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Crosscurrents

**Cultural Dimensions and Global Web
User-Interface Design**

AARON MARCUS AND EMILIE WEST GOULD

This paper introduces dimensions of culture, as analyzed by Geert Hofstede in his classic study of cultures in organizations, and considers how they might affect user-interface designs. Examples from the Web illustrate the cultural dimensions.



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Introduction

The Web enables global distribution of products and services through Internet websites, intranets, and extranets. Professional analysts and designers generally agree that well-designed user interfaces improve the performance and appeal of the Web, helping to convert “tourists” or “browsers” to “residents” and “customers.” The user-interface development process focuses attention on understanding users and acknowledging demographic diversity. But in a global economy, these differences may reflect world-wide cultures. Companies that want to do international business on the web should consider the impact of culture on the understanding and use of Web-based communication, content, and tools.

This paper contributes to the study of this complex and challenging issue by analyzing some of the needs, wants, preferences, and expectations of different cultures through reference to a cross-cultural theory developed by Geert Hofstede.

A few simple questions illustrate the depth of the issues.

Consider your favorite website. How might this website be understood and used in New York, Paris, London, Beijing, New Delhi, or Tokyo, assuming that adequate verbal translation were accomplished? Might something in its metaphors, mental model, navigation, interaction, or appearance confuse, or even offend and alienate a user?

Consider what year this is. Is it 2000? In some other counting systems, it is 4698, 5760, or 1420. Even to refer to the counting system of another culture might confuse or alienate people used to their own native system. Let us not forget that Hindu-Arabic numerals, which Western society now takes for granted, were once viewed as the work of the devil by Christian Europe, and educated people for hundreds of years blocked their introduction into European society. Whether people view imports from other cultures as delightful gifts or poisonous viruses is often a matter of socio-political context.

Consider the order in which you prefer to find information. If you are planning a trip by train, do you want to see the schedule infor-

mation first or read about the organization and assess its credibility? Different cultures look for different data to make decisions.

A New Issue for User-Interface Designers

In most projects, the complex interplay of user, business, marketing, and engineering requirements needs to be resolved by Web user-interface and information visualization designers. Their development process includes iterative steps of planning, research, analysis, design, evaluation, documentation, and training. As they carry out all of these tasks, however, they would do well to consider their own cultural orientation and to understand the preferred structures and processes of other cultures. This attention would help them to achieve more desirable global solutions or to determine to what extent localized, customized designs might be better than international or universal ones.

Cultures, even within some countries, are very different. Sacred colors in the Judeo-Christian West (e.g., red, blue, white, gold) are different from Buddhist saffron yellow or Islamic green. Subdued Finnish designs for background screen patterns (see Figure 1) might not be equally suitable in Mediterranean climates, in Hollywood, USA, or Bollywood, India. These differences go deeper than mere appearance; they reflect strong cultural values. How might these cultural differences be understood without falling into the trap of stereotyping other cultures?

Many analysts in organizational communication have studied cultures thoroughly and published classic theories; other authors have applied these theories to analyze the impact of culture on business relations and commerce (see Bibliography). Few of these works are well known to the user-interface design community. This paper introduces the well-respected work of one theorist, Geert Hofstede, and applies some of his cultural dimensions to Web user interfaces. Edward T. Hall, David Victor, and Fons Trompenaars would have been equally valuable in illuminating the problems of cross-cultural communication on the Web, but our application of Hofstede will demonstrate the value of this body of research for our field.

Hofstede's Dimensions of Culture

During 1978-83, the Dutch cultural anthropologist Geert Hofstede conducted detailed interviews with hundreds of IBM employees in 53 countries. Through standard statistical analysis of fairly large data sets, he was able to determine patterns of similarities and differences among the replies. From this data analysis, he formulated his theory that world cultures vary along consistent, fundamental dimensions. Since his subjects were constrained to one multinational corporation's world-wide employees, and thus to one company culture, he ascribed their differences to the effects of their national cultures. (One

thinking, feeling, and acting that are well-established by late childhood.

These cultural differences manifest themselves in a culture's choices of symbols, heroes/heroines, rituals, and values. Hofstede identified five dimensions and rated 53 countries on indices for each dimension, normalized to values (usually) of 0 to 100. His five dimensions of culture are the following:

- Power-distance
- Collectivism vs. individualism
- Femininity vs. masculinity
- Uncertainty avoidance
- Long- vs. short-term orientation

Each of Hofstede's terms appears below

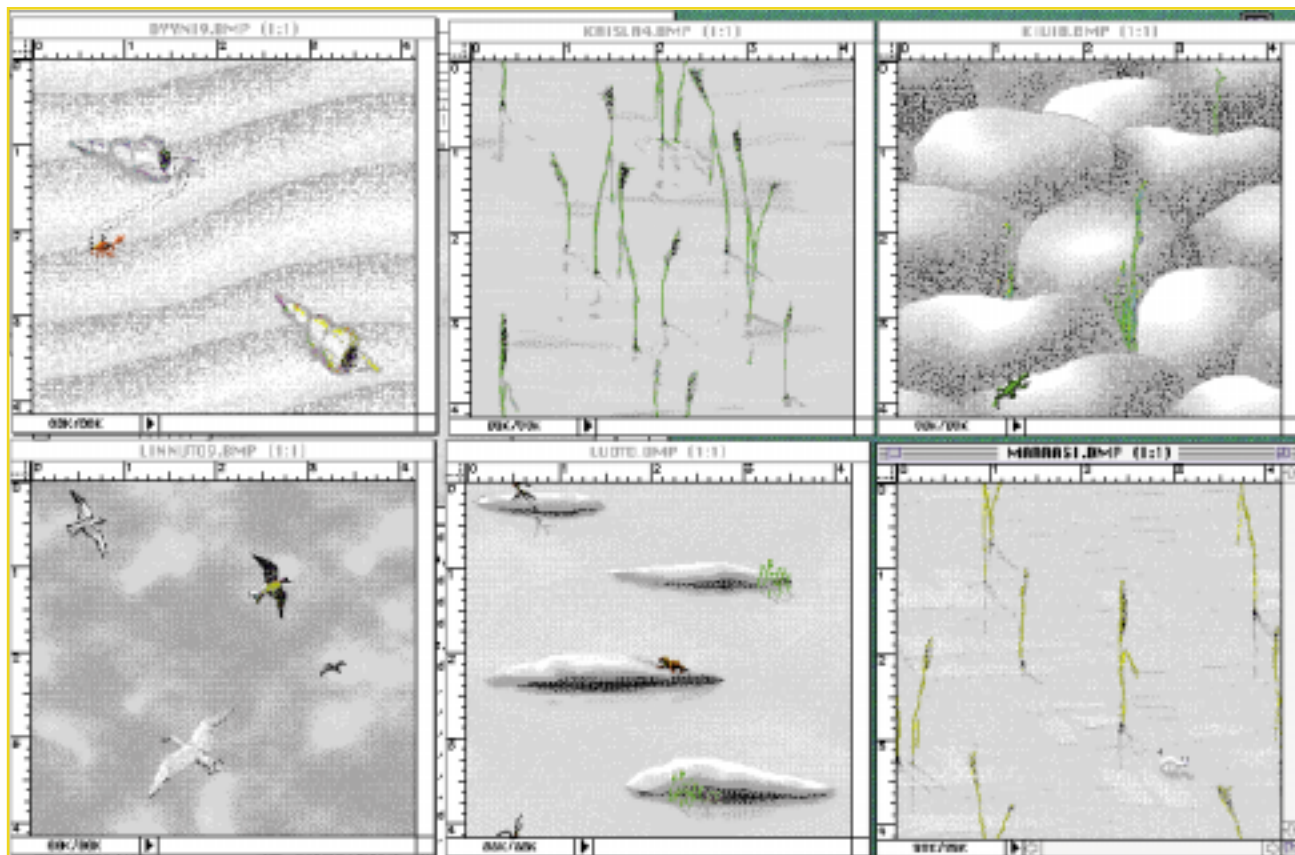


Figure 1. TeamWare Finnish screen patterns

weakness is that he maintained that each country has just one dominant culture.)

In the 1990s, Hofstede published a more accessible version of his research publication in *Cultures and Organizations: Software of the Mind* [Hofstede]. His focus was not on defining culture as refinement of the mind (or "highly civilized" attitudes and behavior) but rather on highlighting essential patterns of

with our explanation of implications for user-interface and Web design, and illustrations of characteristic websites.

Power Distance

Power distance (PD) refers to the extent to which less powerful members expect and accept unequal power distribution within a culture. Hofstede claims that high PD coun-

tries tend to have centralized political power and exhibit tall hierarchies in organizations with large differences in salary and status. Subordinates may view the “boss” as a benevolent dictator and are expected to do as they are told. Parents teach obedience, and expect respect. Teachers possess wisdom and are automatically esteemed. Inequalities are expected, and may even be desired.

Low PD countries tend to view subordinates and supervisors as closer together and more interchangeable, with flatter hierarchies in organizations and less difference in salaries and status. Parents and children, and teachers and students, may view themselves more as equals (but not necessarily as identical). Equality is expected and generally desired. There are some interesting correlations for power distance: low PD countries tend to have higher geographic latitude, smaller populations, and/or higher gross domestic product (GDP) per capita than high PD countries.

Hofstede notes that these differences are hundreds or even thousands of years old. He does not believe they will disappear quickly from traditional cultures, even with powerful global telecommunication systems. Recent research has shown that the dimensions have remained quite stable for the last twenty years.

Based on this definition, we believe power distance may influence the following aspects of user-interface and Web design:

- Access to information: highly (high PD) vs. less-highly (low PD) structured.
- Hierarchies in mental models: tall vs. shallow.
- Emphasis on the social and moral order (e.g., nationalism or religion) and its symbols: significant/frequent vs. minor/infrequent use.
- Focus on expertise, authority, experts, certifications, official stamps, or logos: strong vs. weak.
- Prominence given to leaders vs. citizens, customers, or employees.
- Importance of security and restrictions or barriers to access: explicit, enforced, frequent restrictions on users vs. transparent, integrated, implicit freedom to roam.
- Social roles used to organize information (e.g., a managers’ section obvious to all but sealed off from non-managers): frequent vs. infrequent

These PD differences can be illustrated on the Web by examining university websites from two countries with very different PD indices (Figures 2 and 3). The Universiti

Utara Malaysia (www.uum.edu.my/) is located in Malaysia, a country with a PD index rating of 104, the highest in Hofstede’s analysis.

The website from the Ichthus Hogeschool (www.ichthus-rdam.nl/) and the Technische Universiteit Eindhoven (www.tue.nl/) are located in the Netherlands, with a PD index rating of 38.

Note the differences in the two groups of websites. The Malaysian website features strong axial symmetry, a focus on the official seal of the university, photographs of faculty or administration leaders conferring degrees, and monumental buildings in which people play a small



Figure 2. High power distance: Malaysian University website.



Figure 3a. Low power distance: Dutch Educational website.

role. A top-level menu selection provides a detailed explanation of the symbolism of the official seal and information about the leaders of the university.

The Dutch websites feature an emphasis on students (not leaders), a stronger use of asymmetric layout, and photos of both genders in illustrations. These websites emphasize the power of students as WebCam and take their own tour of the Ichthus Hogeschool.

Individualism vs. Collectivism

Individualism in cultures implies loose ties; everyone is expected to look after one's self or immediate family but no one else. Collectivism implies that people are integrated from birth into strong, cohesive groups that protect them in exchange for unquestioning loyalty.

Hofstede found that individualistic cultures value personal time, freedom, challenge, and such extrinsic motivators as material rewards at work. In family relations, they value honesty/truth, talking things out, using guilt to achieve behavioral goals, and maintaining self-respect. Their societies and governments place individual social-economic interests over the group, maintain strong rights to privacy, nurture strong private opinions (expected from everyone), restrain the power of the state in the economy, emphasize the political power of voters, maintain strong freedom of the press, and profess the ideologies of self-actualization, self-realization, self-government, and freedom.

At work, collectivist cultures value training, physical conditions, skills, and the intrinsic rewards of mastery. In family relations, they value harmony more than honesty/truth (and silence more than speech), use shame to achieve behavioral goals, and strive to maintain face. Their societies and governments place collective social-economic interests over the individual,

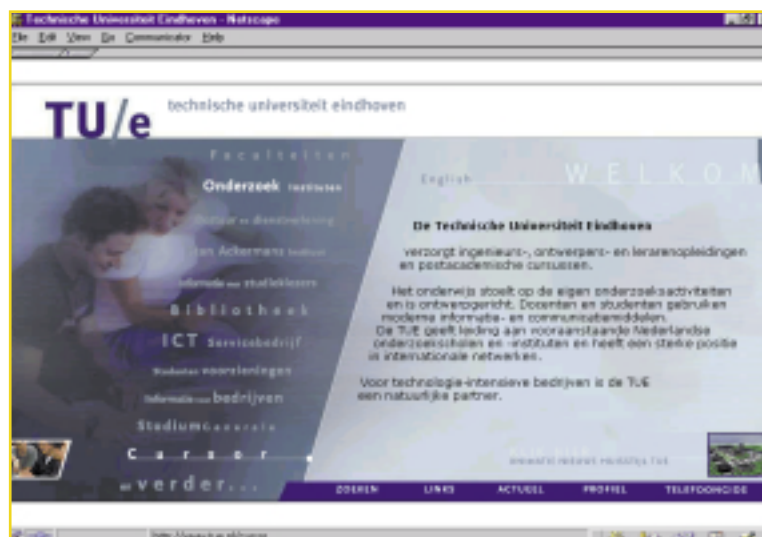


Figure 3b. Low power distance: Dutch Educational website.

may invade private life and regulate opinions, favor laws and rights for groups over individuals, dominate the economy, control the press, and profess the ideologies of harmony, consensus, and equality.

Based on this definition, we believe individualism and collectivism may influence the following aspects of user-interface and Web design:

- Motivation based on personal achievement: maximized (expect the extra-ordinary) for individualist cultures vs. underplayed (in favor of group achievement) for collectivist cultures.
- Images of success: demonstrated through materialism and consumerism vs. achievement of social-political agendas.

- Rhetorical style: controversial/argumentative speech and tolerance or encouragement of extreme claims vs. official slogans and subdued hyperbole and controversy.
- Prominence given youth and action vs. aged, experienced, wise leaders and states of being.
- Importance given individuals vs. products shown by themselves or with groups.
- Underlying sense of social morality: emphasis on truth vs. relationships.
- Emphasis on change: what is new and unique vs. tradition and history.
- Willingness to provide personal information vs. protection of personal data differentiating the individual from the group.

The third image (Figure 6) shows a lower level of the Costa Rican website.

Note the differences in the two groups of websites. The USA website features an emphasis on the visitor, his/her goals, and possible actions in coming to the park. The Costa Rican website features an emphasis on nature, downplays the individual tourist, and uses a slogan to emphasize a national agenda. An even more startling difference lies below the “What’s Cool” menu. Instead of a typical Western display of new technology or experience to consume, the screen is filled with a massive political announcement that the Costa Rican government has signed an international agreement against the exploitation of children and adolescents.



Figure 4. High individualist value: US National Park website.

The effects of these differences can be illustrated on the Web by examining national park websites from two countries with very different IC indices (Figures 4 and 5). The Glacier Bay National Park website has an index rating of 91.

The website from the National Parks of Costa Rica (www.tourismcostarica.com/) is located in a country with an IC index rating of 15.

Masculinity vs. Femininity (MAS)

Masculinity and femininity refer to gender roles, not physical characteristics. Hofstede focuses on the traditional assignment to masculine roles of assertiveness, competition, and toughness, and to feminine roles of orientation to home and children, people, and tenderness. He acknowledges that in different cultures different professions are dominated by different genders. (For example, women dominate the medical profession in the Soviet Union, while men dominate in the USA.) But in masculine cultures, the traditional distinctions are strongly maintained, while feminine cultures tend to collapse the distinctions and overlap gender roles (both men and women



Figure 5. Low individualist value: Costa Rican National Park website.

can exhibit modesty, tenderness, and a concern with both quality of life and material success). Traditional masculine work goals include earnings, recognition, advancement, and challenge. Traditional feminine work goals include good relations with supervisors, peers, and subordinates; good living and working conditions; and employment security

The following list shows some typical masculinity (MAS) index values, where a high value implies a strongly masculine culture:

- 95 Japan
- 79 Austria
- 63 South Africa
- 62 USA
- 53 Arab countries
- 47 Israel
- 43 France
- 39 South Korea
- 05 Sweden

Since Hofstede's definition focuses on the balance between roles and relationships, we believe masculinity and femininity may be expressed on the Web through different emphases. High-masculinity cultures would focus on the following user-interface and design elements:

- Traditional gender/family/age distinctions.
- Work tasks, roles, and mastery, with quick results for limited tasks.
- Navigation oriented to exploration and control.
- Attention gained through games and competitions.
- Graphics, sound, and animation used for utilitarian purposes.

Feminine cultures would emphasize the following user-interface elements:

- Blurring of gender roles.
- Mutual cooperation, exchange, and support, (rather than mastery and winning).
- Attention gained through poetry, visual aesthetics, and appeals to unifying values.



Figure 6. Costa Rican website "What's Cool" contents: Political message about exploitation of children.

Examples of MAS differences on the Web can be illustrated by examining websites from countries with very different MAS indices (Figures 7, 8 and 9). The Woman.Excite website (woman.excite.co.jp) is located in Japan, which has the highest MAS value (95). The website narrowly orients its search portal toward a specific gender, which this company does not do in other countries.

The ChickClick (www.chickclick.com/) USA website (MAS = 52) consciously promotes the autonomy of young women (although it leaves out later stages in a woman's life).

The Excite website (www.excite.com.se/) from Sweden, with the lowest MF value 5, makes no distinction in gender or age. (With the exception of the Netherlands, another low MAS country, all other European websites provide more pre-selected information.)

Uncertainty Avoidance (UA)

People vary in the extent that they feel anxiety about uncertain or unknown matters, as opposed to the more universal feeling of fear caused by known or understood threats. Cultures vary in their avoidance of uncertainty, creating different rituals and having different values regarding formality, punctuality, legal-

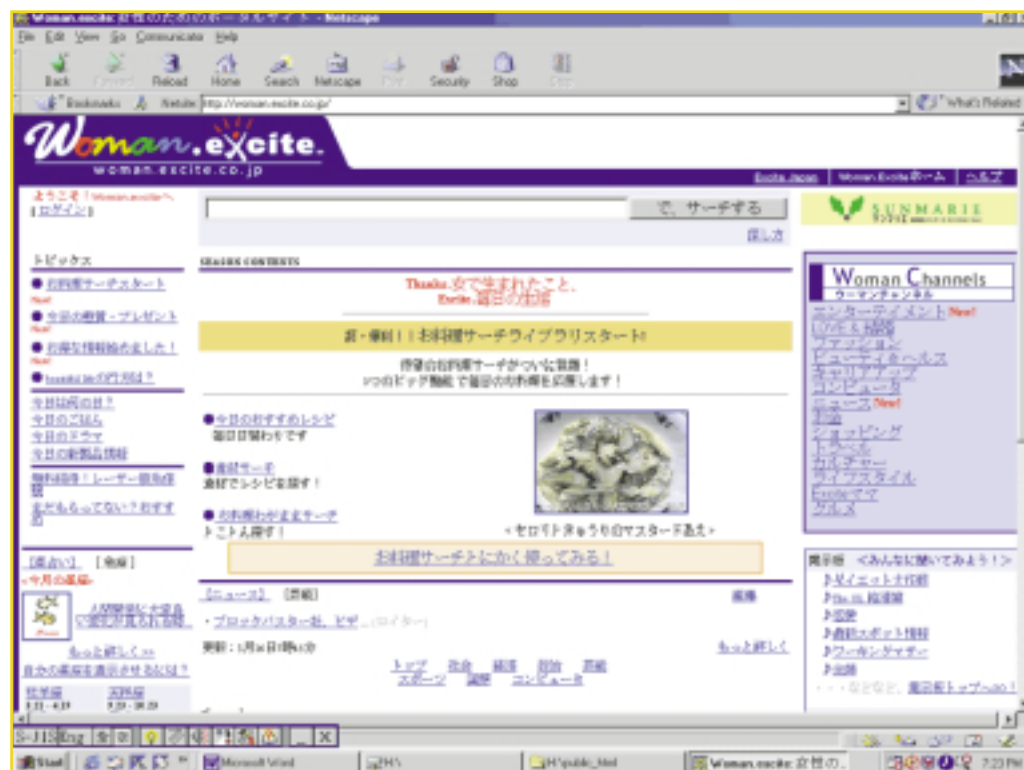


Figure 7. High masculinity website: Excite.com for women in Japan



Figure 8. Medium masculinity website: ChickClick.com in the USA.

and high numbers of prisoners per capita. Businesses may have more formal rules, require longer career commitments, and focus on tactical operations rather than strategy. These cultures tend to be expressive; people talk with their hands, raise their voices, and show emotions. People seem active, emotional, even aggressive; shun ambiguous situations; and expect structure in organizations, institutions, and relationships to help make events clearly interpretable and predictable. Teachers are expected to be

religious-social requirements, and tolerance for ambiguity.

Hofstede notes that cultures with high uncertainty avoidance tend to have high rates of suicide, alcoholism, and accidental deaths,

experts who know the answers and may speak in cryptic language that excludes novices.

In high UA cultures, what is different may be viewed as a threat, and what is "dirty" (unconventional) is often equated with what

is dangerous. By contrast, low UA cultures tend to have higher caffeine consumption, lower calorie intake, higher heart-disease death rates, and more chronic psychosis per capita. Businesses may be more informal and focus more on long-range strategic matters than day-to-day operations. These cultures tend to be less expressive and less openly anxious; people behave quietly without showing aggression or strong emotions (though their caffeine consumption may be intended to combat depression from

their inability to express their feelings). People seem easy-going, even relaxed. Teachers may not know all the answers (or there may be more than one correct answer), run more open-ended classes, and are expected to speak in plain language. In these cultures, what is different may be viewed as simply curious, or perhaps ridiculous.

Based on this definition, we believe uncertainty avoidance may influence contrary aspects of user-interface and Web design. High-UA cultures would emphasize the following:

- Simplicity, with clear metaphors, limited choices, and restricted amounts of data.
- Attempts to reveal or forecast the results or implications of actions before users act.
- Navigation schemes intended to prevent users from becoming lost.
- Mental models and help systems that focus on reducing “user errors.”
- Redundant cues (color, typography, sound, etc.) to reduce ambiguity.

Low UA cultures would emphasize the reverse:

- Complexity with maximal content and choices.



Figure 9. Low masculinity website: Swedish Excite.com.

- Acceptance (even encouragement) of wandering and risk, with a stigma on “over-protection.”
- Less control of navigation; for example, links might open new windows leading away from the original location.
- Mental models and help systems might focus on understanding underlying concepts rather than narrow tasks.
- Coding of color, typography, and sound to maximize information (multiple links without redundant cueing).

Examples of UA differences can be illustrated on the Web by examining airline websites from two countries with very different UA indices (Figures 10 and 11). The Sabena Airlines website (www.sabena.com/) is located in Belgium, a country with a UA of 94, the highest of the cultures studied. This website shows a home page with very simple, clear imagery and limited choices.

The British Airways website (www.british-airways.com/) from the United Kingdom (UA = 35) shows much more complexity of content and choices with popup windows, multiple types of interface controls, and “hidden” content that must be displayed by scrolling.



Figure 10. High uncertainty avoidance: Sabena Airlines website from Belgium.

in Asian countries that had been influenced by Confucian philosophy over many thousands of years. Hofstede and Bond found such countries shared these beliefs:

- A stable society requires unequal relations.
- The family is the prototype of all social organizations; consequently, older people (parents) have more authority than younger people (and men more than women).
- Virtuous behavior

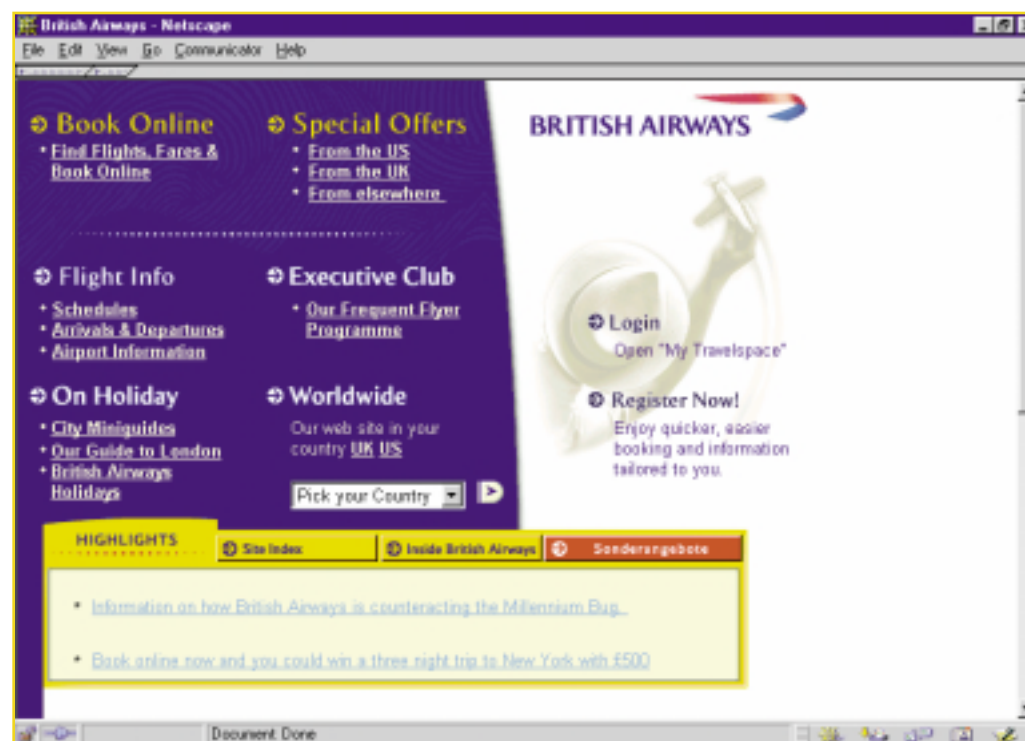


Figure 11. Low uncertainty avoidance: British Airways website from United Kingdom.

Long- vs. Short-Term Time Orientation

In the early 1980s, shortly after Hofstede first formulated his cultural dimensions, work by Michael Bond convinced him that a fifth dimension needed to be defined. Long-Term Orientation seemed to play an important role

to others means not treating them as one would not like to be treated.

- Virtuous behavior in work means trying to acquire skills and education, working hard, and being frugal, patient, and persevering.

Western countries, by contrast, were more likely to promote equal relationships, emphasize individualism, focus on treating others as you would like to be treated, and find fulfillment through creativity and self-actualization. When Hofstede and Bond developed a survey specifically for Asia and reevaluated earlier data, they found that long-term orientation cancelled out some of the effects of Masculinity/Femininity and Uncertainty Avoidance. They concluded that Asian countries are oriented to practice and the search for virtuous behavior while Western countries are oriented to belief and the search for truth. Of the 23 countries compared, the following showed the most extreme values:

- 118 China (ranked 1)
- 80 Japan (4)
- 29 USA (17)
- 0 Pakistan (23)

Based on this definition, high LT countries would emphasize the following aspects of user-interface design:

- Content focused on practice and practical value.
- Relationships as a source of information and credibility.
- Patience in achieving results and goals.

Low LT countries would emphasize the contrary:

- Content focused on truth and certainty of beliefs.
- Rules as a source of information and credibility.
- Desire for immediate results and achievement of goals.

Examples of LTO differences on the Web can be illustrated by examining versions of the same company's website from two coun-

tries with different LT values (Figures 12 and 13). The Siemens website (www.siemens.co.de/) from Germany (LT=31) shows a typical Western corporate layout that emphasizes crisp, clean functional design aimed at achieving goals quickly.

The Chinese version from Beijing requires more patience to achieve navigational and functional goals.

Conclusions

Hofstede notes that some cultural relativism is necessary: it is difficult to establish absolute criteria for what is noble and what is disgusting. There is no escaping bias; all people develop cultural values based on their environment and early training as children. Not everyone in a society fits the cultural pattern precisely, but there is enough statistical regularity to identify trends and tendencies. These trends and tendencies should not be treated as defective or used to create negative stereotypes but recognized as different patterns of values and thought. In a multi-cultural world, it is necessary to cooperate to achieve practical goals without requiring everyone to think, act, and believe identically.

This review of cultural dimensions raises

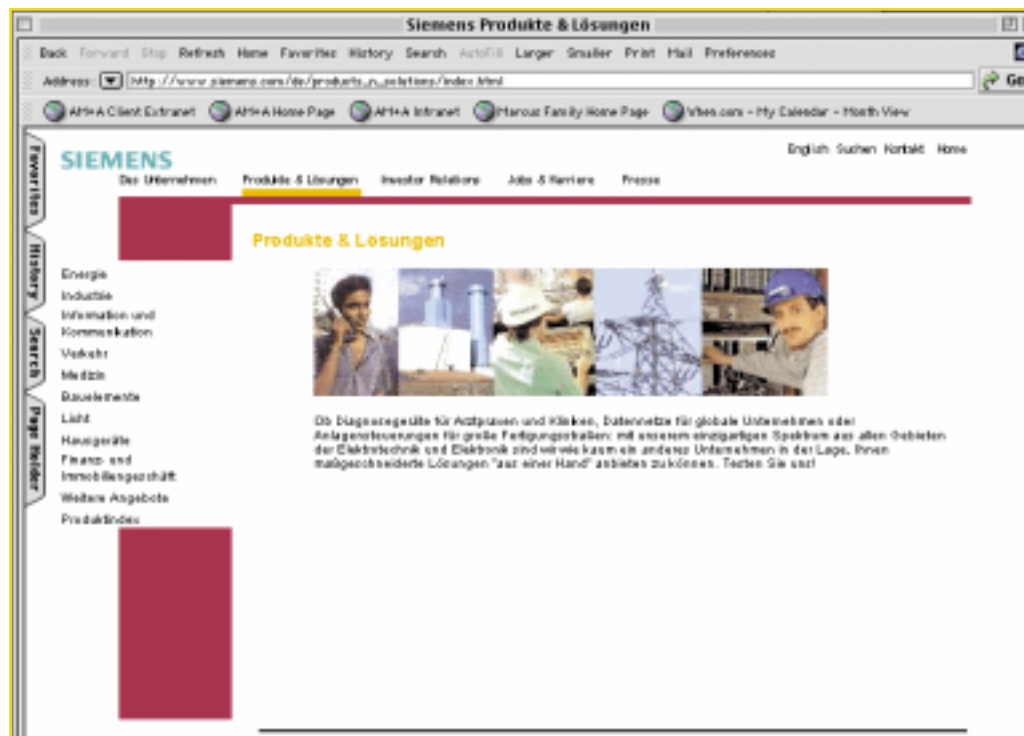


Figure 12 Low Long-term orientation: website form Siemens Germany.



Figure 13: High Long-Term Orientation: website from Siemens in China.

many issues about UI design, especially for the Web. We have explored a number of design differences through sample websites but other, more strategic questions remain. In crafting websites and Web applications, the questions can be narrow or broad:

- How formal or rewarding should interaction be?
- What will motivate different groups of people? Money? Fame? Honor? Achievement?
- How much conflict can people tolerate in content or style of argumentation?
- Should sincerity, harmony, or honesty be used to make appeals?
- What role exists for personal opinion vs. group opinion?
- How well are ambiguity and uncertainty avoidance received?
- Will shame or guilt constrain negative behavior?
- What role should community values play in individualist vs collectivist cultures?

Other questions might relate to specific types of websites:

- Does the objective of distance learning change what can be learned in individualist vs. collectivist cultures? Should

these sites focus on tradition? Skills? Expertise? Earning power?

- How should online teachers or trainers act—as friends or gurus?
- Would job sites differ for individualist vs. collectivist cultures?
- Should there be different sites for men and women in different cultures?
- Would personal Webcams be OK or Not OK?
- How much advertising hyperbole could be tolerated in a collective culture focused on modesty?
- Would an emphasis on truth as opposed to practice and virtue require different types of procedural websites for Western or Asian audiences?

Finally, if crosscultural theory becomes an accepted element of user-interface design, then we need to change our current practices and develop new tools. We need to make it feasible to develop multiple versions of websites in a cost-effective manner, perhaps through templates or through specific versioning tools. As the Web continues to develop globally, answering these questions, and exploring, then exploiting, these dimensions of culture, will become a necessity and not an option for successful theory and practice.

Hofstede's Dimensions of Culture

	PDI		IDV		MAS		UAI		LTO	
	rank	score	rank	score	rank	score	rank	score	rank	score
Arab Countries	7	80	26/27	38	23	53	27	68		
Argentina	35/36	49	22/23	46	20/21	56	10/15	86		
Australia	41	36	2	90	16	61	37	51	15	31
Austria	53	11	18	55	2	79	24/25	70		
Bangladesh									11	40
Belgium	20	65	8	75	22	54	5/6	94		
Brazil	14	69	26/27	38	27	49	21/22	76	6	65
Canada	39	39	4/5	80	24	52	41/42	48	20	23
Chile	24/25	63	38	23	46	28	10/15	86		
China									1	118
Colombia	17	67	49	13	11/12	64	20	80		
Costa Rica	42/44	35	46	15	48/49	21	10/15	86		
Denmark	51	18	9	74	50	16	51	23		
East Africa	21/23	64	33/35	27	39	41	36	52		
Equador	8/9	78	52	8	13/14	63	28	67		
Finland	46	33	17	63	47	26	31/32	59		
France	15/16	68	10/11	71	35/36	43	10/15	86		
Germany FR	42/44	35	15	67	9/10	66	29	65	14	31
Great Britain	42/44	35	3	89	9/10	66	47/48	35	18	25
Greece	27/28	60	30	35	18/19	57	1	112		
Guatemala	2/3	95	53	6	43	37	3	101		
Hong Kong	15/16	68	37	25	18/19	57	49/50	29	2	96
India	10/11	77	21	48	20/21	56	45	40	7	61
Indonesia	8/9	78	47/48	14	30/31	46	41/42	48		
Iran	29/30	58	24	41	35/36	43	31/32	59		
Ireland (Republic of)	49	28	12	70	7/8	68	47/48	35		
Israel	52	13	19	54	29	47	19	81		
Italy	34	50	7	76	4/5	70	23	75		
Jamaica	37	45	25	39	7/8	68	52	13		
Japan	33	54	22/23	46	1	95	7	92	4	80
Malaysia	1	104	36	26	25/26	50	46	36		
Mexico	5/6	81	32	30	6	69	18	82		
Netherlands	40	38	4/5	80	51	14	35	53	10	44
New Zealand	50	22	6	79	17	58	39/40	49	16	30
Nigeria									22	16
Norway	47/48	31	13	69	52	8	38	50		
Pakistan	32	55	47/48	14	25/26	50	24/25	70	23	0
Panama	2/3	95	51	11	34	44	10/15	86		
Peru	21/23	64	45	16	37/38	42	9	87		
Philippines	4	94	31	32	11/12	64	44	44	21	19
Poland									13	32
Portugal	24/25	63	33/35	27	45	31	2	104		
Salvador	18/19	66	42	19	40	40	5/6	94		
Singapore	13	74	39/41	20	28	48	53	8	9	48
South Africa	35/36	49	16	65	13/14	63	39/40	49		
South Korea	27/28	60	43	18	41	39	16/17	85	5	75
Spain	31	57	20	51	37/38	42	10/15	86		
Sweden	47/48	31	10/11	71	53	5	49/50	29	12	33
Switzerland	45	34	14	68	4/5	70	33	58		
Taiwan	29/30	58	44	17	32/33	45	26	69	3	87
Thailand	21/23	64	39/41	20	44	34	30	64	8	56
Turkey	18/19	66	28	37	32/3	45	16/17	85		
Uruguay	26	61	29	36	42	38	4	100		
USA	38	40	1	91	15	62	43	46	17	29
Venezuela	5/6	81	50	12	3	73	21/22	76		
West Africa	10/11	77	39/41	20	30/31	46	34	54		
Yugoslavia	12	76	33/35	27	48/49	21	8	88		
Zimbabwe									19	25

LEGEND:

PDI:

Power distance index

IDV:

Individualism index

MAS:

Masculinity index

UAI:

Uncertainty avoidance index

LTO:

Long-term orientation index

Table from: Hofstede, Geert, *Cultures and Organizations: Software of the Mind: Inter-cultural Cooperation and its Importance for Survival*, McGraw Hill, New York, 1991

Acknowledgements

The author acknowledges the work of Geert Hofstede

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URLs and Other Resources

Selected URLs from the list at:

www.amanda.com/

1. ACM/SIGCHI Intercultural listserve: chi-intercultural@acm.org. Moderator: Donald Day, mail to: www.sabena.com.
2. African-American websites: bet.com, netnoir.com, blackfamilies.com
3. Color: colortool.com
4. Cultural comparisons: culturebank.com
5. Digital divide: digitaldivide.gov, digitaldivide.org, digitaldividenetwork.org/
6. Indian culture: indiagov.org/culture/overview.htm
7. Internationalization resources: world-ready.com/r_intl.htm, world-ready.com/biblio.htm
8. Internet statistics by language: euromktg.com/glob-stats/index.html, world-ready.com/biblio.htm
9. Localization: www.lisa.org/home_sigs.html
10. Native-American-oriented website: hanksville.org/NAresources/
11. Simplified English: userlab.com/SE.html
12. Women: wow.com, oxygen.com, chickclick.com
13. www.HCIBib.org//SIGCHI/Intercultural 