

USABILITY CHALLENGES FOR MULTINATIONAL COMPANIES

Abbas Moallem, Ph.D.
PeopleSoft, Inc.
4460 Hacienda Drive
Pleasanton, CA 94588-8618, USA
Abbas_Moallem@peoplesoft.com

With a single click, you can navigate the world and conduct business transactions with hundreds of countries. This extraordinary opportunity offered by the Word Wide Web raises several questions about how to design for international audiences and multinational companies. This paper discusses topics such as language choice, graphical interface, multilingual search engines, and so on, as well as the influence of culture on the usability of business applications software.

INTRODUCTION

Delivering easy-to-use business applications to help companies around the globe increase their revenue, improve profits, and compete more effectively is a challenge for the high technology industry. Besides traditional usability issues that a product design team encounters, designing for international and global audiences is becoming increasingly challenging. In addition to differences in languages, designers must address cultural differences; semiotic differences in signs, symbols, and codes; and several others issues.

PeopleSoft is a leading provider of application software for the real-time enterprise. More than 4,800 organizations in 140 countries run on PeopleSoft software. Providing a user-friendly product for all of our customers, regardless of their location, cultural background, or language, is an enormous challenge. To achieve our objective, it is essential to understand our users when they interact with the PeopleSoft pure Internet-based product lines, from PeopleSoft Customer Relationship Management, Supply Chain Management, and Human Resource Management to Enterprise Performance Management solutions.

Although research on the influence of cultural and language differences in communication, business, and product design is not new (Kaplan 1966), research in the influence of culture on usability continues to grow. Over the past years, many studies have added to our understanding of how cultures affect usability. In this paper, we summarize some of these studies and several areas in which usability is critical in business applications.

Communication, Language and Culture

Translation is one area that may be problematic in communication with other nation's cultures. The cultural component of communication has been the subject of several studies. For example, it has been shown that paragraphing strategies reflect cultural styles based on the language (Kaplan 1966; Hall 1984; Campbell 1993, 1995, and 1998). This indicates that knowledge of cultural characteristics may help improve business communication and interactions.

Because of the influence of electronic commerce and Internet-based communication, knowledge of cultural characteristics is becoming more important. When language is translated, it can be misunderstood because of the difficulty in translating some concepts. When designing interfaces, usability experts seem to focus on the use of native language character sets and notations, such as currency symbols (Nielson 2000). Some research indicates that users perform best when using a fully translated interface and worst when only the manipulation language is translated (Tractinsky. 2000).

Cultural Influence in Conflict Resolution, Product Design, and Marketing

The influence of cultural differences has been shown in a variety of areas, such as conflict resolution, product design, or marketing.

Researchers question whether a designer from a cultural background that is different from the user can influence the relationship between the user and the product". (De Souza and Dejean 1998). They remark that the designers and users can belong to very different cultural universes and, as a result, problems arise concerning the decoding of

information and the divergence of values in relation to products and services.

From a marketing standpoint, J. C. Usunier (1992) demonstrates that the understanding of what constitutes a service and the expectations in relation to services are influenced by cultural factors, with consequences that are not the same for different cultures.

Cultural Factors in Design Methodology

The influence of cultural differences is visible in the process of design, but there has been comparatively little research to consider whether design methods and tools that are developed in one culture can be effectively translated to another culture or whether the design methods and tools are appropriate for the development of cross-cultural systems. (Kumar and Bjorn-Andersen, 1990)

Hofstede (1993) conducted the most significant study in organizational cultures. Hofstede conceptualized culture as “programming of the mind,” meaning that certain reactions were more likely in certain cultures than in others because of differences between the core values of the members of different cultures. He concluded that all cultures could be defined through three dimensions:

1. Power distance: The degree of emotional dependence between the boss and the subordinate.
2. Collectivism versus individualism: Integrating into cohesive groups versus looking after one’s self.
3. Masculinity versus femininity: This could be interpreted as toughness versus tenderness.

Hofstede also noticed that for Western cultures, there is another important dimension, uncertainty avoidance, or the extent to which members feels threatened by uncertain or unknown situations. For Eastern cultures, long-term Confucian orientation is an important dimension, which represents a philosophy of life in which people are prepared to sacrifice short-term results for long-term gains. Other research found evidence of cultural influences in software design, particularly the effect of collectivism versus individualism, as described by Hofstede, between developers and software designers (Phares 1976; Merrit and Helmreich 1996; Rathod and Miranda 1999; Dunckley and Smith 1999 and 2000)

Cultural Issue in Product Usability

Even though cultural aspects have been the center of attention in designing software products, without question, the World Wide Web continues to be the most important

factor in bringing our attention to these cultural differences.

A single click can take one person to another side of the continent. For example, an electronics business from one area of the earth is targeting customers on another side. This type of international, intercultural transaction increases the responsibility of the people who design and create products from a usability standpoint. When addressing usability issues, these areas seem to be considered general priorities: language choices, multilingual searches, and printing issues (Nielson 1996).

Others areas (such as the symbolic representation of images, icons, and graphics; the significance of different colors; the degree of tolerance and expectations; and environmental factors) are all-important and need to be taken into consideration. The number of studies in each of these areas is still very limited.

INTEGRATING CULTURAL FACTORS IN DESIGNING A PRODUCT FOR MULTICULTURAL COMPANIES

The multicultural usability for business applications is in the forefront of design.

The goal at PeopleSoft is to continue to design user-friendly, multicultural applications by utilizing the previously mentioned studies. Usability is critical in several areas. Our usability efforts have focused on the following domains: translations, objects, business practices, problem resolutions, and user satisfaction.

Translation

With the business world standardizing around Microsoft and GUI interfaces almost everywhere in the world, fewer and fewer interface usability issues exist across countries. For PeopleSoft products, the three main areas of consideration are screen layout, ease of use, and linguistics.

Consider the following questions when evaluating the screen layout and ease of use: Do the translated labels, menus, and so on, look uncrowded on the screen, or is text “packed” onto the screens? Is there enough room to spell out standard text, or do we have to create abbreviations that are difficult for users to understand?

Consider the following question when evaluating linguistics: Do the translations look like translations; that is, can users tell that the original text was written in another language, or does it reflect the natural way of communicating in the translated language?

Objects and Culture

In PeopleSoft Internet Architecture, we identified several objects for which we need to consider cultural differences, such as names and icons.

In many Western countries, having a first name, middle name, and last name is standard and is usually enough to distinguish each employee or contact person. In some other countries, having this standard is not enough to distinguish between two people. In some countries, several individuals may have the same first name. In other countries (such as India), use of the first name is not common. We addressed this issue by allowing a different set of Name fields to be chosen, the order of these fields on the page, and how they are used to build the NAME field itself. In some countries, (Brazil, Hong Kong, Belgium, and the Netherlands) we allow a "preferred first name" field to be entered. If one is entered, then it is used to build the NAME field instead of the FIRST_NAME field.

Icons are used in Internet applications to bring usability and ease of use to performed actions. The use of symbols on icons is directly related to cultural value. What kind of icon can be designed to symbolize married status? What is a symbol that can represent marriage in all cultures?

Table 1: Examples of icons that can be interpreted differently, depending on cultural background and environment	
Insurances	
Hold	
Search	
Deny	
Married	
Savings	

Business Practices

The business rules vary in each country. These variations bring difficulties in tracing and providing usable, internationally understandable interfaces. We have identified several issues, such as payroll, education tracking, equity

participation, and rounding issues.

Payroll involves major intercultural differences, which are specifically noticeable in vacation policies and time-tracking techniques. There are also major differences in tracking education levels, such as university versus college, and in tracking equity participation, such as tracing where people lived for the whole vesting schedule.

In addition, many countries round differently. This issue is a real problem in countries with high inflation rates. It is difficult to determine how people are comparing compensation.

Problem Resolution and Functionality

Another issue that is important to consider is the way in which different cultural groups resolve problems. This issue arises frequently with users who handle an application for several countries. Difference in how a problem is handled may affect how help is provided, documentation, and training sessions.

Customer (User) Satisfaction

Customer expectations are different in each country. In the usability area, we strongly differentiate between customers and users. In general, we use *customer* to mean the person who decides to purchase, orders, or pays for a product. Customers may not be actual users, who use a product on a daily basis. We use *users* to mean the interested party who uses the product frequently. Therefore, a satisfied user in one country may be an unsatisfied user in another country.

This issue is seen when performing usability testing or conducting surveys or questionnaires. The degree of customer satisfaction seems to be related to:

- How well an interface has been translated.
- How well a product is customized, based on the cultural environment (that is, business rules).
- How effective the users' equipment is.
- How well users have been trained.

Other factors that may influence user satisfaction include:

- Productivity and efficiency expectations.
- Error management (that is, the attitude of management if an error is committed)

Infrastructure to Achieve Usability Goals

To address, investigate, find solutions for, and improve usability in a global, multicultural, and multinational organization, creating an infrastructure to investigate cultural differences is an important endeavor. For PeopleSoft, with over 150 business applications, usability issues are a priority.

In addition to a department that works on translation issues by testing the applications in each language with specific operating systems, we have also created discussion groups comprising users from around the globe. Important usability issues are shared with the discussion groups before providing recommendations to the design team. Consultations with regional user groups are also an important source. For usability testing, we are creating a testing facility by referring to local resources (equipment and experts) to perform testing in an appropriate environment in a cost saving manner.

CONCLUSION

PeopleSoft provides a variety of business applications to countries with different cultures and languages. The applications are designed to serve the multicultural companies that operate in several countries with distinct cultural, social, and economical systems. Multicultural usability for business applications is in the forefront of design.

PeopleSoft continues to design user-friendly, multicultural applications to remain dedicated to customer satisfaction on a global level.

REFERENCES

- Campbell, C. P. 1995. Ethos: Character and Ethics in Technical Writing. *IEEE Transactions on Professional Communication* 38, 3: 132–138.
- Campbell, C. P. 1998, Beyond Language: Cultural Predispositions in Business Correspondence, Paper presented at Region 5 STC Conference, Fort Worth, Texas, 20 February 20, 1998.
- Campbell, C. P. and Bernick, Ph.. 1993. Editors, "Good English," and International Readers. *IPCC 93 Proceedings*. Piscataway, NJ: IEEE. 38–43.
- De Souza, M., and Dejean, P.H. 1998. "Cultures and Products relationship in a globalised environment", *Anais do P&D Design 98 AenD-BR Estudos em Design*, Volume 2 (October): 513.522. Rio de Janeiro: Ass. de Ensino de Design do Brazil.
- Dunckley, L and Smith, A. 1999., "User Centered Design Issues fix Global Interface Design," in M.A. Hanson et al. (Eds.) *Contemporary Ergonomics* 99, Taylor and Francis.
- Hall, E. T. 1984. *La dame de la vie*. Paris: Seuil.
- Hofstede, G. H. (1994). *Vivre dans un monde multiculturel*. Paris: editions d'Orgnisation.
- Hofstede, G. H. 1980. *Culture's Consequences: International Differences in Work-related Values*. Beverly Hills, Calif.: Sage Publications.
- Hofstede, G. H. 1989. Cultural predictors of national negotiation styles. In F. Maunter-Markov, ed., *Processes of International Negotiations*. Boulder, CO: Westview. Quoted in Ulijn and Strother, 1995.: 186.
- Hofstede, G. H. 1991. *Cultures and organizations : software of the mind*. New York : McGraw-Hill.
- Hofstede, G. H. , Bond, M.H., and C. L. Luk, C.L. (1993). "Individual perceptions of organizational cultures A methodological treatise on levels of analysis." *Organization Studies*, 14(4), 483.503.
- Kaplan, R. B. 1966. *Cultural Thought Patterns in Intercultural Education*. *Language Learning* 16: 1–20.
- Khoo, G. P. S. 1994. "The role of assumptions in Intercultural research and consulting: Examining the interplay of culture and conflict at work" David See-Chai Lam Center for International Communication, Pacific Region Forum on business and management communication,.
- Kumar. K. and Bjorn-Andersen, N. 1990. 'A cross-cultural comparison of IS designer values. *Communications of the ACM*, 33, 5, ~52%538.
- Merritt, A.C., and Helmreich, R.L. 1996. "Human Factors on the Flight Deck. The influence of national culture." *Journal of Cross-Cultural Psychology*, 27 (1), 5–24.
- Nielsen J. 2000., *Useit.com Papers and Essays InternationalEssays International Usability Testing*, http://www.useit.com/papers/international_usetest.html, [On line] [Consulted Aug. 2000].
- Nielsen, J.,1996, *International Web Usability*, <http://www.useit Alertbox>, Aug. 1996 [On line] [Consulted Aug. 2000].
- Nielsen, J. 1998. *Global Web: Driving the International Network Economy*, useit.com, Alertbox Apr. 1998 *Global Web* [On line] [Consulted Aug. 2000].
- Phares, E. J. 1976. *Locus of Control in Personality*. Morristown, NJ:. General Learning Press.
- Rathod, M. M. and S. M. Miranda, SM. 1999 'Telework and Psychological Distance: The mediating effects of cultures and technology in four countries.' *SIGCPR'YY*, New, Orleans. pp 268–275.
- Tractinsky, N., 2000. *A Theoretical Framework and Empirical Examination of the Effects of Foreign and Translated Interface Language, Behavior & Information Technology*, Vol. 19 No. 1, 1-13
- Usunier, J. C. 1992. *Commerce entre cultures :cultures: une approche culturelle du marketing international*. Tome 1. Paris: PUF.