A Global Perspective on Web Site Usability

Shirley A. Becker and Florence E. Mottay, Florida Institute of Technology

“There is a widening customer experience gap online. Companies who bridge this gap will win.”

Although many companies have succeeded in developing online business applications, numerous others have failed. Many of the failures resulted from a lack of corporate vision by not taking Web usability into account. A study by Deloitte and Touche stated that approximately 70 percent of retailers lack a clearly articulated e-commerce strategy and considered their site as testing the waters for online demand. This corporate “build it and they will come” mentality has led to the demise of e-commerce sites when sites are too late, too buggy, or too complex for ease of use.

Many Internet analysts correctly predicted that a significant number of business-to-consumer sites would fail during the year 2000 due to a lack of customer retention and repeat sales. Webmergers estimated that 150 dot-coms failed during 2000 and more will follow this year. Those sites that continue to succeed have and will expend significant resources modifying their sites to improve customer retention.

Many of the dot-com statistics do not take into account the global aspect of online marketing. The potential for financial gain in a global market is great, yet little is known about global ventures’ success rates in terms of meeting customer needs on a local level. On a global scale, we could argue that cultural diversity and sensitivity must be considered to ensure that the online shopping experience is the same for each customer regardless of locality. The fierce online competition that has led to the demise of poorly designed online sites nationally may occur globally if nothing is done to address global usability.

What can be done strategically to reach out to a global market? We propose the use of a Web-based usability assessment model that promotes customer satisfaction as an
integral part of online business application
development. This usability assessment
model is an outgrowth of our collaboration
with industry in the pursuit of more effec-
tive online development efforts. From a
global perspective, our work is in an ex-
ploratory phase. However, with the current
expansion of online business applications in
the global market, we believe our assess-
ment findings can be useful.

**Strategic usability factors**

Thomas Powell formally describes Web
usability as allowing the user to manipulate
the site’s features to accomplish a particular
goal. The targeted customer assesses usable-
 immunity for simplicity, understandability, and
ease of use. The perception of usability is in-
fluenced by user characteristics, such as gen-
der, age, educational level, and technology
skills. Usability perception is also affected
by cultural differences associated with, for
example, design layout, use of color and an-
imation, and information content.

We developed the usability assessment
model, which Figure 1 shows, to identify
and measure usability factors that impact
a customer’s online experience. We’ve ex-

danced these factors into more than 100
usability elements, not shown for space
reasons, that have been used during usu-
ability assessments of commercial sites.
The following usability factors are briefly
defined.

**Page layout**

Page layout is the visual presentation of
the Web page by means of background
color, white space, horizontal and vertical
scrolling, font size and color, and other de-
sign elements. The layout affects ease of use
and quick identification of page compo-
nents. Layout can be influenced by cultural
differences in usability, such as the signifi-
cance of a particular color, use of graphics
(for example, country flags or symbols), or
textual organization (left to right or top
down).

**Navigation**

Navigation is the navigational schema in
terms of breadth and depth of search paths
and traversal mechanisms. Simplicity is pro-
moted through the effective use of links,
frames, buttons, and text. Navigational

considerations, from a global perspective,
include ready access to other country sites
from a home page (understandable in any
native language) or via a navigational
schema on each page. Figure 2 illustrates
global aspects of navigation on a Web site.

**Design consistency**

Design consistency is the consistent loca-
tion of page components within and across
pages. Various components requiring consis-
tency include textual descriptions, labels,
prompts, and messages. Consistency of
color is required for links, background, and
text, among others. Design consistency pro-
motes ease of use by applying a common
look and feel to each page in a particular
site or across global sites. Figure 3 shows a
high level of design consistency in Yahoo’s
various country Web sites.

**Information content**

Information content includes timely and
correct error messages, prompts, button la-

bels, textual descriptions, help, and cus-
tomer service information. From a global
perspective, information translated from
one language to another should be gram-

matically correct, not archaic, and appro-

priate for cultural differences. Local ter-
minology for a shopping cart, for example,
includes shopping trolley and shopping bag.
Figure 4 shows an example of effective in-
formation content with buttons appropri-
ately labeled for local use.

**Figure 1.** The usability assessment model incorporates usability factors as well as the user profile and computing environment. All of these affect a customer’s perception of Web site usability.
Performance

Performance is measured according to consumer wait and system response times. Currently, there is significant global disparity in terms of modem speed and personal access to the Internet. Cultural sensitivity translates into sensitivity concerning download time. Performance-related cultural insensitivity is demonstrated by the high use of animation in many Asian and South American Web sites affiliated with US companies (we found animation disparity for European and Japanese-based companies as well). Yet their North American and European sister sites, where Internet access with higher modem speeds is more readily available, minimize the use of animation.

Customer service

Customer service is additional information and support mechanisms that are readily available from the organization to enhance the shopping experience. This includes, for example, email and mail addresses, phone numbers, and interactive chat rooms. It can also mean that help is available in a native language.

Reliability

Reliability is defined in terms of site
crashes, downtime, error messages, and consistent response times. A common usability problem related to reliability results when SQL, JavaScript, and other cryptic error boxes are displayed to the end user. Another common problem results from a miscalculation in the number of hits during peak periods of Web use. In terms of global-related reliability, these problems will have a major effect on customer usability.

Security

Security is concerned with privacy and limited access to personal information. The security issues facing American consumers extend to customers worldwide regarding the misuse and unauthorized distribution of credit card numbers, addresses, phone numbers, income, and other personal data.

Other usability components

Our usability assessment model includes a user profile of the targeted customer base and the customer’s computing environment, which is important in ensuring that modem speed, browser type, and screen size are taken into account during the assessment process. A usability assessment also considers other environmental factors. Moreover, the user profile and environment data might need to be localized based on a particular country’s or region’s characteristics.

The usability assessment model also includes the organization’s strategic goals to ensure that these are weighed during usability decision making. Typically, strategic goals require a balance of financial, customer, business process, and internal learning perspectives. Strategic goals will dictate whether cultural sensitivity (driven chiefly by customer satisfaction goals) or cultural insensitivity (driven chiefly by financial, time-to-market goals) take priority in the development of online business applications.

Country-centricity and usability

As a result of our study of usability associated with US companies, we discovered that organizations tend to develop country-centric sites to support their global market. (We limited our study, and so our discussion, to US-centric usability, although the usability concept could apply to any country.) US-centricity is imposing a Web usability look and feel from an American perspective onto localized Web sites. The result might be an emphasis of English as a primary language on all international Web sites with little regard for native-language support. The result might also include a lack of concern (or awareness) for grammatical inconsistencies or incorrect translations to a native language.

US-centricity can come about unknowingly, for example, when an English-language Web site is directly translated into native-language Web sites. Other possible reasons for US-centricity are when a com-
pany deems it economically feasible to maintain only English-supported country sites, translates one US-based Web design into many international sites, or uses implied design standards regardless of cultural differences. Figure 5 illustrates this concept of cultural insensitivity whereby site pages for global use are written in English.

Usability problems that we encountered range from simple grammatical mistakes to the overuse of animation, which severely slows download time. A number of US-centric usability issues can negatively affect a local customer’s online experience:

- The use of culture-specific icons may be inappropriate, confusing, or unknown at a local level. A common example is the shopping cart icon. Other countries use different terminology to represent the shopping container, such as a trolley or a bag.
- The use of a particular color for backgrounds, error messages, or textual information may be inappropriate, confusing, or misleading. A color might have different meanings in different countries. The color red means error or warning in the US although this isn’t the case in Asian countries. One or more colors might represent nationalism for a country. Yellow, for example, is found on many German sites, as this is a national color.
- Commonly used English words and phrases, as well as trademarks, are often not translated into the native language. Locally, these words might be misunderstood, difficult to pronounce, or their meaning might be unknown (see Figure 6).
- Direct translation of English to a native language can result in unintuitive or confusing labels and instructions. On one particular site, the English word “map” was translated directly into the French word “plan,” which is not self-explanatory in French. Plan du site—plan of the site—would have been a better phrase for improved readability. Figures 7 and 8 show examples of Web sites in which the direct translation might affect local usability.
- A main or home page for accessing country or regional sites is in English. The user must select a country or option from a list of English words with no translation support for the native language. (Some sites have remedied this in part by providing a visual map of the world, as Figure 2 shows).
- The use of animation varies by country site. For several US companies, their Asian and Central and South America sites have significant animation when compared to North American and European sites. For several European and Japanese sites, the US site contained more animation. Figure 9 shows an example of a European company with varying degrees of animation associated

Figure 5. Several international sites that are in English. These sites illustrate the reliance on the English language for international sites. The user would have to understand English, for example, to ask for directions in a native language.

Figure 6. An example of a site with potential for confusion: Selected English words are not translated into the native language. In this case, the English words are difficult to pronounce and may not be understood in French.

Figure 7. An example of a Web site in which the overuse of animation affected usability.
Navigational schema varies by country site. Inconsistencies in navigation make it difficult to traverse consistently across sites. Some country sites allow access to a home page; others allow access to a particular region of the country, while others access all countries (Figure 2 shows this limitation).

Usability strategies

In pursuing a global market, organizations should be sensitive to cultural differences that might impact usability. Several strategies are available that can help with usability, depending on the organization’s goals.

Common design

A general design layout, with little or no customization for particular country sites, might reduce the cost of upgrades and maintenance associated with multiple sites. For customers accessing more than one country site, it provides design consistency for ease of use. It is also easier to enforce global design standards in terms of the site’s look and feel. Figure 3 illustrates this concept for Yahoo sites, which have a high level of design consistency.

The risk associated with this strategy is that usability can be degraded when grammatical mistakes, missing translations, and inappropriate colors, for example, are introduced during site construction and maintenance. Usability assessments uncover these problems before they reach the customer.

Customization

A lot could be learned about cultural sensitivity, concerning global site deployment, from the international marketing strategies of McDonald’s and Coca-Cola. When visiting a McDonald’s in Aruba, for example, there is a localized food item—barbeque chicken—not found on the North American menu. Similarly, Coca-Cola localizes the flavor of its products to maximize global sales. This localization concept could be applied in the development of global online business applications to enhance global usability. The downside to developing customized Web sites for each country, however, includes higher development and maintenance costs when each site is built and maintained separately.

Combined common and customized design

This middle-of-the-road strategy supports design consistency across all Web sites while customizing a particular Web site to meet the locality’s cultural needs. By standardizing corporate logos, nav bars, graphics, and other standard look-and-feel components across all sites, companies support the usability goals of simplicity and ease of use. By customizing colors, icons, graphics, and other Web components to meet a given country’s needs, companies promote understandability and ease of use. Perhaps most important, however, is the appropriate use of the native language for each respective Web site.

Applying the customization or the com-

Figure 7. Direct translation with potential negative connotation. In this case, the French translation of the English word has a negative connotation. Though its meaning is explained to the user, there may still be a negative impression.

Figure 8. English words may cause confusion when interpreted in a native language.
bined strategy instead of a common design results in higher development and maintenance costs. The higher costs are justified, however, by customer satisfaction achieved with culturally sensitive sites. Although more research is needed, the national fallout of business-to-consumer Web sites to date tells us that fierce competition and customer satisfaction both play a critical role in online success.

**Usability assessments: A study**

Much of our work on usability assessments of US sites has focused on user profile data that included age, gender, computing skills, and other commonly used marketing data. When profiling the consumer for a particular country, however, there is additional information that would assist in developing an effective online business application. From a global standpoint, a user profile for a country should include the level of understanding (or popularization) of commonly used icons (such as a shopping cart), words (such as the GO button label),

### Table 1

Comparison of country Web sites for a software company. The study was conducted using a 56K modem, 15-inch monitor on a notebook computer, and Microsoft’s Internet Explorer browser.

<table>
<thead>
<tr>
<th>Country</th>
<th>Use of animation (Scale 1 – 5)</th>
<th>Horizontal scrolling (Yes or no)</th>
<th>Oversized graphics (Yes or no)</th>
<th>English content (Scale 1 – 5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>US</td>
<td>No animation</td>
<td>Yes</td>
<td>No</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Australia</td>
<td>No animation</td>
<td>Yes</td>
<td>No</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Sweden</td>
<td>3</td>
<td>No</td>
<td>No</td>
<td>1</td>
</tr>
<tr>
<td>France</td>
<td>3</td>
<td>No</td>
<td>No</td>
<td>1</td>
</tr>
<tr>
<td>Japan</td>
<td>No animation</td>
<td>No</td>
<td>No</td>
<td>2</td>
</tr>
<tr>
<td>China</td>
<td>3</td>
<td>No</td>
<td>Yes</td>
<td>1 (button label GO)</td>
</tr>
<tr>
<td>Brazil</td>
<td>1</td>
<td>Yes</td>
<td>Yes</td>
<td>4</td>
</tr>
</tbody>
</table>

1 Likert scale where 1 is the lowest point of allocation and 5 is the highest. A 1 indicates low significance; 5, high significance.
2 Oversized graphics waste valuable information space and require more vertical or horizontal scrolling to find information.

The download time for the US site versus the Argentina site is significant. The Argentina site has significant animation, which the US site does not have.

US site navigation is complex because of the extensive use of animation and frames. The Dutch site has little animation and is very simple in design.
and colors (such as red). A usability assessment, based on the model in Figure 1, can uncover this information.

To illustrate the importance of usability assessments in uncovering design flaws, we compared seven country sites for a US-based, global software company. Table 1 summarizes the results. The usability elements included animation, horizontal scrolling, graphics, and English content.

It’s interesting that although these sites were customized, each had usability problems. The US and Australian sites did not have animated components, thus minimizing download time. However, both sites made use of horizontal scrolling, which negatively impacted readability. The China and Brazil sites had oversized graphics, which wasted valuable information content space. All non-English sites had various amounts of English embedded in the text.

The company that we studied and summarized in the table is a large, well-established software company selling multiple products in an international market. Common aspects of all the company’s sites included consistent use of background colors, fairly consistent page design, mixed English with native language, good use of vertical white space, and the use of the folder design standard (popularized by Amazon.com design).

Web site usability. The tool’s report generator allows for data analysis based on user profile or environmental selection criteria. Our future endeavors will expand our tool to incorporate our findings on global usability for more effective assessments. 

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References

The number of non-US customers using online business applications continues to increase very rapidly. To take advantage of this opportunity, companies must understand the target market in terms of localized and common online needs. In this respect, we have only just begun to understand the usability issues that influence short- and long-term use of online business applications.

We are developing a tool, an automated environment, that will let users enter their assessment of a particular Web page or site. The tool implements the usability model shown in Figure 1. It supports data entry for one or more selected usability elements in order to analyze the user’s perspective on

About the Authors

Shirley A. Becker is a professor of computer science at the Florida Institute of Technology, Melbourne, and codirector of its Software Engineering Research Center. Her funded research includes Web usability and testing, Web-enabling tools and technologies, e-commerce systems development, and database systems. She recently served as editor of the Journal of Database Management and serves on several editorial review boards. Becker received her MS and PhD in information systems from the University of Maryland, College Park. She is a member of the IEEE, the ACM, and the Association for Women in Computing.

Florence E. Mottay is a graduate student in software engineering and a research assistant at the Center for Software Engineering Research, Florida Institute of Technology, Melbourne. Her research interests are in software testing, formal languages, mathematical models, and e-commerce. She was awarded for excellence in mathematics by the United States Achievement Academy (1997) and for academic excellence by the American Association of University Women (1998). Mottay received a BS in applied mathematics from Florida Institute of Technology.

Contact the authors at the Florida Inst. of Technology, 150 West University Blvd., Melbourne, FL 32901; abecker@cs.fit.edu; fmottay@fit.edu.