WEB DESIGN AND DEVELOPMENT FOR THE EAST ASIAN RESOURCES OF THE UNC-CHAPEL HILL ACADEMIC AFFAIRS LIBRARY

by
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Approved by:

___________________________
Advisor

This report describes a project that involves the design and development of the official Web site for the East Asian Resources (EAR) of the UNC-Chapel Hill Academic Affairs Library. It begins with a brief introduction to the EAR and its current Web site. Based on user analysis and design goals, an overview is made for literature on subjects of academic library Web design, multilingual Web design, and cross-cultural perspectives. The literature review helps generate design guidelines for creating the EAR Web site. This report then demonstrates the steps taken by the author to design and create a Web site embedded with multilingual and cross-cultural elements for the EAR. Prototype pages are described. Problems encountered in testing are discussed. Comments from the EAR head bibliographer are taken into consideration for possible changes. This report concludes with a summary of the project.

Headings:

World Wide Web -- Design

World Wide Web – Web Sites

World Wide Web -- Academic Libraries

North Carolina Libraries--Internet
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Introduction

The East Asian Resources Web Site

The East Asian Resources.

The East Asian Resources (EAR) is one of the eight foreign study area collections of the University of North Carolina at Chapel Hill Academic Affairs Library. It is a large and important collection.

UNC-Chapel Hill's collection of East Asian research materials covers all the subjects of current research in Chinese studies being undertaken at the university together with enough material in other branches of Chinese culture and thought to launch beginning inquiries. The collection also provides material in support of Japanese-language training and English-language coverage of Korean subject areas. (East Asian Resources, 2001)

The collection represents a large East Asian library concentration that is “the largest in the Southeastern United States and among the top twenty East Asian libraries in North America” (East Asian Resources, 2001).

The EAR collection serves needs from faculties and students of the UNC-Chapel Hill as well as many other universities, and those who are in the East Asian study area. At present, according to the head bibliographer Hsi-chu Bolick, the EAR readers are primarily from East Asia and they are in need of materials in East Asian languages. Among these readers, 95% read Chinese, 3% Japanese and 2% Korean. In addition, there is also a wide range of users using English materials about East Asia.
The current EAR Web site.

The EAR Web site, however, is not well designed. Using library Web page template and displaying plain text links, the Web site is not visually attractive and presents few characteristics of the East Asian collection. Figure A1 and Figure A2 show respectively how the portal page and the second-level page of the current EAR Web site look. There is limited amount of information shown on the Web site, and the organizational structure of the site is not clear. What’s more, there is no appropriate navigation to assist users in finding useful information. To provide quality services via the Web tool and to distinguish the East Asian Resources from other area studies in the Web presentation, a new Web site needs to be designed and developed.
User Analysis and Design Goals

User Analysis

Potential EAR Web site users include faculty members, students, researchers and others who are interested in East Asian studies. Most of them are bilingual, namely English and one out of Chinese, Japanese, and Korean. Chinese readers are of the largest population.

Potential users, specifically faculty and students, are assumed to be familiar with how to use the university library Web site, and have enough experience in using Web browsers such as Internet Explorer or Netscape.

Design Goals

Lynch and Horton (1997) wrote in the Yale C/AIM Web Style Guide “the first step in designing a Web site is to make sure you have defined a set of goals -- know what it is you want to accomplish with your Web site”. As for the EAR Web site, the design goals can be defined in two perspectives.
**Academic library Web design.**

“The Web is a valuable tool for the mission of libraries” (Garlock and Piontek, 1996, p.v). For academic libraries, Web sites are viewed as “formal publishing ventures that are important informational and public relations tools” (Library Web Committee, 2000). Therefore the EAR Web site should be designed and created towards high standards in providing accurate and up-to-date information and obtaining both design and technical integrity.

**Multilingual and cross-cultural characteristics.**

Another important design goal for the new EAR Web site is to address different user groups. The EAR users speak different languages (English and East Asian languages, mainly Chinese) and are of different cultures (Western cultures represented by the American culture, and Eastern by the Chinese culture). Therefore this goal can be accomplished in two levels, namely, multilingual display of English and East Asian languages, and cross-cultural design addressing East Asian cultures and the American culture. This project will feature both the Chinese language display and Chinese cultural characteristics in the Web site design, for Chinese studies are the most important and popular field in the East Asian Studies and potential readers are mostly Chinese speakers. Multilingual display is a matter of input method and encoding. It is a technical issue basically. The cross-cultural design is critical for the project and needs in-depth understanding of the differences between the American and the Chinese cultures and their impact on the Web interface design.
Based on the discussion of design goals, a literature review is conducted on subjects including academic library Web design, multilingual Web design, and cross-cultural perspectives. Accompanying the literature review, a brief content analysis of similar Web sites in the U.S. and in China is made to characterize the cultural differences.
Academic Library Web Design

UNC-Chapel Hill Libraries Web publishing guidelines.

The Library Web Committee (LWC) of the UNC-Chapel Hill Academic Affairs Library (AAL) has a set of guidelines including design philosophy and technical requirements for all AAL Web pages.

Given there are frequent changes and updates for all Web pages, a long-term view should be taken in the design and development process. It is suggested that the design should adopt a “user orientation” which features “an outward focus rather than one emphasizing internal administrative organization” and concentrates on “structure and content” (Library Web Committee, 2000). The structure of a library Web site should be easy for users to follow, i.e. too many hierarchical levels between Web pages will fail users in finding information efficiently. In regards for the content, “comprehensiveness, cohesiveness, and consistency” (Library Web Committee, 2000) should be stressed; language used should be fluent, accurate and formal. What’s more, copyright issues are taken into consideration when publishing someone’s work on the Web site.

In the technical perspective for library Web design, the LWC requires that Web pages must “display correctly both on Macintosh and on Windows platforms under Netscape 3.x and later, and Microsoft Internet Explorer 4.0 and later” (Library Web
Committee, 2000). HTML is the recommended language for Web authoring and required HTML elements such as Document Type Definition should be included in all pages. A style sheet is recommended to define different fonts. Graphics should not be used excessively or used with large sizes. Use of frames should be avoided while a well-designed navigation bar is definitely helpful. If no AAL templates are used, the designer should make efforts to achieve the “Library ‘Look and Feel’” (Library Web Committee, 2000) by including the LWC-required or recommended elements in the Web site.

**Academic library Web site design.**

Related literature suggests that the design and development of a library Web site should be service-based (Garlock & Piontek, 1996) and user-centered. An academic library is an information center whose primary mission is to support the curriculum of the academic institution. Quality services are crucial to fulfill this mission. Serving as a new medium to connect the library and its users, the library Web site should feature the resources and services provided by the library. Academic library Web site users are usually faculties, students, researchers, and the public. Their information needs are various which is a challenge for the Web design. The user-centered principle requires that the information content of the Web site should address most of the user needs and provide as much useful information as possible.

Also there are several special considerations for academic library Web design. Garlock and Piontek (1996, p. 83) reminded designers of that in a large institution, the Web design project they were doing might already be in the work both inside and outside the institution. Therefore, one should be familiar with other projects going in the library
or in the outer world before the creative work, in order to avoid duplicated work and to reference valuable experiences. In this project, the EAR Web site is a sub-site of the UNC-Chapel Hill Library Web site that has many examples in design philosophy, development tools and technology, and Web site structure. Learning from examples under similar situations can help keep the EAR Web site in accordance with the UNC-Chapel Hill Library Web site in both style and structure. Also there are many similar Web sites for the East Asian collections from other academic institutions, they have a lot of information to share, too.

**Geert Hofstede’s Cultural Dimensions and Web Design**

Geert Hofstede’s theory of cultural dimensions is referenced here for the purpose of understanding cultural differences between the U.S. and China and how they influence the Web design in these two countries.

The Dutch sociologist and cultural anthropologist, Dr. Geert Hofstede conducted perhaps the most comprehensive study of how values in the workplace are influenced by culture. From 1967 to 1973, while working at IBM as a psychologist, he and his colleagues collected and analyzed data from about 116,000 survey questionnaires completed by matched groups of IBM employees in 72 countries around the world. These employees were from 40 countries (Marcus & Gould, 2000). From those results, and later additions, he developed a model that identifies five primary dimensions of national cultural variability, commonly referred to as “Hofstede’s Dimensions”. These include 

*power distance, collectivism versus individualism, femininity versus masculinity,*
uncertainty avoidance, and long-term orientation versus short term-orientation
(Hofstede, 1991, p.14). For detailed descriptions of these dimensions, see Appendix B.

Hofstede’s study took the survey data and assigned scores to 40 different countries in each dimension. Table B1 shows scores of 10 countries including the U.S. and China. Differences between the American culture and the Chinese culture are remarkable, especially in power distance, individualism and long-term orientation. Implications of these differences are further discussed in Table B2 to help understand the cultural differences between the U.S. and China.

Hofstede’s cultural dimensions provide Web designers with significant results and suggestions for developing sets of guidelines to produce successfully localized Web sites. To further illustrate the influence of Hofstede’s theory on Web design, a small-scale comparison between similar Web sites in China and in the U.S. is made. The comparison results are shown in Table B3.

One can tell from the results that the U.S. Web sites are usually customer- or service-oriented, they emphasize individuals, provide simple but immediate links, and seldom use logos, slogans, flashes or ads that are intrusive. Quite differently, the Chinese Web sites focus on organizations and order, feature symbols of authority such as official seals and logos, provide fewer links, and use a lot of flashes and intrusive ads that violate the respect for individual preferences.

Multilingual Web Design

Creating a Web page that displays multiple languages is challenging for libraries in terms of technical, language translation and accessibility issues. Display is the key
issue for a multilingual Web page. According to Topping (2001), three main components that contribute to correct display are “character encoding, browser support, and fonts”. Also a powerful Web authoring tool that can specify the page language is needed.

**Character encoding.**

Chinese, Japanese and Korean, like many other Asian languages, are ideographic languages that use “a system of pictures, symbols or characters to represent an object or an idea, but not necessarily an exact word” (Daya, 2001). Therefore for an English-based system, character sets of these Asian languages should be encoded in the Web pages to help browsers recognize and display characters properly. The Unicode Standard is an international standard for computing the encoded text of different languages that enable Web users to view their own language. Unicode is a large character set that can be used for most of the world major languages including both simplified and traditional Chinese. Unicode is a 16-bit encoding. This permits over 65,000 characters (Carrasco, 2001). UTF-8, that is, the Universal Character Set Transformation Format, is used to encode Unicode in the Web page. In addition to Unicode, there are several coding schemes to encode Chinese characters, such as, BIG5, GB, and JIS (Che, 1998).

Each HTML page should define the encoding method in the `<HEAD>` section. For example, the entry should read:

```
<META HTTP-EQUIV="content-Type" CONTENT="text/html;
charset=charset_name">
```
Browser support.

Web browsers, such as Netscape Communicator 4.0 and Microsoft Internet Explorer 4.0, contain Unicode as their basis. Microsoft Internet Explorer 5 has advanced language support that allows Web developers to specify UTF-8 for all Web pages and not have to worry about language-specific code pages. Other browsers offer lesser levels of Unicode support. Character set of each target language should be specified individually (Topping, 2001).

Fonts.

If fonts defined in the Web page do not exist on users’ systems, it will not matter whether the encoding method chosen is supported by their browser or not. Users are still unable to view the text. Topping (2001) suggested several potential solutions of which using Cascading Style Sheets (CSS) is considered the best.

The World Wide Web Consortium (W3C) has developed a font acquisition approach for dealing with fonts through Cascading Style Sheets (CSS). Their solution gives user agents four ways to select fonts for HTML elements. Fonts listed in style sheets can be matched exactly to fonts installed on the system or to a similar font if the specified font does not exist on the system; fonts can be downloaded if a match can’t be made and if a URL for downloading is included; or fonts can be created or synthesized as needed, based on the font’s description in the style sheet (Topping, 2001).

Web authoring tool.

Peterson (2000) recommended three Web authoring tools that allow users to specify the page language as Chinese. Microsoft Front Page Express, Netscape Composer, and Macromedia Dreamweaver all support choosing the appropriate encoding from Simplified Chinese (GB2312), Traditional Chinese (Big5), or Multilingual (UTF-8).
Web Design and Development

Planning and Design

Design style.

Based on the literature review and content analysis, a set of guidelines for this project has been defined. First of all, the style of the new EAR Web site should be service-based and user-centered, as most academic library Web sites and the American-styled Web sites do. Therefore the emphasis is on content and structure. To address users from East Asian cultures, Chinese cultural characteristics for Web design should be applied. These include using a logo to represent authority, providing fewer links on the portal page and a navigation bar on each page for a long-term orientation, putting links on each page to home pages of the UNC-Chapel Hill, the UNC-Chapel Hill Academic Affairs Library, and the Collection Development Department to show the organizational relationship, and presenting images of groups of people to characterize the Chinese collectivism. Also to distinguish the East Asian collections from other foreign area studies, a map showing the geographical location of East Asia is visually attractive.

Information content.

The Web site should feature resources and services provided by the EAR. Since the EAR is doing material selection, acquisition, and cataloging all by itself, the
information shown on the new Web site should cover recent acquisitions, cataloging information, library collection and resources, specific services like reference, interlibrary loan, and related Internet resources. Multilingual display of both English and Chinese is needed for library collection and resource information.

**Web site structure.**

To assist users in finding information they need effectively and efficiently, the structure of the Web site should be easy for users to follow. For the new EAR Web site, a three-level hierarchical structure will be developed to navigate user browsing. The first and top level is the portal page or the home page in which the navigation bar presents major resource and service categories. The second-level navigation is the detailed list of resources and services under each category, and will be implemented as pop-up menus when clicking a category link on the first-level navigation bar. Links on the second-level will lead users to the third level of the Web site where documents or links to outside resources, i.e. Internet resources, exist.

The desired three-level hierarchy is not complicated and in accordance with the user-centered guideline. Although it is conceptually three-leveled, both first and second navigations take place on the portal page, which further saves users from getting lost between levels of pages.
**Development tools and technology.**

Since this project involves simply text and images, implementation with HTML is sufficient. Macromedia Dreamweaver 4 is used for authoring for its capability in producing valid HTML code and specifying the page language as Chinese. The Chinese language used in the Web site is mainly simplified Chinese that can be displayed by specifying the character encoding as UTF-8 or GB2312. For a small amount of Chinese content, several titles, for example, using images is an alternative for character display.

**Web Development**

**Portal page.**

The portal page (see Appendix C) consists of three main parts, namely the navigation bar on the left of the screen, the EAR logo and title image on the upper right, and the World and East Asia map on the lower right. Tables are used for display. The main color tone is deep brown, which is close to the symbol color of East Asia—red, yet better visually accepted (see Figure C1).

The navigation bar is implemented with an image map that contains seven links. The links include “About EAR”, “Acquisition”, “Cataloging”, “Collections”, “Services”, “Online Resources”, and “Site Map”. Clicking these links will invoke pop-up menus as the second-level navigation. For instance, an image map containing links to “Interlibrary Loan”, “Request Acquisition”, and “Reference” will appear on the right of the navigation
bar when clicking the “Services” link (see Figure C2). This feature is implemented via JavaScripts.

The EAR title image shows the name of the UNC-Chapel Hill, as required by the LWC guidelines. The EAR logo, which is created with Adobe Photoshop, is a simulation of a Chinese seal, reads “East Asian Collections” in traditional Chinese. Under the title and logo, there are links to home pages of the UNC-Chapel Hill, the UNC-Chapel Hill Libraries, and the Collection Development Department of which the EAR is a part.

The world map highlighting East Asia and the U.S. is to give first-time visitors a geographical view of East Asia. The zoomed-in map of East Asia highlights countries and regions in East Asian studies. The map also serves as a language-based navigation for library collections; for example, clicking over the area of China or Taiwan will pop up the menu of Chinese collections (see Figure C3). This navigation provides users an alternative to access the collection of a specific language directly.

At last, an email link connecting to the EAR head bibliographer—Hsi-chu Bolick is provided for user comments. The update information of the Web site is also given for user awareness.

The portal page consists of images mainly. Special attention is paid to limiting the image size for the sake of download speed. None of the EAR logo, the title, and the navigation bar is bigger than 4 KB. The map, whose size is 40 KB, will take longer to download.
Second-level pages.

In accordance with the portal page style, most of the second-level pages (see Appendix D) use a template with a navigation bar on the left of the screen and the EAR logo and title on the upper right (see Figure D1). The navigation bar here differentiates from the portal page one for that it has more links. These links are considered being used frequently. For instance, there are links to specific types of collections, such as newspaper subscriptions, microfilms, and movies. This navigation bar is designed to help users find what they want without going through levels of navigations.

The site map is implemented with another display format that has no navigation bar (see Figure D2). Links to all Web pages in the EAR Web site are categorized and listed in a table. Since there are no more than 100 links—the minimum number of links in a Web site that requires creating a text-only Web site (Nielsen, 1999), this site map can play the role as the text-only Web site.

For pages containing Chinese characters, such as the Web page for serials in microforms (see Figure E1) and the women’s press page (see Figure E2), the character set is encoded as "UTF-8". Microsoft Word 2000 is used to input Chinese, and the font family is automatically specified as "SimSun" (stands for "Simplified Sung" which is a font used frequently for simplified Chinese). Although the CSS is recommended by related literature to define fonts, replacing all font tags generated by Microsoft Word with style classes is time consuming and prone to incorrect display. Except using the HTML code generated by Microsoft Word for Chinese input, using images of Chinese characters
is an alternative for pages with only a small amount of Chinese input. One example is the Web page for newspapers that has several Chinese captions (see Figure E3).

Compared with the current EAR Web site, there is more information presented in this prototype Web site. Newly added information includes Chinese captions for newspapers and microfilms, online resources for East Asian studies, specific services, and the site map.

**Testing and Validation**

Before turning in for the Library Web Committee evaluation, the prototype EAR Web site is temporarily placed at http://www.unc.edu/~xiaoranl/EARproject/index.html for testing. The prototype Web site displays correctly under Microsoft Internet Explorer 4.0 and later. Netscape browsers, except for the latest 6.2 version, however, have some problems. For example, Netscape 4.5 cannot display the Chinese text correctly. The problem is inherent and one way to get around is to notify users to use Microsoft Internet Explorer or Netscape 6.2 to browse Web pages containing Chinese text. What's more, links to free download these two browsers are needed for users' convenience.

Using the World Wide Web Consortium (W3C) validator, no problems are found for the style sheets used. The HTML code, however, is found to have a few mistakes such as missing the alternative text (ALT) attribute for some images, and using attributes not applicable to objects such as background images for tables. These mistakes are fixed immediately.

Another concern is the use of JavaScripts. For users who use browsers that are not Java-enabled, Greenlaw and Hepp (2002, p.509) suggested to include a message such as...
"You are running a browser that is not Java-enabled. These pages are best viewed using Netscape 3.0 or higher, or Microsoft Internet Explorer 4.0 or higher" between the beginning and ending applet tags. In this way, browsers that are not Java-enabled "will ignore the applet tags but display the message" (Greenlaw and Hepp, 2002, p.509).

**Comments and Possible Changes**

The EAR head bibliographer, Hsi-chu Bolick, made several comments (personal communication, April 18, 2002) on the prototype Web site that might lead to modifications in the design and development.

Firstly, using frames for the second-level pages maybe a better choice. Since some pages contain a large amount of information that will stretch the page, i.e. the alphabetical title list of serials in microform, users have to go back to top manually to view the navigation bar. A frame can save users from this trouble and keep consistency in page styles. Nevertheless, most of the literature that has been reviewed does not recommend using frames. Further research and test should be done on this issue before making the final decision of using frames or not.

Secondly, on the portal page navigation bar, "Library Resources" should be included with links to library catalog, electronic resources such as online databases or CD ROMs, and links to other library resources including Duke University library, the North Carolina State University library, etc. What's more, the "Online Resources" link of the original design should be renamed as "Internet Resources" which can distinguish itself as electronic resources beyond the library scope. Changes will be made in the portal page
accordingly to Bolick’s suggestions. Second-level pages under the new links are still under construction.

Thirdly, more links should be provided to assist users as much as possible and make access easy. For instance, links to the East Asian Studies programs at the UNC-Chapel Hill and Duke University, should be included because of their close relationship with the EAR. Information that is useful for the EAR Web site will increase continually and therefore keeping users updated with current information is the key to quality service of the EAR Web site.

Before being officially published on the UNC-Chapel Library Web site, the prototype EAR Web site will first go through the evaluation of the Library Web Committee and then a testing period of several weeks. More comments and changes are predictable to finalize the design and development of the EAR Web site.
Conclusion

This project concerns the design and development of the official Web site for the East Asian Resources (EAR) of the UNC-Chapel Hill Academic Affairs Library. The process covered in this report consists of three major steps. The first step is to make user analysis and define the design goals. Specialized as an academic library collection featuring East Asian studies, the EAR is in need of a Web site that could embody both the academic library look and feel and the East Asian cultures. And to address different user groups, multilingual display and language-based orientation are necessary.

The second step is to review literature on subjects of academic library Web design, multilingual Web design and cross-cultural perspectives. Web publishing guidelines from the UNC-Chapel Hill and other sources are referenced for understanding the academic library Web design. Geert Hofstede’s theory of national culture dimensions is discussed to illustrate the impact of cultural differences on Web design. Also a small-scale content analysis of similar Web sites is made to compare Web design styles between the U.S. and China. Specific cultural characteristics are selected for the following implementation. Topics of character encoding, browser support, fonts, and Web authoring tools, are covered for the multilingual display.

The third step is the actual implementation of the design that involves Web authoring, testing, trouble-shooting, and considering possible changes. Based on the comprehension of related literature, design style, information content, Web structure, and
development tools for the prototype EAR Web site are specified at first. Prototype Web
pages are developed and tested. Problems found are fixed. Comments from the EAR head
bibliographer are included and discussed for possible changes.

The prototype Web site will go through the Library Web Committee evaluation
before the final publication. More changes are expected to finalize the whole project.
The Web design and development approach described in this report can be referenced in
the future for modification of this project, or be employed in other similar Web
construction projects.
Appendix A. The Current EAR Web Site

Figure A1. Screenshot of the current EAR Web site portal page

Source: http://www.lib.unc.edu/cdd/crs/foreign/eastasia/index.html
Figure A2. Screenshot of the current EAR Web site second-level page

Source: http://www.lib.unc.edu/cdd/crs/foreign/eastasia/news.html
Appendix B. Hofstede’s Culture Dimensions and Web Design

**Hofstede’s Dimensions of National Cultures**

*Uncertainty Avoidance* --“the extent to which the members of a culture feel threatened by uncertain or unknown situations” (Hofstede, 1991, p.263). This dimension refers to how comfortable people feel towards ambiguity. It focuses on the degree the society does, or does not reinforce, uncertainty within the society.

*Power Distance*--“the extent to which the less powerful members of institutions and organizations accept that power is distributed unequally” (Hofstede, 1991, p. 262). It focuses on the degree of equality, or inequality, between people in the country's society.

*Masculinity vs. Femininity*—masculinity refers to “social gender roles are clearly distinct”, and femininity “social gender roles overlap” (Hofstede, 1991, p.262). This dimension refers to expected gender roles in a culture. In a country with a high Masculinity ranking, males dominate a significant portion of the society and power structure, with females being controlled by male domination. In the "feminine" cultures, on the opposite, the expectations of genders are not distinct.

*Individualism vs. Collectivism*—individualism indicates that “the ties between individuals are loose”, while collectivism characterizes a society in which “people are integrated into strong, cohesive groups” (Hofstede, 1991, p.261). This dimension focuses on the degree the society reinforces individual or collective, achievement and interpersonal relationships.
Long-Term Orientation (Confucian Dynamism)--long-term orientation stands for “the fostering of virtues oriented towards future rewards”, while short-term orientation for “the fostering of virtues related to the past and present” (Hofstede, 1991, p.261). This dimension refers to the selective promotion of particular set of ethics found in Confucian teachings. Long-Term Orientation focuses on the degree the society embraces, or does not embrace, long-term devotion to traditional, forward thinking values.

Scores of Hofstede’s Dimensions of National Cultures

Table B1. Scores of Hofstede’s Dimensions for 10 National Cultures

<table>
<thead>
<tr>
<th>Countries</th>
<th>Power Distance</th>
<th>Individualism</th>
<th>Masculinity</th>
<th>Uncertainty Avoidance</th>
<th>Long-term Orientation</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>40L</td>
<td>91H</td>
<td>62H</td>
<td>46L</td>
<td>29L</td>
</tr>
<tr>
<td>China</td>
<td>80H</td>
<td>20L</td>
<td>50M</td>
<td>60M</td>
<td>118H</td>
</tr>
<tr>
<td>Japan</td>
<td>54M</td>
<td>46M</td>
<td>95H</td>
<td>92H</td>
<td>80H</td>
</tr>
<tr>
<td>Germany</td>
<td>35L</td>
<td>67H</td>
<td>66H</td>
<td>65M</td>
<td>31M</td>
</tr>
<tr>
<td>France</td>
<td>68H</td>
<td>71H</td>
<td>43M</td>
<td>86H</td>
<td>30L</td>
</tr>
<tr>
<td>Netherlands</td>
<td>38L</td>
<td>80H</td>
<td>14L</td>
<td>53M</td>
<td>44M</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>68H</td>
<td>25L</td>
<td>57H</td>
<td>29L</td>
<td>96H</td>
</tr>
<tr>
<td>Indonesia</td>
<td>78H</td>
<td>14L</td>
<td>46M</td>
<td>48L</td>
<td>25L</td>
</tr>
<tr>
<td>West Africa</td>
<td>77H</td>
<td>20L</td>
<td>46M</td>
<td>54M</td>
<td>16L</td>
</tr>
<tr>
<td>Russia</td>
<td>95H</td>
<td>50M</td>
<td>40L</td>
<td>90H</td>
<td>10L</td>
</tr>
</tbody>
</table>

**Implications of Hofstede’s Dimensions of National Cultures**

The definitions and scores are abstract. Table B2 shows the implications of these scores that can help understand the cultural differences between the U.S. and China (Sheridan, 2001).

Table B2. **Implications of Hofstede’s Dimensions of National Cultures**

<table>
<thead>
<tr>
<th></th>
<th>USA</th>
<th>China</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Power Distance</strong></td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td></td>
<td>De-emphasize the differences between citizen’s power and wealth</td>
<td>Centralized political power</td>
</tr>
<tr>
<td></td>
<td>Flatter hierarchies in organizations</td>
<td>Tall Hierarchies in organizations</td>
</tr>
<tr>
<td></td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>Value personal time, freedom and self-respect, rights to privacy</td>
<td>Value training, skills, and the intrinsic rewards of mastery</td>
</tr>
<tr>
<td></td>
<td>Emphasize individual</td>
<td>Emphasize group and organization</td>
</tr>
<tr>
<td></td>
<td>Looser relationships</td>
<td>Close ties between individuals</td>
</tr>
<tr>
<td><strong>Individualism</strong></td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td></td>
<td>Respect for tradition</td>
<td>Persistence</td>
</tr>
<tr>
<td></td>
<td>Emphasize on truth and the certainty of beliefs</td>
<td>Emphasize practice and practical value</td>
</tr>
<tr>
<td></td>
<td>Reciprocity of greetings, favors, and gifts</td>
<td>Ordering relationships by status</td>
</tr>
</tbody>
</table>
**Comparisons between Web Sites in the U.S. and China**

Table B3. *Comparison Results between Web Sites in the U.S. and China*

<table>
<thead>
<tr>
<th></th>
<th>USA</th>
<th>China</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>International Corporations</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong><a href="http://www.lucent.com">www.lucent.com</a></strong></td>
<td></td>
<td><strong><a href="http://www.lucent.com.cn">www.lucent.com.cn</a></strong></td>
</tr>
<tr>
<td><strong><a href="http://www.nokiausa.com">www.nokiausa.com</a></strong></td>
<td></td>
<td><strong><a href="http://www.nokia.com.cn">www.nokia.com.cn</a></strong></td>
</tr>
<tr>
<td><strong><a href="http://www.microsoft.com">www.microsoft.com</a></strong></td>
<td></td>
<td><strong><a href="http://www.microsoft.com.cn">www.microsoft.com.cn</a></strong></td>
</tr>
<tr>
<td><strong><a href="http://www.cisco.com">www.cisco.com</a></strong></td>
<td></td>
<td><strong><a href="http://www.cisco.com.cn">www.cisco.com.cn</a></strong></td>
</tr>
<tr>
<td>Feature individuals</td>
<td></td>
<td>Feature groups</td>
</tr>
<tr>
<td>Images of individuals in daily life</td>
<td></td>
<td>Images of working people, groups</td>
</tr>
<tr>
<td>Customer or service-oriented</td>
<td></td>
<td>Organization-oriented</td>
</tr>
<tr>
<td>No flash, slogan, or rolling news</td>
<td></td>
<td>Using flashes, slogans and rolling news</td>
</tr>
<tr>
<td><strong>Commercial Web sites</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong><a href="http://www.yahoo.com">www.yahoo.com</a></strong></td>
<td></td>
<td><strong><a href="http://www.sina.com.cn">www.sina.com.cn</a></strong></td>
</tr>
<tr>
<td>Plain text links</td>
<td></td>
<td>Using flash and animation</td>
</tr>
<tr>
<td>No flash or intrusive ads</td>
<td></td>
<td>Intrusive ads</td>
</tr>
<tr>
<td><strong>Universities</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong><a href="http://www.unc.edu">www.unc.edu</a></strong></td>
<td></td>
<td>**<a href="http://www.pku.edu.cn**/">www.pku.edu.cn**/</a></td>
</tr>
<tr>
<td>User-oriented—addressing different users</td>
<td></td>
<td>Organization-oriented—showing the organization and order</td>
</tr>
<tr>
<td>Just small seal or no slogan</td>
<td></td>
<td>Big official seals, slogans</td>
</tr>
</tbody>
</table>
Appendix C. The Prototype Portal Page

Figure C1. Screenshot of the Prototype Portal Page

Source: http://www.unc.edu/~xiaoranl/EARproject/index.html
Figure C2. A Pop-up Menu Invoked by Clicking “Services” on the Navigation Bar

Source: http://www.unc.edu/~xiaoranl/EARproject/index.html#
**Figure C3.** A Pop-up Menu Invoked by Clicking “China” on the Map Navigation

Appendix D. Prototype Second-Level Pages

Figure D1. Prototype Second-Level Page

Source: http://www.unc.edu/~xiaoranl/EARproject/online.html
Figure D2. Prototype Site Map Page

Source: http://www.unc.edu/~xiaoranl/EARproject/sitemap.html
Appendix E. Prototype Pages with Chinese Display

Figure E1. A Prototype Page with Chinese Display

Source: http://www.unc.edu/~xiaoranl/EARproject/microform.html
Figure E2. Display of Chinese Characters Input with Microsoft Word 2000

Source: http://www.unc.edu/~xiaoranl/EARproject/womenpress.html
## Figure E3. Display Images of Chinese Characters

Source: [http://www.unc.edu/~xiaoranl/EARproject/newspaper.html](http://www.unc.edu/~xiaoranl/EARproject/newspaper.html)
References


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http://www.multilingual.com/FMPro?-db=archives-&format=ourpublication%2ffeaturedarticlesdeta...-token=%5bFMP‐current‐token%5d-&‐find=