

The Ethnography of Cultural Diversity Considerations  
Within Human Computer Interface Design

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Abstract

The emergence of strong Human Computer Interface design processes has positively impacted the growth and development of information system design and administration throughout the world. Associated with the development and standardization of user interface (UI) design guidelines is the determination of continued growth and development of web communication beyond the fundamental consideration of English speaking populations only. The position of this presentation will involve the ethnography of HCI as applied to a worldwide population with subsequent planning and preparation directed toward cultures in addition to English speaking HCI systems. Theories of diversity, learning paradigms, cultural mores, and attention to case studies will be discussed. A focus of recommendations to assist cultural diversity considerations as applied to web system design and management will be offered for a fully enhanced global application of HCI. The utilization aspect of Unicode compliant standards will further assist with the UI practices.

Introduction

For the most part, people and therefore cultures, have begun to consider issues of communication as we work in a global society supported largely through web site design. Ethnography, in the sense of internet, however, has brought to the forefront, immediate differences of language and electronically designed web sites between inherently diverse world cultures. Confined to issues solely associated with a single culture, web design struggles are ongoing to establish a workable standard within Human Computer Interface (HCI). The diversity of issues is not limited to design but to procedural or process differences using software language programming, browser interface, keyboard selection, ASCII, UTF (multilingual), and of course the ongoing software compatibility difficulties. Software publishers, web masters, internet engineers, and all other types of web system administration share in the frustration of system stability, constraints,

upgrades, service packs, and other difficult to manage problems. The American Anthropological Association's Resources on the Internet Web Page is one of many links available to education users of all countries. This resource helps us to visualize and provide design examples applicable to rules of design.

### The Process of Stability

Collectively, Information Systems and Information Technology personnel are collaborating at various levels to enable elements of interface design to function at a maximum level of stability. Local units of resource, sometimes referred to as Computer Support Resource (CSR) personnel, identify system administration processes that optimize local operations. Larger units have established standards for levels of web page implementation (e.g., level 1, level 2, level 3 headings) and have provided templates to facilitate the overall design process. A level is numbered as first, second, third, etc as viewed by the hosting domain site. Levels one, two, and perhaps three are controlled by designated administration. Lower levels of web site design are administered within the local unit by a webmaster. In addition to controls regulating levels of web site hosting, more recent corporate or industry practices have required those administering web sites to attend training.

### Working on a Standard

Training for web site hosting has included those design issues of font selection, font size, color selection, icon use, navigation basics, browser management, resolution factors, and other details that support a “good” web site. Concurrent to those basic issues of web site design and administration are those issues of cultural diversity associated with the web site design. For example, an internationally hosted web site will normally maintain locally designed web site templates. However, as information is added to the web site for designated market areas in countries such as Europe, Asia, South America, Canada, Australia, and all points inbetween, the local web master, in communication with the international host, will authorize design changes appropriate for the local market area. Over a period of time, anecdotal records of strong design interface techniques relative to local marketing in countries not native to the hosting agency, will have accumulated detailed specifics of cultural diversity preferences.

## Use Case Scenarios

It is critical that non-native web site design become sensitive to local cultural interests. For example, with traditional Chinese Windows XP (Taiwan) anything can be installed in English or Chinese, however, if I try to install other languages such as Japanese or simplified Chinese, the default language setting must be changed and then reboot the machine. It is also necessary to understand other languages to install applications correctly. If applications were standardized using similar guidelines referenced in the United States as ADA, section 508 ( see <http://www.section508.gov/index.cfm?FuseAction=Content&ID=12>) the consistency applied throughout web design application would facilitate stability and user interface consistency.

Recently, while attending the Information and Communication Technology Education (m-ICTE2003) conference in Badajoz, Spain, I checked my email daily using webmail and through my local ISP. The conference was attended by professionals from throughout the world. As a consideration to the international audience the host conveniently provided a rather large room with computers freely available. The operating system was Linux and of course in Spanish. My ability to use Linux allowed me to move around and obtain the necessary inputs by icon association and page position. I was basically familiar with the language and comfortable with the usual computer terms we are accustomed to on English designed home pages. However, the keyboard arrangement was not the usual QUERTY design. A simple thing such as using the “@” symbol in an email address would not work unless I used a combination of keys. My previous keyboarding experience would not have otherwise associated the required key combinations to produce the @ symbol. The local technician on duty frequently helped those of us unfamiliar with the unfamiliar basic keystroke functions. Other than the keyboard issue, I found the other functions of HCI using Linux in Spanish to be an acceptable design. While in attendance, my conversations with colleagues from Czechoslovakia, Norway, Switzerland, United Kingdom and others busily engaged each other in those user interface issues we have all encountered in our attempts to communicate around the world.

## Computer Assisted Qualitative Data Analysis

The Ethnograph, 1985, was one of the first programs to pioneer computer assisted qualitative data analysis. Web designed data can be imported directly into this program and qualitatively evaluated. The Ethnograph tool is an aid to help search and note segments of interest within your data, mark them with code words and run analyses which can be retrieved for inclusion into reports or further analysis. The basis of web design incorporating cultural diversity is only in it's infancy. Public and private sectors are both aware of design considerations applicable to localized needs, however, much of their expertise is contained within those individuals whose experience has familiarized themselves with these individual differences. Current practices of global communication would best be served by established standards of diversity guidelines or considerations. Until a larger assemblage of worldwide guidelines are available for sharing and dissemination, there will be a risk and limitation among and between web site designers developing expanded markets of communication.

## Visiting Content Similar Sites

As an example of web site cultural design differences there are two web sites of comparable content: <http://www.msn.com> compared to <http://www.msn.com.tw> . As you visit each site, one representing Microsoft (English speaking) and the other representing Microsoft (Taiwanese) you will notice they are vastly different in design and interface techniques. While this may be directly attributable to local control, I would suggest that the purpose of cultural diversity interface is influenced if not even sensitive in both directions. For example, in the upper left section of the Chinese version, it always kicks off with some pretty faces, girls, make up, fashion models, singers, etc. Throughout the home page there are many references to finding girlfriends, movie star favorites, TV soap stories or gossip, and more. Each page content is very crowded with enticements toward money making schemes, gambling, fortune telling, gossiping, pornography, and lots of flash animated gif's. The web site design is targeting the people of China and the designers have learned that these flashy, colorful, action packed designs work. China is a crowded population and this characteristic is reflected in the crowded web site designs.

Another feature associated with the cultural diversity is the structure of the Chinese language. They are able to read left to right; right to left; and up and down! Web pages become seriously challenging to a non-native visitor. A Chinese web visitor would describe a typical English speaking web site design as dull and boring. This observation would preclude that an English speaking “westerner” should never copy their site into a Chinese web marketing area and expect to achieve the attention comparable to a Chinese designed web site.

### The Versatility of Content Managers

Yet another phenomenon attached with a web site design is the maintenance. Records have demonstrated that web sites are very negligent in current update routines. Often, web sites designed in 1999 are still functioning without any updates. Current practices of web site design have included interface processes to link database information using SQL (structured query language) to dynamic web sites; those web sites that are updated through database input. This type of web site design is most effective. In most cases, the web site design requires very few changes once it has iteratively arrived as an acceptable site. Yet, information within the design of the web site can become “old” daily. The use of a content managers enhances the ability of a local non-web design person to make changes to the web site (edit) and publish the results to the web site. This becomes a significant break through due to the fact that web site editing can now become a regular office routine rather than a specialty skill only possessed by a web master. A commonly used software content manager is published by Macromedia as “Contribute”. It allow the user to connect to a web site using both a username and a password. The webmaster can constrain entry points and disallow editing in selected areas. The permits daily web site editing with a simple interface connectivity that utilizes file transfer protocol (FTP) to move edited on screen files to the published web address.

### Moving Ahead with Unicode Compliant Guidelines

While there may not be a silver bullet to cure all the problems, the direction taken through constructs described and practiced using Unicode Compliant procedures is a huge step in the right direction. Unicode compliant designs are directed toward commonly accepted selections of type fonts, colors,

A frequently visited web site used to document and reference Unicode issues can be found at: <http://zsigri.tripod.com/fontboard/cjk/uniapps.html>. Of special significance to a “westerner” is the many input methods used with Chinese, Japanese, and Korean (CJK) languages. For example, Chinese uses 8 different input methods referenced as:

- Pinyin
- Quanpin
- Shuangpin
- Zhuyin
- Cangjie
- Wubi

Japanese input methods are:

- ômaji
- Kana to Kanji
- Symbols Input
- Radical Lookup

Korean input methods:

- Jamo to Hangul
- Jamo to Hanja
- Symbols Input
- Radical Lookup

While it is not within the scope of this presentation to discuss each of these 16 different input methods, it is interesting to annotate the named differences solely within the Asiatic countries. This represents a definite compliant standard for those web designers in this vast area of the world.

### How To Make Our Systems Multilingual

Is a vast and globally amazing world that we are invited to communicate with. While these cultural differences produce an obstacle to overcome, it is within our abilities to undertake such a task. I would imagine it is equally difficult for “eastern” designers to grapple with the English

language and design features. From a very perfunctory position of only listing obvious limitations and or design considerations, the following observations would assist in a brief understanding of the massive task of deploying a unicode approach.

For starters, there are two things we need to process to assist our operating system with the task of performing multi-lingual functions. First, add multilanguage support to Windows. Next, configure your browser and email client to process multilingual entries. Additional support would include native software applications. Eventually, a fully developed concept of Unicode compliant inputs would help support the essential notion of codepage and character set restrictions. A short summary of Unicode practices would include the following:

An application that supports Unicode will support most languages. Otherwise, the number of supported languages depends on the number of supported codepages or character sets.

- ! Fully Unicode-compliant applications support all the frequently used languages, including Arabic, Armenian, Bengali, Chinese, Cyrillic, Esperanto, Ethiopic, Georgian, Greek (ancient and modern), Greenlandic, Hebrew, Hindi, Hungarian, Japanese, Korean, Maltese, Persian, Polish, Romany, Russian, Saami, Tamil, Urdu, Vietnamese and many others.
- ! Microsoft's Codepages support European, Middle Eastern and Far Eastern languages, including Central European, Cyrillic, Western, Greek, Turkish, Hebrew, Arabic, Baltic, Vietnamese, Thai, Chinese, Japanese, or Korean.
- ! The ISO-8859 character sets support all of the major and minor languages of Europe, Arabic, Hebrew, Greenlandic, and Thai.
- ! Localized versions of ISO-2022 or EUC support Chinese, Japanese, and Korean.

#### A World Community of Distance Learning Resources

While I speak of HCI practices using examples of internet communication, design issues of UI have always been present. However, these practices are multiplied by about a million as individuals enter overall global communication. Whereas, military, international corporations, and government relations have always dealt with cultural differences, now single entity persons

attending large scale conferences, not native to their country, conducting email correspondence; purchasing globally; or just surfing while seated in a 6<sup>th</sup> grade social studies class are exposed and/or involved to HCI communication. Located at: <http://www.loc.gov/> is the link on the left titled, World Culture and Resources (<http://international.loc.gov/intldl/intldlhome.html>) is the subtitle, “Collaborative Digital Libraries”, ([http://international.loc.gov/intldl/find/digital\\_collaborations.html](http://international.loc.gov/intldl/find/digital_collaborations.html)).

The ability to randomly search and recover worldwide information is vastly available to all users. With this new wealth of information, user citizenship and internet etiquette need to consider the implications of cultural diversity and undergo the necessary modifications to provide for the extended audience of worldwide readers. While it would seem that the many resources of scholarly work associated with web site management and administration is continuously in progress, the archival storage and retrieval would appear to not be unilaterally available through all nations and countries. For example, while visiting with the Minister of Education, Mongolia, his reference to web site resource sites often diverts to collections in the United States. On the other hand, research and therefore resources for web site administration are readily accessible from countries throughout the world. Our ability to establish strong resource networking and therefore acknowledge the impact of HCI cultural diversity interface design should strengthen our resolve to support education at all levels and through all markets. Concern for translation, filtering, system constrains, and other commonly used system administration techniques would be at a minimum.

Tsalapatas, S., Stav, J.P., Brna, P., & Kalantziz, S. (2003) referenced the funding of the European Commission’s Minerva-Socrates program (eCMS) that is used to design and develop web-based content for support of asynchronous eLearning, will aid in efforts to publish, discover, retrieve, and integrate educational material. The eCMS system of course organization pedagogy moves a step further to recognize that the structure of courses often reflects the academic practices and internal organization of academic institutions. It might be further construed to suggest that this effort is an effort to acknowledge cultural diversity and to offer yet another means to stabilize interface operations.



## A Short Analysis Form for Web Site Design Implementation

Perhaps, extended globally, a standard of web design and therefore a standard of operating system design and functionality might be considered. Offered below is a collection of web site design basics that could be considered culturally neutral.

Question	Response	Cultural Impact
Is there a standard home page for corporate local, corporate national, corporate international		
Who assesses quality?		
Is the material considered culturally neutral? Ethnically specific?		
Is there implicit material of poor taste or quality associated with the design.		
Is there a policy that mandates response characteristics based on culture.		

Is the condition of diversity instituted at the operating system level or some other level		
What software application model has been selected to initiate design and publication?		
What support is available to facilitate web site maintenance - culturally		
Do all web sites run concurrent designs or are there regional differences		
Is there a consideration for web site response by browser		
Is the web site compliant with ADA or is that a factor in other countries		

<p>Regarding dynamic web sites, is there a standard associated with language protocol respective of culture</p>		
<p>In addition to stability issues associated with software versions, are there stability issues associated with hardware</p>		

### Conclusions

As web site design rapidly encompasses a full global presence. Elements of web page design, associated with cultural diversity utilizing human computer interface, will require a greater resource of educational and community perspective. Our current perspective is often very singular to our dominant ethnic affiliation. This is not a wrongful perspective, it is just not an inclusive perspective that reflects our ability to communicate through the global medium of web site design. Current practices need to move from an awareness of various culture communication design mediums to acknowledged practices of correctly accepted local web site design. I suppose the ultimate technology resolution would port information packets to other “authorizing dialects” before we post a final “publish to web ” action. This solution might possible deliver code freely between dialects. However, in my opinion, this solution is “too technology” and would further dehumanize our ability to communicate with each other as a global citizenry.

The strongest direction of web site design, representative of local market schemes, is currently limited to those few who have familiarized themselves with native environments. Due to the nature of global communications, the advent of a wider pool of cultural and diversity themes would appear to be a strong solution to our overall communication within global neighborhoods. I would surmise, with my limited involvement, that we are on the brink of understanding, within

web site design, the greater perspective of non-English speaking nations. I would encourage national and international corporations or businesses to engage, and therefore develop, a full global perspective in their attempts to stabilize an otherwise difficult medium (web page design) to communicate with respect and tolerance.

Usability Resources - (partial listing)

Special Interest Group on Computer and Human Interaction (SIGCHI)

11 West 2<sup>nd</sup> Street, New York, New York, 10036

Usability Professionals' Association (UPA)

10875 Plano Road #115, Dallas, Texas, 75238

Society for Technical Communication

815 15<sup>th</sup> Street, NW, Washington, D.C., 2005

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