Multilingual Electronic Commerce in a Global Economy

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INTRODUCTION

One of the major challenges facing organizations involved in electronic commerce (e-commerce) today is to organize and summarize information in such a way that end users can effectively and efficiently search for and analyze relevant information. Users can look for both structured as well as unstructured information in a system designed for electronic commerce. An example of structured information is the price of a specified product. Unstructured information, on the other hand, is information that is not well specified or that has multiple specifications. For example, the user may be looking for spices for cooking a shrimp dish where they can choose from a number of options. The user may have individual preferences1 for the selection of spices and may not know exactly how the information can be found in the system.

The problem of finding relevant information is exacerbated in global information management, especially in global electronic commerce. While globalization is presenting new opportunities for people and businesses worldwide, several challenges must be addressed in order to realize its full potential. Examples of these challenges include differences in culture and language, which can be an obstacle to unrestricted and free access of information, as well as the disorganization of the potentially precious knowledge asset. While language technology (Nirenburg, 1992; Onyshkevych & Nirenburg, 1995; Sheremetyeva & Nirenburg, 1996) is making rapid progress, much research is needed in managing and accessing multilingual information in order to reach the full potential of global electronic commerce (e.g., Malhotra, 1997, 1998). In Gangopadhyay and Huang (2000), the issue of knowledge requirements for building information systems that operate in multiple languages has been studied. Specifically, the focus was on studying user behavior in performing various tasks in a multilingual system. In order to study user behavior and performance in a multilingual electronic-commerce setting, a bilingual electronic catalog was designed and tested by online retailers selling products and/or services to customers interacting either in English or Chinese.

BACKGROUND

An electronic catalog is a graphical user interface that presents product and/or service information to users, typically using the World Wide Web. An electronic catalog is a key component of electronic commerce that has been used for business-to-consumer commerce as well as business-to-business commerce (Adam, Dogramaci, Gangopadhyay, & Yesha, 1998; Gangopadhyay, 2002). Although the term electronic catalog might sound like an electronic extension of paper catalogs, it offers features that are far beyond those found in paper catalogs. Such features include computational services such as efficient browsing and searching, online order processing such as checking out products using shopping carts and secure payment mechanisms, and back-end processing such as integration with company databases (Segev, Wan, & Beam, 1995). These features have extended the role of electronic catalogs to the point of being used as electronic storefronts.

With the rapid proliferation of electronic commerce both in local and global markets, there is an increasing need to provide support for internationalization such as foreign currencies, different date and time formats, sort order, and multiple languages (Broin, 1999). The need for providing multilingual support is echoed by the rapid increase of non-English-speaking users on the Internet. For example, it is reported that 75% of Internet users may be non-English speaking by 2005 (Thomason, n.d.). A side effect of the increasing number of non-English users of the Internet is the "contamination" of other languages with English terms (Voiskounsky, 1998). Intercultural class differences can also lead to differences in perceptions of abstractions and generalizations. These differences should be taken into account in designing the graphical user interfaces of e-commerce sites (e.g., Stander, 1998). An example of a multilingual electronic catalog is shown in Figure 1a and 1b, taken from Gangopadhyay & Huang (2000).

Empirical investigations in this field (e.g., Gangopadhyay & Huang, 2000) show that users prefer to use their ethnic language when conducting tasks that are

Figure 1a. Three modes of search in English

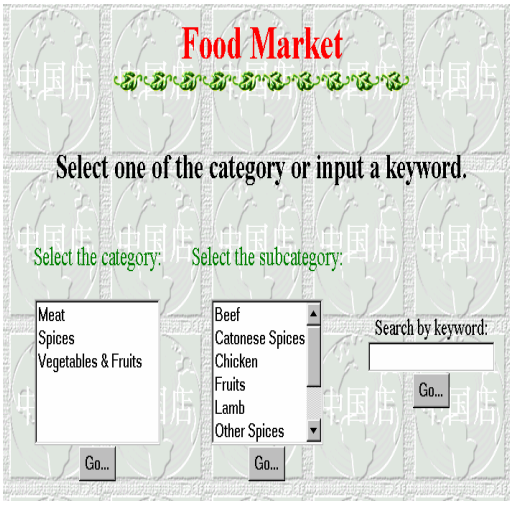
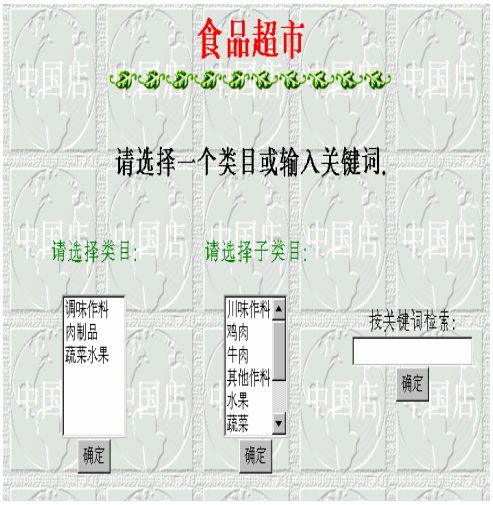


Figure 1b. Three modes of search in Chinese



unstructured or semistructured. However, language preferences diminish when the tasks become more structured. Also, nonethnic terms, such as computer, are difficult to express in an ethnic language where others, such as kung pao, are difficult to express in a nonnative language such as English. Hence, e-commerce Web sites designed for structured tasks dealing with nonethnic products should use international languages such as English. On the other hand, if the tasks performed by the users are likely to be unstructured and the products or services are ethnic in nature, ethnic languages should be used for designing the Web site.

FUTURE TRENDS

From the research results described above, we can surmise several implications for future research and practice in global electronic commerce. First, it is quite clear that users prefer to use their ethnic language when searching for ethnic products because it is difficult to translate them into another language, such as English. Some researchers (e.g., Doherty, 1999) assert that the *unified content model* is easier to implement in a global electronic commerce system. However, the unified content model may not be good from a user-interface standpoint for all product categories since users may prefer to use their own ethnic language.

Another closely related issue is the level of understanding of the information presented for bilingual users. The previous studies indicate that the language preference is not a major issue when dealing with structured information. However, when dealing with unstructured information, there is a significant preference toward using one's native language. While it takes more research to establish a relationship between language preference and information complexity, such research can render significant insights into the design of multilingual interfaces for global electronic commerce.

In multilingual systems that depend on word-for-word translation from one language to another, a lot of information may be lost during the translation process. For example, it is hard to tell the differences between *table* and *desk* in Chinese. In these cases, images may be helpful to present product information. It is also worthwhile to study the effect of multimedia information on user performance and satisfaction in global electronic commerce.

CONCLUSION

With the rapid proliferation of non-English speakers on the Internet, it is becoming critical to be able to provide interactions in multiple languages. The critical issues discussed in this paper address the importance of multilingual interfaces, as well as language preferences in conducting various types of tasks. As the global economy continues to grow, technological solutions will be sought after to solve existing as well as newer issues that will arise in the future.

REFERENCES

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