expectations of different cultures. 15 university web sites chosen randomly from 11 countries—which are Europe (6 universities), Islamic Countries (3 universities), Far East (2 universities), Australia (1 university), and America (3 universities)—constitute the sample of this study. For this main purpose, the study reveals and determines the cultural factors in web page design through reference to a cross-cultural theory developed by Hofstede (1980) and Marcus and Gould (2000), who applied Hofstede's (1980) five Cultural Dimensions in considering the usage requirements, preferences, metaphors, appearance, mental models, and navigation of different user web designs.

Keywords: *Cultural factors, usage requirements, preferences, metaphors, appearance, mental models, web designs*

INTRODUCTION

Hofstede (1991) defines culture as common thoughts that discriminate an individual who belongs to a certain group or class. According to another view that supports this definition, cultures differ from each other with a set of shared characteristics such as thoughts, values, and behaviors of a certain group (Choi, Lee, Kim, & Jeon, 2005). Culture shapes with some specific social factors like belief, political views, rituals, and language as well (Searle, 1995). The need to build an awareness regarding the other cultures on the world, apart from the culture one lives in, is a fact of modern life. Having a voice on the global platform becomes harder without having a cultural awareness, sharing the cultural experiences with other cultures, and displaying a tendency to understand them. And these kinds of attitudes prevent especially the constitution of qualified relationships and communication in the social life. Therefore in the multi-cultural world of today, cultural differences and awareness should be considered in most places and processes (Bourges-Waldegg & Scrivener, 1998).

Especially being one of the most effective settings of inter-communal interaction and communication currently, web and web-based applications should have a structure that considers culture and cultural differences in this sense. Cultural differences directly affect features of use regarding the target audience, specifically in the web applications with universal themes (Marcus, 1993; Marcus & Gould, 2000). The requirements regarding the practicability of web designs become the requirements of cultural priorities and preferences within cultural and social needs related to global world needs (Bourges-Waldegg & Scrivener, 1998).

The most effective arrangements in web designs are actually made with an application of a few basic principles. These principles are listed as simplicity, consistency and clarity. With these principles in accordance with the aesthetic values, web designs have an effective and functional presentation (Schwier ve Misanchuk, 1993, ss. 212-221). However, nowadays, there is one more point to be considered apart from the general design principles of web page designs, which is one of the interactive media designs. The point is the cultural factors as being one of the most important needs of a design and the designing process. The cultural factors in a design process of a web page increase the functional and aesthetic perceivability, quality, and success of the design at the same time because individuals are affected from their own cultural identities in the knowledge acquisition and sensory perception processes (Davis, Wang, & Lindridge, 2007; Dormann, 2006). For this reason, in web design, it is important to bear in mind the cultural differences that reflect strong values in the social life. Especially in designs with universal themes, the designer should have a good command of subjects like cultural values, priorities, individual and social roles within the frame of cultural limits that the target audience generates, and s/he should show respect to these matters in the designing process.

Beside behaviors, culture affects human's perceptions, thoughts, and actions as well. From

this aspect, culture is a target audience-oriented process in terms of the design media. In this process, cultural qualities of an individual, group, society, or class described as the target audience become more of an issue (Honold, 2000). Cultural qualifications contain the priorities, interests, personal perceptions, and values of the audience characterized as user. Cultural qualifications can show variety among societies, and directly affect the quality of the design accordingly.

The concept of culture in the design media can be identified as reflections of emotions, behaviors, and the way of thinking of the individuals considered as users. Hofstede's (1980) approach, which contains five different dimensions of culture, appears to be effective in the culturalization process of design media. 5 main cultural dimensions that include culturally sharp distinctions are listed as; Power distance (PD), Collectivism vs. Individualism (IDV), Femininity vs. Masculinity-MAS, Uncertainty Avoidance (UAI), and Long and Short Term Orientation (LTO). These dimensions stated on cultural difference by Hofstede contain some subheadings such as; admitted power in a certain society, regime or social acceptances, hierarchical arrangements in society, social roles, individual and social accomplishment, personal conception of culture, the way of communication, personal and social aims, the emphasis on and the importance of customs, history and modernity, different viewpoints on gender difference in society and gender roles, social emphasis, personal emphasis, personal and social preferences, and interests and expectations (Hofstede, 2001).

According to Hofstede (1980); power distance (PD) expresses the distance between societies in which hierarchy is perceived as power, and the ones that have no sense of hierarchy as power in the context of the distances between hierarchical importance, emphasis, and hierarchical relations. In other words, it states the differences and the perception styles changing from culture to culture in terms of the acceptances and expectations upon equality of power distribution between more powerful and less powerful members of associations, organizations, and groups in a society.

Individualism-Collectivism (IDV) describes the distance between collective preferences brought by the social life of the cultures where environmental factors (family, friends, colleagues etc.) are dominant and personal preferences in decision-making process of individuals in social life. Individualism is the distance where the influence of the extent of individuals' connection with their culture is minimum on the decision-making process. Collectivism means that decision-making process of individuals takes place free from individual questioning in the context of cultural expectations and strong relations.

Masculinity-Femininity (MAS) dimension contains the highlights between men and women over the content of social roles and differences between highlights and degrees in different countries. MAS dimension is basically based upon clear discrimination of social preferences, roles and expectations between femininity and masculinity. Hofstede (1980) states that in MAS dimension, success & result-based preferences come into forefront in the masculine-dominant societies; however, the process is more important in feminine-dominant societies. In this dimension, femininity displays affectionate, unassertive, and life quality-based perception styles whereas masculinity exposes an ambitious, endurable and materialist understanding of success.

Uncertainty Avoidance (UA) dimension is about the competence range over decision-making and application processes. This dimension regards the perception of the members of a culture on uncertain and unknown situations. Cultures differ from each other on the dimension of avoidance from the uncertainty. Different rituals, varied values based upon formality, perceptions on time concept, legal-local-social entailments, and tolerance range concerning uncertainty, in fact; demonstrate the type of differences that societies have in uncertainty avoidance dimension.

For Long-term (time) orientation (LTO), Hofstede separates eastern and western countries. He emphasizes that eastern countries mostly focus on application and virtual behaviors while western countries focus on belief and the search of truth.

Adapting Hofstede's theory on five different dimensions of culture to interactive media design creating process, Marcus and Gold (2000), who reconsidered the process in planning, searching, analysis, design, development, evaluation, documentation, trial, and application phases, detected some components in which the effects can be felt while designing process. The first of these is metaphors. Metaphors are cultural highlights that lead to permanence in the images of the design and content. Another component consists of the

presentation of the mental model, appropriate organization and organization functions, roles, and data in the designing process. Navigation is the motion of the control panels and dialog boxes of menus within the arrangement of designing process. Appearance is how design emerges (with visuals sound, and text content etc.)

The analysis over the cultural qualifications of target audience becomes quite important concerning the generation of design components that can supply a cultural identity in web design. Five cultural dimensions that Hofstede (1980) has designated are indeed considerably effective on finding ways about how interactive media designs can be adapted to cultural differences in different countries. These dimensions lead to the identification of cultural characteristics and qualifications which can be adapted in a culture's design application.

Marcus (2002) highlights the necessity to pay attention to local cultural qualifications in addition to the reality of multi-1nationalism and multiculturalism for creating globally valid designs. In user interface designs, intercultural qualifications include local, religious, historical and aesthetic characteristics of a culture; and local designs shall meet the requirements in some specific local scales. Marcus and Gould (2000), taking Hofstede's (1980) study on five cultural dimensions as a starting point, listed the components composing cultural effects in interactive interface designs as user necessities, priorities, metaphors, appearance, management pattern, and navigation.

According to Hofstede (1980), countries show high PD focus on hierarchy and authority. From Marcus and Gould's (2000) point of view, in interactive media designs, PD factor can be detected as a metaphor in this way: If there are visuals, expressions, and content from which hierarchy and authority of that culture can be felt in a web site design, the quality of that site about metaphors is an indicator of high PD.

While cultures with high PD indicator adopt more imposing, more organized and clearly classified design structure; cultures with low PD indicator prefer a simple, informally organized and classified design structure. When PD indicator is considered in terms of web design, clear indicators of configuration (web site map, and details of communication data etc.) become obvious. In a web site, structural indicators about each page's content can also be indicators of high PD. Besides, while web sites are enriched with options such as open access, multiple choices, and shared path within the scope of low PD, structures that enable choices that users are led by the design can be discerned. In interaction dimension, the type of interaction content is accepted as an indicator of high and low PD. While interactions are informative, leading, supportive, and guiding for the mistakes or errors made by the user in low PD dimension, this approach may not be leading or may be more adamant and more implicit in high PD countries. In appearance dimension, countries with high PD indicator may be content with the visuals, logos, sounds, colors, slogans, or page setup related to that particular regime, nation, culture, or specific items in the content of design. As to low PD indicator, cultures may prefer activities of daily life, popular images, symbols, page settings, or colors (Marcus & Gould, 2000).

Marcus and Gould (2000) states that, in high and low IDV designs, it is important whether the achievements, objects, and expectations of the community to which the design belongs to are mentioned individually or communally. One can talk about high IDV in a design where success concerns the whole community.

Metaphors in the design are expected to appear male or female in terms of Femininity vs. Masculinity (MAS) dimension. In the context of metaphors, communities in which femininity is prominent are expected to have visuals with femininity theme (family, shopping, female figure) whereas in male-dominated communities visuals with masculinity theme (competitions, sport, meetings etc.) are expected to appear. In terms of mental model, in countries with high level of MAS, one can talk about a process-oriented design structure with more social interaction while in the others with low level of MAS, there may be more goal-oriented design structure. Concerning navigation in countries with low level of MAS, there is more functionality and practicality on directing whereas in the others with high level of MAS designs which are more elaborative and with more individualistic choices regarding masculinity draw attention. Use of vivid colors and prominent figures in the designs is a low MAS indicator while softer colors and figures can be described as the markers of high MAS (Marcus & Gould, 2000).

In Uncertainty Avoidance dimension, high numbers of metaphors and markers regarding the aim of a

design in both the content and visuals of a web design are signs of high UA. As for communities with high UA level, the messages, content, and visuals which are clear and prominent are associated with the lives of individuals, and direct meanings are deliberate preferences. In a web site about a certain topic, the existence of more visuals and the choice of messages related to daily life indicate high level of UA. However more general, more symbolic, and less detailed visuals, messages, and contents can be accepted as a mark of low UA value. In high UA-signaled countries; while designs with simple, clear and limited choices, and less user tolerance over mistakes or failure to meet the expectations are discussed, more tolerant approaches are evident in terms of mental model in the others with low UA. Regarding navigation cultures with high UA, navigation options of the site have more clear and adamant rules while in cultures with low UA, navigations can be enriched for the users by various alternatives and choices on the use of the site. In terms of page view and occurrence; while there is tolerance towards unexpected and extraordinary options in the cultures with low UA indicator, going beyond the ordinary view may not be positively regarded in the cultures with high UA indicator (Marcus & Gould, 2000).

Long vs. short term (time) orientation (LTO) may appear in the content in terms of mental model. Reference of corporate objectives, short and long-term expectations, and aims in the content can be accepted as LTO. If, in the content, corporate quality is mentioned together with current content, one can talk about STO. Indicators concerning long and short-term targets can be admitted as data for LTO and STO in the sense of interactions and the development of the site (Marcus & Gould, 2000).

It is possible to analyze the effect of culture on web designs in terms of requirements, priorities, images, profiles, and navigation (Marcus & Gould, 2000). Li et al. (2007) mentioned about culture-centered designs arose by availability problem that multicultural users experience in web pages.

Sun's (2001) study about cultural effects on web pages reveals that users take cultural priorities into account during the evaluation process of web page. What is more, this study has shown that web pages with icons, figures, colors, texts, and sounds that can be described as cultural symbols have a higher level of user friendliness; and cultural symbols increase user satisfaction and ease of use. Sun (2001) asserts that the cultural symbols' compatibility with the features of target audience raises the perceptibility and positive views on the use of web pages.

There are plenty of studies that state the use of design components that are culturally appropriate improves effectiveness of the design and views on design media. Smith, Dunckley, French, Minoch, and Chang (2003) emphasize that use of cultural elements in design components like colors, visuals, language, and typographic arrangements in interactive media designs meet the cultural expectations of users.

Galdo and Nielson (1996) has shown that color and screen design in web pages have varying psychological and sociological effects on different cultures. According to Galdo and Nielson (1996), the color element creates culturally different explanations and reactions in different users.

Amant (2005) stresses that cultural differences alter the visual expectations on the use of web designs (p. 77). Therefore, designer is supposed to define some criteria related to web site in parallel with cultural values in the design process. These criteria can be identified under the influence of some parameters like the identity of the page, why to set up, what to offer to the user and how to create user motivation, what role it gives to user, whether to be used individually or as group, how to highlight social values, whether it focuses on customs, expertise or power, and to which gender it addresses. These criteria help the designer analyze, develop and evaluate the design in the design process. They also help designer in the development of aesthetic and functional qualities of the web page. However, the important point here that the designer should conduct a proper analysis of the variables determined in terms of culture and his analysis should directly be compatible with the target audience. Web design components which reveal the cultural elements in a web design can be listed as language, page layout, symbols, color, visual images, and sound/music. These components are quite important for the emphasis over cultural elements. Galdo (1996), Fernandes (1994), and Russo and Boor (1993) emphasize that one has to pay attention to cultural factors such as icons, symbols, colors, and language in the process of a web page design

Examination of studies in which components that can reflect culture in interactive media and web

page designs are analyzed (Hofstede 1980; Marcus, 1993; Marcus & Gould, 2000; Amant, 2005; Galdo & Nielson, 1996; Smith, Dunckley, French, Minoch, and Chang 2003; Fernandes (1994); Russo & Boor, 1993; Sun, 2001) has led to the conclusion that components which can embed cultural qualities into web page designs are classified into sub dimensions, and these cultural qualities about the dimensions can be analyzed separately. As a result of this conclusion, the dimensions that can be formed by cultural characteristics in a web page design have been determined in terms of user features and user expectations as the content and type of the web page, color properties of the web page, the language and the typographical qualities regarding the language use in the web page, visual information in the design and its content and qualities, functional and aesthetic elements in the entire design, page layout, and interactions and navigations.

The content and type of web design is an aspect that can be identified with the consideration of cultural qualities in parallel with the quality of target audience of design. While getting information directly is more significant in some countries, an aesthetic presentation of the information may be more attractive in some others; and still a balance between the two may be more appealing in some others; or orderly presentation of information can attract the attention in other countries. These preferences vary according to routine, way of communication, and difference over the interaction methods of individuals living in different cultures.

Color is one of the elements with varying meanings among cultures, and culture can be clearly reflected in a web site through use of it. In web page designs, color should be selected with regard to satisfaction and expectation of user and the significance of the color to him/her.

Typographical features of a web page actually are stylistic arrangements including the language use specific to the target audience. A language gathers a certain group or society dialectically, semantically and grammatically. Thus, language in web designs is defined as a cultural factor. Due to the fact that language exists in lots of interaction like interpretation, message sending, enabling communication in web page; designer is to care about language and language use characteristics of the target audience. Except for the qualitative requirements, aesthetic factors in typographic arrangements (the size of typographic elements, typeface, row pitches, and length of paragraph etc.) should be considered in the use of language.

Visual information, images and symbols are the elements consisting of logos, pictures, graphics, photographs, videos, animations, and simulations that cultural meanings and information can intensively be formed. Visual information should be selected and used with regard to nature of target audience, and they must be chosen according to what is important to that culture.

Also aesthetic and functional factors affect the success of the design in different cultural environments. Aesthetic features are the ones concerning whether the design components create an effective visual quality or not in terms of design principles. As for functional factors, they include some technical features of the design. In some cultures, aesthetic components are interpreted within more traditional forms whereas, in some others, more modern forms are used. Some cultures prefer aesthetic elements with more concrete display while others like more abstract and more minimalist ones. Functional qualifications should meet the expectations at minimum level in terms of technological competence, priorities, and opportunities of target audience. For instance; when compared to the quality of technology that target audience uses, features such as technology opportunities, loading pace of the page, and image quality etc. must have functional capacity.

Since page layout means the organization of content and images in web page, it is a design component that can be described as a cultural factor. Cultural priorities can be created in a web page design concerning page layout. For example features like position of buttons, flow direction of page either horizontally or vertically, and page layout balance of the design (symmetrical-asymmetrical) etc. as a whole make up the cultural quality of page layout. Cultural quality of page layout should be arranged in a way that can facilitate the readability of the structure, content, and information access in the web page (Yu & Roh, 2002).

Navigation and interactions can be designed as buttons, voice navigation & interactions, and text navigation & interactions in web pages. General features of all these navigation and interactions should be suitable for the target audience's cultural characteristic. For example, voice navigation and interactions may be preferred more in some cultures

Cultural Quality of the Web page		
Type of Web Page	• Information focused • Visual Content focused • Classified • Genuine and extra ordinary • Balanced	Compliance with priorities, expectations and structures of the cultures defined as target audience (Hofstede 1980)
Color Qualities of Web Page	• Color and color relations • Meanings of color • Tone, value, intensity and saturation features of the color	Cultural features or significance of the colors used
Quality - Content of Typographic Information	• Typeface • Type size • Text content • Language structure • Content integrity	Compatibility of Language, perceptibility, meaning and structural qualities with cultural elements
Quality and Content of Visual Information	• Logo • Picture • Graphic • Photograph • Video Display • Animation • Simulation	Visual elements' relationship with cultural factors, and meaning in terms of cultural factors
Aesthetic Factors	• Design elements • Design principles	The assistance degree that design elements and principles affect presentation of cultural elements and symbols
Functional Factors	• Resolution • Size • Measure • Loading pace	Functional quality of design in terms of cultural factors, to what degree it meets functionality in terms of cultural expectations
Page Layout	• Symmetric • Asymmetric • Irregular • Regular	In what way content of page layout assists the presentation of cultural symbols and formal compliance with the expectations of target audience
Interactions and Navigation	• Sound-based interactions • Text-based interactions • Visual content-based interactions • Mobile navigations • Sound navigations • Visual navigations • Links • Button navigations	Interaction with the support of the cultural symbols and compatibility with cultural elements, inclusion of the routes with the cultural symbols, the compatibility of navigations with cultural preference and use

while, in some others, text-based navigation and interactions are more popular; or in some cultures, interactive use of buttons assisted with visual effects as navigation are more attractive whereas excessive use of effects may cause user to draw away from the site in others. Sound element, which has a significant place in terms of navigation and interactions, can be used in web designs as

Table 1. Design Elements That May Convey Cultural Quality in Web Design

character voices, music, effects, and vocalizations. Sound as an element that can form the cultural

quality of the web page is a design component that can form specific cultural meanings, referrals, and interpretations by associating with language; and it can be used to reflect the characteristics of a culture defined as target audience.

Sub dimensions in web design and cultural expectations over design can be tabulated as below:

Separate analysis of typographical features about language and language use, content, type, color features of web page, visual information in the design, their content and quality, aesthetic and functional factors in the whole design, page layout, interactions and navigations that are defined as dimensions bringing cultural identity in web page designs in terms of cultural factors can lead to more precise identification of the cultural content. Also, this type of analysis of the cultural qualities of these elements regarding each dimension can help web page designs to be defined more effectively as well.

Table 2. Cultural Factors and Their Components (Hofstede, 1980)

Cultural Factors	Components of Cultural Factors
Power Distance	• Accepted power in the culture • Regime in the culture • Cultural values, beliefs and admittance • Hierarchical structure in the culture • Social roles in the culture
Individualism-Collectivism	• Communication forms in the culture • Understanding of social success of the culture • Social goals of the culture • Understanding of individual success of the culture • Individual goals of the culture
Masculinity-Femininity	• Customs of the culture • Gender roles and highlights in the culture • Traditional gender perception • Modern gender perception

Uncertainty Avoidance	• Cultural highlights and significance • Tolerance towards expectations, preferences and interests of culture
Long and short-Term Orientation	• Cultural backgrounds (education, personal development, professional development), long and short-term goals

2. AIM AND METHOD OF THE RESEARCH

The aim of this research is the evaluation of design elements with cultural quality in the web designs of universities chosen randomly from different parts of the world culture, regarding five dimensions in the cultural theory of Hofstede (1980). 15 university web sites chosen randomly from 11 countries, which are Europe (6 universities), Islamic Countries (3 universities), Far East (2 universities), Australia (1 university), and America (3 universities), constitute the sample of this research.

Within the aim of this research, some criteria and a web site evaluation form have been designated to evaluate cultural differences and aspects with cultural quality in a web design based on Marcus & Gould's study in which they adapt theory into design media, and Hofstede's theory on culture. To ensure that the web site evaluation form was reliable, the researcher and field specialists examined the web site evaluation form, and the issues with they agreed and disagreed were determined. For the reliability analysis, the reliability formula suggested by Miles and Huberman (1994) was used. The analysis yielded 85% agreement. Cultural aspects and components of those aspects are taken into consideration during the designation of these criteria and evaluation form. In the evaluation process, Hofstede's cultural qualities of different cultures and indicators to these qualities have been utilized.

Table 3. Criteria on Cultural Factors in Web Designs (evaluation form)

High	Cultural Factors	Low
PD	**PD**	
• More flashy • Formal layout • Limited access • Prominent choices on use • Interactions designated with strict and rigid rules • A look with visuals, logos, sounds, colors, slogans, regime, and page layout belonging to national culture	• Less flashy • Informal layout • Clear access • Multiple-choices on use • Flexible interactions that guide in case of errors • A look with universally popular images, symbols, sounds, page layout, or colors	
IDV	**IDV**	
• Individual success • Individual goals	• Institutional success • Institutional goals	
MAS	**MAS**	
• Symbolic indicators of male roles • Visuals with male themes (contests, sports, soft colors) • Indicators of result and objective • Indicators in which elaborative and masculine choices prominent	• Symbolic indicators of female roles • Visuals with female themes (family, woman figure) • Vivid colors • Indicators of social activity, interaction, and process • Functionality and practicality	
UAI	**UAI**	
• Messages, contents, and visuals with direct meanings • Simple, clear, prominent and limited choices • Use, interaction, and navigations stated with strict rules • Existence of indicators relating to the use of the site (site map, search engine, information navigations etc.) • Institutional calendar	• Messages, contents, and visuals with indirect meanings • Non-restrictive choices • Presenting original and extraordinary expectations • Interactions and navigations that present varying and alternative choices to the user • Unexistance of indicators relating to the use of site (site map, search engine, information navigations etc.)	
LTO	**LTO**	
• Long-term vision and mission of the university • Long-term institutional goals	• Daily routine indicators of the university • Short-term institutional goals	

These criteria are utilized to analyze the web pages of 15 universities chosen randomly from different part and different cultures of the world (America, Europe, Arab Countries, Asia). Of the qualitative research methods, descriptive analysis is used in this study. At the same time, developed criteria constitute the main themes in the descriptive analysis of web pages.

4. ANALYSIS AND INTERPRETATION OF THE WEB SITES

Table 4. *Hofstede's Dimensions of Culture Index Table*

COUNTRIES	PDI	IDV	MAS	UAI	LTO
	score	score	score	Score	score
1.England	35	89	66	35	25
2.Spain	57	51	42	86	
3.France	68	71	43	86	
4.Australia	36	90	61	51	31
5.Austria	11	55	79	70	

6.Turkey	66	37	45	85	
7.America	40	91	62	46	29
8.Saudi Arabistan	80	38	53	68	
9.Pakistan	55	14	50	70	0
10.China	80	15	55	40	114

(*in the research conducted by Hofstede, LTO indicators were not stated in some countries. Therefore, there are no LTO indicators in some analyses.)

PD = Power Distance, IDV = Individualism, MAS = Masculinity, UAI = Uncertainty Avoidance, LTO = Long-term Orientation. A higher number, on a scale from 0 to 100, correlates with a stronger characteristic of the dimension within the respective country.

Figure 1. Oxford University

Oxford University-England

According to Hofstede's study; one can see that in the Oxford University's web page, the visual images and content are student-oriented, and carry messages on students' activities and academic life in the university. The hierarchical similarity between formal features and functionalities of navigations, buttons and menus attracts the attention. Metaphors showing the institutional hierarchy of the university are avoided; instead, design is presented in a plainer way with more researcher-centered content. Institutional identity, success, and goals are evident in Oxford University's site with low IDV dimension degree. However, this site with medium level of MAS doesn't show a prominent MAS quality; formal layout of the site, color degree used in the site, evident navigations, and content can be interpreted as high level of MAS. Actually, a structure with prominent, simple, and direct meanings is observed in Oxford University's site, which has high indicators in UAI and LTO dimensions. Also search engine, short access, and menu arrangement, in which navigations with different contents are presented in detail for users, are qualities in uncertainty avoidance dimension that are expected to demonstrate high level of UAI. However, it is inevitable to give this kind of details clearing the uncertainty away for a web site of a nationwide educational institution.

University's current and real life-related goals can be given as an example in terms of LTO; but indicators about long-term goals don't exist evidently both in visuals and content.

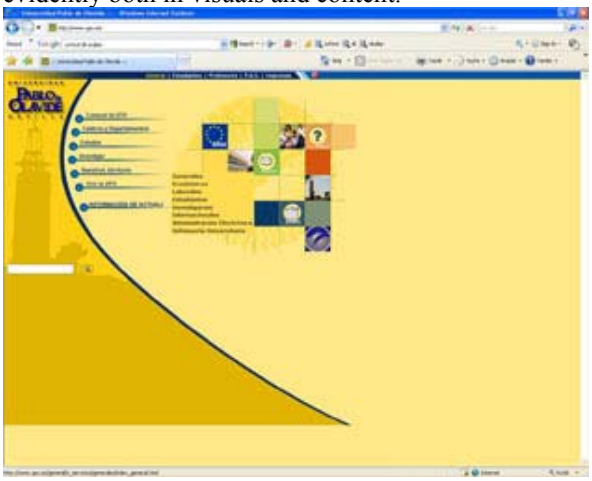

Figure 2. Pablo De Olavida University

Pablo De Olavida University-Spain

When it comes to the criteria such as extraordinary page layout, buttons, genuineness of navigations, and highlight of academic information with a similar hierarchical significance, Pablo De Olavida University of Spain with mid range of PD indicator appears to be an example of low power distance indicator. Generally, institutional goals and indicators take place in Spain's web site with mid range indicator in IDV dimension. Instead of masculinity, femininity can be said to be intense in formal qualities and in color choice in terms of page setup, both content, arrangement and functionality of visuals for Pablo De Olavida University, which has a low MAS indicator. Button design with a different structure, quest for functional modification, smoother transitions in formal sense, and the use of vivid and attractive colors are the evidence implying low MAS indicator in an extraordinary page setup. Rearch engines, shortcuts, direct navigations, and a prominent navigation structure for site navigation are obvious in the web site of Pablo De Olavida University, which has a quite high level of UAI

indicator. This situation can be associated with high level of UAI in Spain, or it may be because of the priority on information presentation that should be direct and clear since it is a university web site.

Figure 3. Sorbonne University

Sorbonne University-France

In Sorbonne University's web site, whose PD indicator is above the mid-range, a highlight with a rather attractive and flashy color to university's name and logo, photos of the place it is located are discernible. Moreover, different from the general overlook of the page layouts in Europe, a center-aligned layout which is not spread to the entire page is evident. Information and menu composition centers in the middle. These qualifications of a web page can be considered to be a result of PD indicator above the mid range level. In this site, institutional features and goals are emphasized over individual expectations and goals. A student user-oriented menu and content is located in the web site with a quite high level of UAI indicator. Yet, there is no sufficient facility (site map, search engine, shortcuts, etc.) on page use. This case violates the high level of a UAI indicator. Formal structure complies with the qualifications like the concept of vivid colors and an extraordinary page layout in this web site with MAS score below the average.

Figure 4. New Castle University

New Castle University-Australia

Visuals and content of low PD are obviously felt when web site of New Castle University is analyzed. Use of some student-oriented and the student-profile revealing indicators instead of administration, hierarchical order, and campus of the university in the site can be given as an example. Human profiles with different beliefs from different cultures, which address the multi-cultural structure of Australia, take plasc in the images of the site. Also, easy site touring for students, quick access to information, page layout that is available for interaction, navigation style, and content presentation are examples as well. As an indicator of low IDV, what they offer to students in terms of institutional identity and educational opportunities, and what they also offer to different countries are both displayed in the page. Although this web site with rather high indicator of MAS presents a masculine structure concerning the color, it is not the same for the content it includes. However, the plainness, simplicity, and neatness in the page layout are qualities signaling high level of MAS indicator. Some efficacious indicators that arise from the institutional structure of the university can also be an example in this web site, which has a mid-range indicator of UAI. Qualities such as accessibility, alternatives for excursion, site map, search engine features, and co-existence of many things that can be accessed in the home page are the ones that increase UAI indicator. New Castle University with a low level of LTO emphasizes the short-term goals and the academic year that they are institutionally in.

Figure 5. Imadec University

Figure 6. Anadolu University

Figure 7. Middle East Technical University

Imadec University-Austria

Despite the indicator, it is possible to talk about a high power distance when the web site of Imadec University with a low level of PDI is examined. Home page of the web site presents visuals from the university campus. As for content, visuals from the city, where it is located, take place in it. Also, there is a link for direct referral to the administration in the page right after the home page. Again, the outstanding presence of university name in the center of the page with large font size is actually an indicator of high PDI. Institutional mission and goals are given a specific link in this site, which has a mid-range of IDV indicator. Imadec University's web site, which has a high MAS level, presents a masculine structure with visuals and colors. Qualifications like the use of dark colors, symmetry of the page setup, and the association of the visuals directly to the university campus are indicators of high MAS score. Austria's web site with an average score from UAI doesn't directly have some uncertainty avoidance qualities actually. There is a site map only in the home page. However; some information such as administration, academic calendar, and course contents, which are clear enough for the students, take place in other pages as well to put the uncertainty away, which increases the uncertainty avoidance indicator of the site. Not long-term goals, but mission, international projects, and activities of the university are announced and linked to daily life.

Anadolu University-Turkey
Middle East Technical University-Turkey

When the web sites of Anadolu University and Middle East Technical University from Turkey, both of which have a PD indicator above the average, are analyzed, highlights over the institutional identity of the university can be seen. Besides, visuals of the campus of Middle East Technical University can be an example for this. A systematical page set up, and an ordered structure that spreads the entire display area (so that can generate more functional usage areas) are evident. Institutional activities, links, and navigations, which can be listed under IDV indicator, are used in both sites, but not too much. On this account, it complies with IDV indicators below the average. As to colors, quite soft colors (except for the highlights with maroon color and bands on the university logos) are preferred. These qualities can be analyzed in terms of masculinity, and mid-range of MAS indicator in Turkey supports them. In both web sites which have a quite high UAI indicator,

qualities that put the uncertainty away could be more visible. Links for students are fairly intense in the site; informative contents, academic calendar, search engines, shortcuts and quick access are indicators of high level of UAI.

Figure 8. San Diego State University

Figure 9. George Washington University

Figure 10. Columbia University

San Diego State University-USA
George Washington University-USA
Columbia University-USA

Firstly; a slightly different page layout from the ones in Europe fronts us in the web site of San Diego State University of USA with a mid-range of PD indicator. A center-aligned layout, grouping in navigations and links, visuals referring the location and the logo of the university and color use is apparent. Regarding this, a low PD score is expected in terms of an extraordinary design concept. However; when the design is analyzed as a whole, on the one hand visuals reflecting the culture, on the other hand visuals with student profiles referring multicultural structure of USA attracts the attention. Furthermore, the simplicity in the page layout, accessibility, and a student-oriented structure explain not having a high level of PD indicator. America's IDV indicator is quite high; concerning this, it is expected to meet the individual goals more. Links addressing different student groups, important announcements and news, contents for personal preferences are observed in the site when it is analyzed in general. In this case, one can talk about functionality on individual goals rather than institutional expectations and goals. Some qualifications about individual goals are signs of high IDV. America's web site with mid-range of MAS indicator shows a design quality complying with this indicator. While some parts have equal highlights regarding male and female identity, a neater and more organized masculine structure which leads the way directly to the result is more obvious in other parts. However, use of assertive red in the page disestablishes the page balance towards the identity of the university both vertically and horizontally, which is a sign of feminine structure. There are a lot of different choices and alternatives regarding uncertain situations, information, link, and navigation for students in UAI dimension. Indeed, other indicators pointing uncertainty avoidance in other pages are abundant. Concerning this, UAI indicator below the mid-range doesn't comply with site design. America's site is compatible with low LTO indicator in terms of the content and visuals. The existence of short-term and entirely student-oriented system is more evident than long-term goals. Highlights and indicators formerly mentioned are fairly similar in both web sites from USA. Qualities of George Washington University and Columbia University web pages are the same as San Diego State University. Referrals towards the location, name and logo of the university, center-

aligned page layout, student use, student activities, content, visuals that are student profile-oriented, and the other features don't show much difference

Figure 11. King Saud University

King Saud University-Saudi Arabia

As one of the Arabic Countries with high level of PD indicator, both English and Arabic contents of King Saud University of Saudi Arabia are analyzed. A structure that extends downwards is observed, which can result from the language in the Arabic content. The same page layout is kept in the English content. In general, a highlight giving prominence to the logo and name of the university in both English and Arabic content is discernible. Visuals that can be culture symbols of the country are evident in the pages, and in these visuals, there are photos reflecting the traditional clothing of the country. Student profile is not allowed in the pages. Especially in the Arabic content, institutional identity is highlighted with a video reflecting. These qualifications observed in pages can be given as examples to a high PD indicator. It is possible to talk about an intensification of institutional structure in the pages in terms of low IDV indicator in Arabic countries. Actually, it is expected to have a low level of MAS when visuals, content, page layout, and colors used analyzed in the web sites of the universities from Saudi Arabia, being one of the Arabic countries with a mid-range of MAS indicator. That UAI level is increasing with qualities like search engine, site map, education period, important announcements, links etc. with content and visuals that clarify uncertainty is directly observed in the culture with a level of UAI indicator above the mid-range.

Figure 12. Pakistan University

Figure 13. International Islamic University

Pakistan University-Pakistan International Islamic University-Pakistan

A page layout extending downwards like the one in the web site of Saudi Arabia is apparent when Pakistan University and International Islamic University of Pakistan with a mid-range of PD indicator is analyzed. As for visuals, photos of the campus and the cities where both universities are located are predominantly evident. Indeed, this quality can be considered as a high level of PD

indicator. What is more, there is a prominent message from university administration on the home page of Pakistan University. On the other hand, name of the university is given in a quite uncertain manner. When compared to the other one, the name and information on the institutional identity of the university is more prominently visualized in the International Islamic University web site. Two different situations are observed when the content is fully analyzed. The first one is, while hierarchy is intensive in terms of visuals; concerning the content; the whole page layout and links and menus of universities that have international student profiles are designed more user friendly. Different links for different student profiles, student activities, courses and information are the qualities that decrease the PD indicator of the content. Because there are qualities regarding use by students as individuals instead of institutional goals and features in the sites, the former qualities are the explanation of low IDV indicator. MAS indicator is at the mid range in Pakistan. Due to the fact that page layouts, colors, and visuals can be interpreted as signs of a masculine society, MAS indicators are expected to be high when the web sites analyzed. Besides, student-centered links and navigations, which are also examples of PD dimension in the web sites of Pakistan, qualities such as search engine, site map, curriculum, announcements, links etc. may be interpreted as qualities of high UAI indicator level.

Figure 14. ShenZhen University

15. Cheng Chi University

ShenZhen University-China

Intensive use of institutional identity, location of the university, visuals, and contents about cultural features is observed during the examination of ShenZhen University's web site, which has a high PD indicator level. These qualities support high PD level of Chinese culture. On the grounds of being a university web site, institutional goals are emphasized more than individual goals and successes in this web site. This kind of quality is not compatible with IDV indicator of the culture. Use of vivid colors, extraordinary divisions in the page layout, a different concept of buttons and links (scattered to different places of the page instead of one under the other or side-by-side) are seen in this site, which has a mid-range of MAS indicator. The qualities of the site decrease the level of MAS indicator. As a matter of fact, these features of the site have an effect that removes uncertainty, which leads to a level of UAI indicator below the mid-range. The search engine given prominently in the home page, the use of links in detail, and explicit observation of task contents abolish uncertainty. However, when the target audience is considered,

uses for students are at the minimum level. There are no links and navigations that present different alternatives such as information on and activities about students. Announcements are located prominently at the top of the page only in the home page. That announcements are located at the top of the page is a rather extraordinary application in terms of page layout; but the contents are not directly related to students. And these deficiencies decrease the level of UAI indicator. When institutional information contents are analyzed in China's site, no indicator that can directly be associated with LTO is observable; however, there is intensity on the qualities like institutional goal, vision, and mission etc. of the university.

ChengChi University-Taiwan

Pretty similar qualities with ShenZhen University are observed when ChengChi University of Taiwan, which has a PD indicator level above the mid-range, is analyzed. Also, metaphors having cultural features are abundant in ChengChi University. Colors, texture graphics, typographic elements, and visuals can be characterized as an entire reflection of Far East culture. Besides, logo, location, and institutional structure of the university are quite salient; and all these are the indicators of high PD level. IDV indicator of the web site from Taiwan, whose IDV indicator level is low, isn't compatible with the qualities about this indicator as well. The reason for that again can stem from the emphasis on the institutional goals, instead of individual goals and successes due to the fact that it's a university web site. This kind of quality doesn't comply with IDV indicator of the culture. Qualities like metaphors referring to the traditional figure of woman in Far East, flower figures, and vividity of the colors can be interpreted as the indicators of feminine structure of the site. Qualities of the web site from Taiwan, which has a MAS indicator level below the mid-range, support this indicator. Due to being a university web site, details such as institutional information, announcements, search engine, bulletins, and site map exist in the web site, which has a UAI indicator above the mid-range. Again because it's a university web site, qualities regarding LTO indicators are low in the site with a fairly low level of LTO indicator. That short-term and current goals and activities take a significant place rather than long-term ones in the site isn't compatible with LTO indicator.

5. Conclusion and Discussion

Within the scope of the research, 15 university web sites chosen randomly among 11 countries—which are Europe (6 universities), Islamic Countries (3 universities), Far East (2 universities), Australia (1 university), and America (3 universities)—have been analyzed in terms of cultural qualities according to both the criteria defined in Hofstede's theory (1980) over five different dimensions of culture and the research by Marcus and Gould's (2000) over the use of these dimensions in design media. Hofstede's scoring about five different dimensions belonging to the cultures of countries placed in the Dimensions of Culture Index Table (see Table 4) has been used in the analysis of the sites.

Significant differences across regions can be observed when sites are grouped in themselves. In the sites from Europe, designs focus more on the page use and screen display whereas, in Far East and Islamic countries, a layout flowing from top to bottom is apparent for both English and native language contents, which stems from the typographic features and their alphabet. The use of this quality is quite applicable for countries from Far East and Islamic cultures; however, it has some limitations on the international basis. The web site of Australia is fairly compatible with Europe in this sense. As for America, instead of a flow from top to bottom, a center-aligned page layout is evident. These differences demonstrate three basic different page layouts (an extended page layout to the entire screen design, center-aligned and top-to-bottom-flowing page layout, and center-aligned page layout) is possible.

Sites in Europe and the ones in the other regions are divided into two in terms of metaphors they have after an analysis over all the sites. Metaphors that are markers of the culture are not intensive in the sites from Europe, and designs are more student-oriented and intended to reflect the student profile though, in other countries, cultural metaphors are quite intense. The weight of institutional structure on these sites is again obvious. Universities from America differ from the others in terms of having an only student-focused use quality. When the sites are analyzed as a whole, there observed incompatible cases with Hofstede's scoring. The necessity of qualities that the sites are to have besides cultural features, which originate from their institutional structures, may be the reason of this situation because university web sites have to present the institutional information that users are to have directly. Thus, especially indicators of uncertainty avoidance don't comply with Hofstede's indicators. In addition to this, the concept of culture, multi-culturalizm, and global

life at the time that the research was conducted has changed a lot. As a result of this change, intercultural interaction has increased, the perspectives of cultures towards each other have evolved; and due to this evolution, ways to reflect cultural identities as a need for global life have changed drastically. As a consequence of these changes, incompatibility between indicators from Hofstede's (1980) research and the ones of culture on the analyzed sites is an expected situation. Concerning this, the research emphasizes the transformation of different cultures' qualities in the world.

The differences between the findings of this study and the dimensions in Hofstede's (1980) research may be explained as follows; because it is the purpose of the sites that shape the design, cultural qualities may vary.

Based on this research, national and international researches can be conducted regarding cultural variables, qualities, and analyses in the design media

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