Cross-Cultural and Cognitive Aspects of Web Site Navigation

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The Web is intrinsically a global medium. Consequently, deciding how a Web site should express potentially culture-specific content to worldwide visitors is an important consideration in Web site design. In this article, the authors examine some of the site content characteristics that can lead Web site visitors to an optimal navigation experience, or flow, in a cross-cultural context. In particular, a cognitive framework focuses on the effect of culture on attitudes toward the site and flow. The authors suggest that the congruity of a Web site with a visitor's culture is a site content characteristic that influences the likelihood of experiencing flow. The authors develop a conceptual model to account for the impact of culture and other site content characteristics on flow and describe preliminary evidence supporting their model.

Consumers around the world have access to the Internet, making it a unique medium with global reach. Although a Web site may be hosted in the United States, consumers all over the world can surf that site. For example, consumers in Japan with access to the World Wide Web can browse wine.com's site, hosted in California, and purchase their favorite wines online. The potential of electronic commerce (e-commerce) for international trade is

enormous. Estimates for global e-commerce in the year 2003 range up to $3 trillion (Forrester Research 2001). For e-commerce to deliver its global sales potential, careful consideration of how potentially culture-specific content is portrayed on a Web site is of paramount importance. Culture can have a major influence on the effectiveness of e-marketing efforts (Samiee 1998), but little is known about how culture influences global visitors' responses to individual Web sites. The present research will address the impact of culture on some measures of Web site effectiveness such as persuasion and intentions to revisit and purchase from a site.

One of the most evident manifestations of culture is language. Currently, most Web sites hosted in the United States are offered only in English (Fox 2000). This was not much of an issue in 1996, when 80 percent of Web users' first language was English. Today, less than half of Web users' first language is English. Very soon, projections indicate that only one third of Web users will speak English as their first language (Crockett 2000). Despite the increased presence of bilingual consumers on the Internet, very little attention has been devoted to how Web users react to sites that are presented in their first versus their second language. Furthermore, there is little research examining what factors, if any, influence bilingual consumers' attitudes toward second-language Web sites and the products they feature.

This article will provide a cognitive framework to examine the effect of the manifestations of culture, including language, on Web site effectiveness. We will begin by

conceptualizing the notion of culture. Then, we will examine how culture can affect global visitors' attitude toward a Web site (A_{site}) and Web site navigation.

CULTURE AND SITE NAVIGATION

The Cultural Manifestations

Culture influences attitudes and behavior through its specific associations or manifestations: values, heroes, rituals, and symbols. These four cultural manifestations can be used to summarize most, if not all, cultural effects found in the literature (Hofstede 1997; Luna and Gupta 2001). These manifestations are the forms in which culturally determined knowledge is stored and expressed. Thus, each cultural or national group possesses different cultural manifestations. In this article, we use these four manifestations of culture as they lend insight into how e-marketers can make their sites congruent with visitors' cultures.

Values rest at the heart of most definitions of culture. In fact, much research suggests that values drive an individual's behavior. Historically, marketing researchers have often cited Rokeach (1973), who viewed "a value as a centrally held, enduring belief which guides actions and judgments across specific situations and beyond immediate goals to more ultimate end-states of existence" (p. 161). Examples of values include "freedom" and "pleasure" (Rokeach 1968).

From a marketer's perspective, values may be the most important of the manifestations of culture. We can infer from previous research (e.g., Belk 1985; Hofstede 1997) that values have a central role among the other manifestations of culture. Consistent with that reasoning, in this article we will consider heroes, rituals, and symbols as manifestations that directly express and represent the values of a particular culture.

Heroes refers to "persons, alive or dead, real or imaginary, who possess characteristics which are highly prized in a culture, and who thus serve as models for behavior" (Hofstede 1997:8). This concept can be extended to include reference groups and opinion leaders (McCracken 1986, 1989). Heroes may influence consumers through their association with certain products and brands (e.g., Michael Jordan and Nike sports apparel).

Rituals are "a social action devoted to the manipulation of the cultural meaning for purposes of collective and individual communication and categorization. Ritual is an opportunity to affirm, evoke, assign, or revise the conventional symbols and meanings of the cultural order" (McCracken 1988:84). Rituals are pervasive in any society. Culture-specific grooming rituals, romantic rituals, and feeding rituals are constantly being performed by all members of a society. Rituals are important for marketing because they involve the consumption of goods and services. They give origin to consumers' cognitive schemas and scripts, which ultimately reinforce ritualistic behavior.

Symbols are a broad category of processes and objects that carry meaning that is unique to a particular group of people or culture (Geertz 1973:89). Hence, a particular society's symbols may not exist in different cultures, or their meaning may be different. Language is a set of symbols, as are different gestures, pictures, or objects. The symbols most frequently studied by marketing researchers are language and products (Belk 1985; Durgee 1986; Sherry and Camargo 1987; Solomon 1983). In the next section, we will focus on language as an important cultural symbol.

Language as a Cultural Symbol

Language is a symbol expressing the concepts and values embedded in culturally bound cognitive schemas. Thus, the language used and processed in a particular instance (e.g., while navigating a Web site) may activate culturally specific concepts and values that another language may not. A psycholinguistic model, the conceptual feature model (CFM) (de Groot 1992), helps illustrate the nature of language as a symbol. The CFM specifies how bilingual individuals map form (words) to meaning (concepts). According to the CFM, words in each language activate a series of conceptual features. The features activated by one word—for example, *dinner*—are not necessarily the same features activated by its Spanish translation equivalent, *cena*. Hence, *dinner* may be associated with the concepts *evening* and *convenient*, while *cena* may be associated with the concepts *evening* and *family*.

We can conclude that bilinguals' minds contain two language-specific knowledge schemas: the *dinner* schema (English schema) and the *cena* schema (Spanish schema). Each of the schemas may be activated alternatively depending on the language in which bilinguals are addressed. The CFM, then, hypothesizes that cognitive structures are affected by a cultural cue, language, and implies that bilingual individuals experience a "cognitive duality," switching from one cognitive structure to the other automatically as a function of the language they process at any specific time.

Language-specific cognitive structures imply that different values may be activated by different languages (e.g., *harmony*). Several empirical studies in marketing research support this theorizing (Luna and Peracchio 2002; Sherry and Camargo 1987). The results of those studies show that, for example, Spanish-English bilinguals are more likely to activate concepts that refer to Hispanic (Anglo) culture and values when they process Spanish- (English-) language stimuli.

An understanding of the manifestations of culture is essential to our conceptualization of cultural congruity.

When Web sites feature values, heroes, rituals, and symbols that are consistent with those of the visitor's culture, they can be considered to be culturally congruent. However, it is important to recognize that cultural congruity can be a matter of degree. For example, a site could include heroes from the visitor's culture, but the symbols in the site (e.g., its language or actions performed by the heroes) could be foreign. Thus, this site might be considered partially or somewhat culturally congruent.

The Cultural Congruity of a Web Site

We propose that culture affects the Web site navigation patterns of site visitors. This impact is best understood by examining the manifestations of culture expressed in a Web site. We suggest that *cultural congruity*, the congruity of a Web site with a visitor's culture and the manifestations of that culture, must be considered when designing Web sites. Web sites can achieve cultural congruity in two ways: (1) *content congruity*, or the inclusion in the site of verbal and nonverbal content congruent with specific cultures, and/or (2) *structural congruity*, or allowing for site structures that conform with those cultures.

Content congruity could be achieved by including pictures of the targeted country accompanying text that describes product usage situations that are culturally appropriate. In addition, entire culture-specific subsections of a Web site could be designed—for example, if the target country has a collectivistic culture where the interests and opinions of the group prevail over those of the individual, the site might include a section of testimonials from local consumers. Structural congruity can be achieved by customizing the structure of the whole site to be appropriate for the target culture. For example, the site could have a hierarchical or a search-based structure, depending on whether the target visitors belong to a high-context culture (e.g., Japan) in which hierarchical structures might be preferred or a low-context culture (e.g., Germany) in which search-based structures might be preferred. In hierarchical sites, content is only accessible by following a deep sequence of pages (e.g., new cameras, SLR cameras, manual cameras, Nikon, FM2N). Another characteristic of hierarchical sites could be links to consumer groups, suppliers, distributors, and so on at every level of depth in the site. In search-based or flat sites, all content would be available from the home page directly so visitors could get the information they searched for. Hence, if the visitor were interested in product technical information, that information would be presented as quickly as possible, without the context of where the product fits in the company and its product line, who uses the product, and so forth.

A Web site must include content and have a structure that is consistent with the values (or cultural orientation), symbols, rituals, and heroes of their visitors. Web sites are particularly suitable for this type of adaptation to local cultures because of their interactivity. The Web is a hypermedia computer-mediated environment, with the potential for machine interactivity (Hoffman and Novak 1996). Hence, a site's visitors need not be exposed to content that is not interesting to them. In fact, visitors construct their personalized content by clicking through or requesting a particular set of pages within the site. The result is that the Web can be an optimal tool for cross-cultural marketers. It allows e-marketers to create one standardized set of materials that could be produced at world headquarters, but at the same time, it provides the possibility of including content that can be culture specific and also allows for the localization of marketing communications.

A Web site targeting global visitors would ideally contain links to pages that address different cultural values, heroes, rituals, and symbols. For example, hyperlinks on the company's home page might offer a visitor from Korea the opportunity to visit a page in which the company's product is featured as a way to become part of a user community. A different link on the home page, however, could offer low-context U.S. consumers the chance to click through to the product features immediately.

It may seem at first sight that e-marketers should include an endless number of pages in their sites to address all possible configurations of cultures. However, the number of pages may not need to be unwieldy. There are only a few major dimensions along which values vary significantly across cultures (Hofstede 1997). The other cultural manifestations could be similarly categorized after the appropriate marketing research. For instance, a firm may have concluded through marketing research that for their particular product class, there are only a few categories of credible heroes across cultures: respected professionals who are product experts, peers, and public figures. Thus, a "Testimonials" section of a Web site could include links to pages, including testimonials of culture-specific heroes in those categories. Also through marketing research, a company may have discerned that, in the countries where their products (i.e., photographic cameras) are most successful, there may be limited variation in the symbolism attached by consumers to their products. In the case of a camera retailer, cameras could be used mostly as a symbol of sophistication or as a means of expressing family values, depending on the culture. Links could be added to the retailer's home page to reflect these differences.

Another method to simplify the content and structure of a cross-cultural Web site would be to consider the central role of values among the cultural manifestations. Symbols, heroes, and rituals express and reinforce a set of cultural values. Therefore, a company's home page could contain links to pages that address culturally specific values. From there, site visitors would have the option to click through to pages that describe symbols, heroes, and rituals

that are consistent only with the values they previously chose. For example, links on a camera retailer's home page could direct a consumer from a collectivistic culture to a page titled "how our cameras will make you a better team player," or it could direct someone from an individualistic culture to a page titled "learn to express yourself with our cameras." These value-specific pages would in turn lead the consumer to a set of culture-specific pages, with little or no overlap between structures.

Finally, by considering the role of language as a symbol of certain culture-specific values and associations (see above discussion of the CFM), e-marketers could enhance cultural congruity by offering the option in their home pages for consumers to choose the language of the Web site. Once the consumer chooses a language, the rest of the Web site would be consistent with the values symbolized by that language. For instance, the English version of the site could emphasize the technical attributes of a product, while a Korean version would focus on the relationship-building potential offered by the company. We do not imply that individuals from different cultures who happen to speak the same language will hold the same values. If a visitor chooses the Portuguese-language version of a Web site, his or her Internet protocol (IP) address will help decide whether to serve the Portuguese or the Brazilian culture site.

Benefits of a Culturally Appropriate Web Site

Our reasoning suggests that culturally congruent sites will be those that provide visitors with the possibility of choosing a culturally appropriate click stream by offering links to pages that address the respective values, symbols, heroes, and rituals of a particular culture. Conversely, culturally incongruent sites do not offer visitors such choice. They tend to be ethnocentric in nature, expressing exclusively the cultural manifestations of the company's country of origin. The Web is an optimal environment to examine how cultural values influence marketing effectiveness because of consumers' ability to "construct" the content to which they are exposed by consciously choosing which pages they click through. Visitors to a site may choose to be exposed to certain content over another depending on their personal, culture-bound preferences.

Consider, for example, the click stream of a visitor from a collectivistic, high-context, high–power distance culture such as Korea. It might consist of the following pages in a pharmaceutical company's Web site: Home, Korean Language, Company History, Community Projects, Peer Testimonials, Doctor Suggestions. On the other hand, the click stream of a visitor from an individualistic, low-context culture such as the United States might be as follows: Home, English Language, Product Descriptions, Our Drugs Help You Keep Your Independence. As can be

observed in this example, a culturally congruent Web site must be consistent not only with consumers' values but also with the manifestations of those values: symbols (e.g., Korean language), rituals (e.g., performing a community project), and heroes (e.g., authority figures and peers). We do not suggest that important benefits or claims that provide the brand with a competitive advantage across cultures be changed or dropped in certain cultures. Rather, those claims should be reframed in different contexts to be congruent with visitors' cultures.

A cognitive explanation may be offered for a visitor's choice of a culturally appropriate click stream. Exposure to a culturally appropriate Web site may decrease the cognitive effort required to process the site. When new information conforms to the (cultural) schemas of an individual, it is easier to process and assimilate. However, when the new information is highly incongruent with the schemas of the individual, it is likely to increase the level of cognitive capacity required to process it (Mandler 1982).

Supporting our cognitive interpretation of cultural factors, recent research taking a culture-based approach in the study of human behavior also acknowledges the role of cognitive schemas in the interpretation of media content (Aaker 2000; Hirschman 1999). Following research in advertising (Peracchio and Meyers-Levy 1997), we can argue that if the site has very low cultural congruity, it may be too difficult to process, and visitors will tend to generate negative thoughts, resulting in decreased A_{site}. On the other hand, a high level of cultural congruity will facilitate processing, resulting in increased A_{site} relative to low-congruity sites. It is possible, however, that a very high level of congruity (cultural or otherwise) could also lead to decreased A_{site} due to tedium or boredom (Peracchio and Meyers-Levy 1997). Moderate cultural congruity, whereby visitors can relate to the content but are still challenged by relatively new information formats or settings, may be optimal.

To this point, we have suggested that a site's cultural congruity will have an impact on consumers' navigation patterns. We have discussed language in its symbolic role. For example, Spanish usage by U.S. Latinos might carry the symbolic meaning of defiance against the mainstream culture or be used to express emotion. Through its symbolic nature, language expresses a set of values and is a key to the activation of culture-specific schemas, possibly leading to schema congruity or incongruity, depending on the match between the language used, the content/topic of specific pages within the site, and other cultural cues embedded in the site.

For example, if the testimonials page in Compaq's Web site were in English, it could increase psychic distance between the brand and Spanish-speaking visitors. Due to the nature of language as a cultural marker, the use of a visitor's native language can symbolize the marketer's

respect for the visitor's culture (Koslow, Shamdasani, and Touchstone 1994), thus creating a bond between the brand and consumers regardless of the page's content. In addition, Spanish might be a better choice for communicating the verbal content of the testimonials page because Spanish text connects better with consumers at the emotional level (Luna and Peracchio 2002). However, the product specification pages may yield better results in English because, at least for U.S. Hispanics, English is more strongly associated with technical concepts. It is clear, then, that content, language, and cultural congruity can interact in very complex patterns, which can only be ascertained through appropriate testing of a Web site.

Another consideration with respect to choice of language for a Web site is the cognitive processing of language itself. Related to this topic is the examination of how visiting a site in a foreign language influences site processing from a resource-matching perspective (Peracchio and Meyers-Levy 1997). In other words, second-language sites may present an additional processing load that could overtax consumers' cognitive capacity by creating a mismatch between the cognitive resources required to process the site and consumers' available resources. This effect is relevant to e-marketers because it may affect visitors' navigation experience. We will examine this issue in detail in the next section. As in our discussion of cultural factors, we will use a cognitive framework to analyze the effect of language processing on Web site navigation.

Bilingual Language Processing

The demographics and social characteristics of international Web users are such that these individuals are likely to speak English as a second or other language. Web users tend to be highly educated, innovators, and of medium to high social standing and income (Asociación de Usuarios de Internet 2001). Thus, a large number of consumers targeted through the Web at the international level have a working knowledge of English (Ryan 1999). However, most of them are more fluent in their native language, so navigating through English sites is likely to require greater cognitive effort than navigating through native-language sites. E-marketers must consider the possibility that second-language sites could result in increased challenge and difficulty for global visitors. They must also contemplate whether additional factors interact with a site's language to increase or decrease processing difficulty. For instance, if characteristics of the site content, such as graphics, can diminish the potentially negative effect of presenting Web sites in the consumers' second language, e-marketers may not need to translate the site to their consumers' various native languages.

To understand the circumstances in which second-language processing on the Web might exceed consumers' cognitive resources, we should examine psycholinguistics models that describe how individuals process and store language. A recent and widely accepted model of bilingual concept representation is the revised hierarchical model (RHM) (Dufour and Kroll 1995; Kroll and de Groot 1997). This model builds on previous findings (Durgunoglu and Roediger 1987; Snodgrass 1984) suggesting that there exist two levels of representation in the bilingual's mind: the lexical (word) level and the conceptual (meaning) level. At the lexical level, each language is presumed to be stored separately. However, at the conceptual level, there is a unitary system in which words in each language access a common semantic representation or meaning. Thus, according to Dufour and Kroll (1995), bilingual individuals possess a "hierarchical arrangement of words and concepts, with a separation at the lexical level but with connections to a semantic system that is shared across languages" (p. 166).

The connections between words in different languages made at the lexical level are referred to as word associations or *lexical links*, while the connections in memory between lexical representations in either language and the meanings they represent are referred to as *conceptual links*. The model specifies stronger conceptual links between the lexical representations in an individual's first language (L1) and the semantic representations in memory (concepts). Conceptual links to the individual's second language (L2) are weaker than L1 links because it is only after individuals have achieved a high level of proficiency in their L2 that they rely less on their L1 to gain access to meaning. Thus, the strength of both lexical and conceptual links is a function of the L2 proficiency of the individual in question. However, even after the individual has become fluent in both languages, there is a residual asymmetry in both lexical and conceptual links (Dufour and Kroll 1995; Kroll and de Groot 1997). In conclusion, this model would suggest that processing an L2 message at the semantic level is more cognitively effortful than processing an L1 message.

At the same time, research in psycholinguistics testing the RHM has found that the accessibility to concepts of an L2 text may be facilitated by manipulating other elements of the stimulus, such as whether it is accompanied by a congruent picture. For example, La Heij, Hooglander, Kerling, and Van Der Velden (1996) found that translation of the written stimuli from L2 to L1 was facilitated in the form of shorter latencies by congruent pictures, while incongruent pictures resulted in higher latencies. Thus, pictures seem to aid or hamper language processing, depending on their level of relatedness to the textual stimulus. La Heij et al.'s (1996) findings imply that pictures may moderate the predictions of the RHM. That is, the weaker L2 conceptual links may be "strengthened" by a pictorial cue that facilitates activation of the concept represented by the L2 word. Confirming this reasoning, Luna and Peracchio (2001) showed that pictures that are

congruent with the copy of an L2 ad facilitate conceptual processing by bilingual consumers. Hence, an L2 ad could be as effective as an L1 ad if nonverbal cues were provided to facilitate message processing. Following the theorizing described in the previous section, we propose that both graphic congruity and cultural congruity will increase the likelihood of conceptual processing of L2 verbal material.

We extend the RHM to measures relevant to cross-cultural e-marketing. Our extension of the model predicts that L1 site content will generally be more easily processed than L2 content. Without facilitating cues, the additional difficulty of L2 processing may reduce the ability of a site's foreign visitors to achieve an optimal navigation experience. Graphical cues or cultural congruity, however, may help global visitors overcome this detrimental language effect and achieve an optimal navigation experience even in their second language. But what do we mean by an "optimal navigation experience"? The next section describes an optimal navigation as the experience of flow.

FLOW IN A GLOBAL, INTERACTIVE MEDIUM

In addition to its global nature, a computer-mediated environment such as the Web has another unique characteristic: interactivity. In such an environment, individuals may reach a state in which their attention is focused solely on the universe contained within the boundaries of their network navigation experience. This state is frequently evidenced by users' comments, such as, "I forgot where I was," or "I completely lost track of time." Such a state has been labeled *flow* in previous research (e.g., Csikszentmihalyi and LeFevre 1989). Csikszentmihalyi (2000) described flow as consisting of several characteristics: a challenging task, focused attention, loss of self-consciousness, perceived control over the situation, clear task demands and unambiguous feedback, and intrinsic enjoyment. Recently, Hoffman and Novak (1996) added another characteristic to their definition of flow in the context of Web navigation: they argued that flow is also characterized by a seamless sequence of responses facilitated by machine interactivity, the extent to which consumers can "provide and interactively access hypermedia content" (p. 53).

An e-commerce site's capacity to induce a state of flow in their visitors is an important attribute. Prior research exploring flow in Web navigation has found that some of the key consequences of flow for individuals are increased learning, exploratory and participatory behaviors, positive subjective experiences, and a perceived sense of control over their interactions in a computer-mediated environment (e.g., Novak, Hoffman, and Yung 2000). In the present research, we will focus on two potential consequences of flow that have been previously unexplored: intentions to
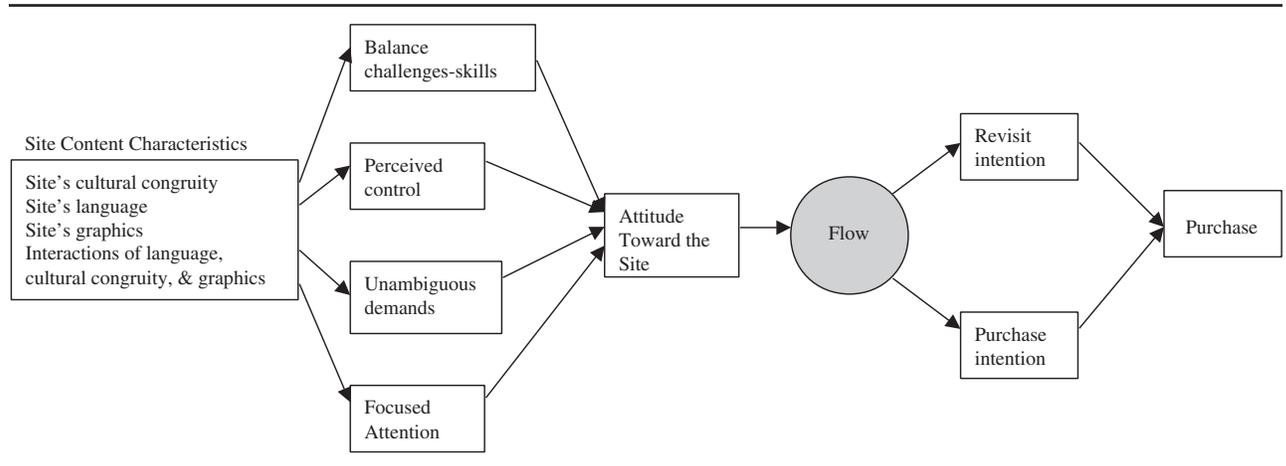
revisit the site and intentions to purchase from the site. Intention constructs are important to marketers as they are traditional measures of marketing strategies' effectiveness and thus enhance the relevance of the flow construct. In addition, while previous research has focused on the experience of flow while navigating the Web in general (across multiple sites), we will examine flow in the context of individual Web sites.

Consistent with the existing flow literature, we will consider the following antecedents of flow: (1) the challenges that a Web site presents for its visitors and whether those challenges present a good fit with their skills, (2) the focused attention of the visitors, (3) visitors' perceived degree of control over the navigation experience, and (4) the sense of knowing what one is supposed to do or the degree to which the site presents unambiguous demands (Hoffman and Novak 1996; Novak et al. 2000). However, we argue that the effect of those antecedent variables on flow is mediated by A_{site}. Csikszentmihalyi (2000) theorized that flow consists of both cognitive and affective components. The cognitive components may include the antecedents described above. In an e-marketing environment, the affective or enjoyment component could be conceptualized as visitors' A_{site}.

In this article, therefore, we will describe a cross-cultural model of flow that includes both dimensions of flow described in the extant literature, cognitive and affective. Consistent with cognitive-based models of attitude formation (Fishbein and Ajzen 1975), we propose that A_{site} mediates the relationship between cognitive factors and flow, which is itself an experiential or behavioral construct (Hoffman and Novak 1996; Privette and Bundrick 1987). At the same time, site content characteristics such as cultural congruity, graphics, and language may influence the cognitive and affective components of flow. Our model, presented in Figure 1, does not attempt to be all-inclusive regarding the antecedents or consequences of flow. Rather, we focus on several key constructs investigated in previous research and relevant to cross-cultural e-marketing.

We should note that in this article, we consider A_{site} and purchase and revisit intentions as measurements of Web site effectiveness. Web sites, however, make it possible for marketers to accomplish many objectives. For example, some Web sites could just have an objective of information dissemination. Others could be designed specifically to facilitate purchases, generate qualified leads, or cement a relational partnership or alliance (Watson, Berthon, Pitt, and Zinkhan 2000). In such cases, other measures of site success may be considered, such as conversion efficiency (Berthon, Pitt, and Watson 1996) or an adaptation of SERVQUAL (Kettinger and Lee 1994; Parasuraman, Zeithaml, and Berry 1988; Pitt, Watson, and Kavan 1995). The model discussed here applies mostly to marketers seeking to build their brand by enhancing consumers'

FIGURE 1
Flow in Cross-Cultural Web Sites

associations and future intentions to use the site, assuming that this will lead to purchase both online and offline.

Antecedents of Flow

Site content characteristics. Culturally congruent sites will be familiar to visitors, thus facilitating semantic elaboration of the content of the site. As a result, the resources required to navigate culturally congruent sites will likely not exceed those that site visitors have available. Visitors, then, should process culturally congruent sites more easily than culturally incongruent sites. Culturally congruent sites may also increase visitors' perceived control over the navigation experience, represent an environment where demands are clearer than in culturally incongruent sites, and lead to a higher degree of focused attention because they facilitate elaborative processing.

Regarding the processing of language itself, if the site's content is presented in a visitor's second language, it may increase the difficulty of navigation. Thus, more cognitive resources will be required so the resources required to navigate a site may exceed the resources site visitors have available. Second-language sites may also lead to a diminished perceived control over the interaction, less clear demands because of visitors' difficulty to decipher the text, and diminished focused attention because of the hurdle of elaborative processing that second-language text represents.

With respect to the site's graphics, a number of advertising researchers have examined the facilitating effect of pictures in ad processing by monolinguals (Alesandrini 1983; Holbrook and Moore 1981; Houston, Childers, and Heckler 1987; Lutz and Lutz 1977; Schmitt, Tavassoli, and Millard 1993). Several studies have theorized that pictures that are congruent with the brand name of the product

featured in an ad facilitate processing of the message by providing a frame to process the ad claims (Houston et al. 1987). In addition to congruity between the brand name and the ad picture, the relationship or congruity between the product attribute described in the ad claims and the ad picture must also be considered. If they are congruent, processing of ad claims is facilitated by allowing relational processing between the information conveyed in the picture and the ad claims (Schmitt et al. 1993; Unnava and Burnkrant 1991). Therefore, congruent graphics seem to lead to decreased cognitive processing challenges. They may also result in increased perceived behavioral control, clearer demands, and an increase in focused attention because of the facilitatory effect of congruent graphics on elaborative processing.

A Web site's language may interact with cultural and graphic congruity to influence whether a site visitor achieves a flow experience. Hence, if a site is in the visitor's second language, navigating through it may be too challenging, resulting in an imbalance between the individual's challenges and skills and making it more difficult to experience flow relative to a first-language site. However, even second-language sites may be conducive to flow if they are designed so that graphic cues help visitors process the verbal content. We should expect a similar facilitatory effect of cultural congruity on second-language site processing (Luna and Peracchio 2001, forthcoming). We could conclude that if a Web site's content is supported by adequate cultural or graphic cues, it may not be necessary to translate a Web site to each of its international visitors' respective languages. However, this conclusion must be interpreted with caution: by not translating the Web site to consumers' native languages, e-marketers may be creating a culturally incongruent Web site (language can be considered a symbol). Thus, the

trade-off between the costs and benefits of translation must be carefully considered.

Proposition 1: Cultural and/or graphic congruity will facilitate the processing of second-language Web sites.

Balance challenges-skills. The level of challenge provided by a Web site may affect A_{site}. Web sites that are not challenging enough may lead to tedium and boredom (Anand and Sternthal 1990). Therefore, we should expect that if a Web site offers sufficient challenge to interest visitors, more positive A_{site} might result. Ghani and Deshpande (1994) found that the level of challenge in human-computer interactions is positively related to flow. One could argue, however, that challenge is only positively related to A_{site} if such challenge or difficulty is not excessive. Resource-matching views of information processing lend support to this reasoning in that consumers who have a higher (lower) level of available processing resources will respond positively to an ad that requires a high (low) level of resources (Peracchio and Meyers-Levy 1997).

Flow research also recognizes the nonmonotonic relationship between flow and challenge. Flow can only occur if visitors are challenged enough not to be bored, but not to the point where too much challenge could lead to anxiety (Csikszentmihalyi 2000). Operationally, we could say that frequent Web users who are used to navigating Web sites (high-skilled visitors) may welcome reasonably higher levels of challenge. Therefore, we can anticipate that for frequent Web users, higher levels of perceived challenge are associated with a more positive A_{site}. On the other hand, individuals who are not proficient Web users may be prevented from achieving flow by challenging sites.

In a cross-cultural context, site content characteristics such as language and graphic and cultural congruity may influence a site's level of challenge. For example, culturally incongruent sites may present visitors with added challenges because visitors will not be familiar with the content of the site (the values, rituals, heroes, and symbols expressed in the content), so the activated schemas will not be as rich as if the content was culturally congruent, thus preventing adequate elaborative processing.

Proposition 2: Site content characteristics influence whether a visitor has sufficient cognitive resources to successfully process a site, which influences visitors' attitude toward the site.

Perceived control. Csikszentmihalyi (2000) described perceived control as one of the components of flow. Individuals in flow feel they are in control of their actions and of their environment. They do not necessarily have to be aware of this control as they perform the activity. What matters is that they are not worried or anxious about their lack of control over the situation. The issue of perceived control emerges when site visitors are able to easily navigate through the site, when they feel they know what they will find if they click on specific links, and when the information presented to them is consistent with their expectations. Few, if any, surprises are presented by external agents. Perceived control, then, may lead to positive A_{site}.

For example, if pop-up ad windows keep interfering with consumers' navigation experiences, they will feel that they are not in control, which may result in negative A_{site}, and visitors' flow experience will be hindered. Or in a cross-cultural context, if visitors are reading a foreign language and the content of the site is culturally foreign to them, they will feel like they are losing control over their interactions. If visitors are not able to find what they are looking for, their expectations may not be met. This may result in negative affect toward the site. In conclusion, culturally sensitive site content and design may increase visitors' perception of control of their experiences.

Proposition 3: Site content characteristics influence the degree of control perceived by visitors, which influences visitors' attitude toward the site.

Unambiguous demands. According to Csikszentmihalyi (2000), for a task to lead to flow, it must contain coherent, noncontradictory demands for action. When clear demands exist, one's awareness is limited to a restricted range of possibilities. When a Web site designer ignores the visitors' culture and constructs an ethnocentric site, the clear-cut limited universe of visitors is ambiguated through the use of unfamiliar cultural content. This lack of a clear direction may lead to frustration and negative affect (A_{site}).

For example, to find the price of a product on a U.S. site, Spanish visitors may have to click on the picture of George Washington set on a green background (a U.S.-specific symbol). The foreign visitors may wonder who the man is in the picture, why the picture is there, and where the product's price is on the page. Figure 2 provides a current example of site ethnocentricity and its effect on visitors' perceptions of the clarity of demands in a consumer e-tail site. Consumers have to click on the symbol of an oil lamp in order to add items to their "wish list." It is easy to see why some foreign consumers not familiar with this cultural symbol may be confused about what to do with the picture of the oil lamp, particularly if they are not very fluent in English and do not know the idiomatic meaning of the term *wish list*. Such consumers will likely feel frustrated, develop a negative A_{site}, and find it very difficult to engage in flow in that Web site. In conclusion, cultural congruity and language interact to facilitate or hinder flow through the establishment of clear or ambiguous demands and positive or negative A_{site}.

Proposition 4: Site content characteristics influence a site's cultural ambiguity or clarity, which influences visitors' attitudes toward the site.

Focused attention. Ghani and Deshpande (1994) theorized that attention or concentration is one of the most important components of flow. Flow research considers a direct relationship between focused attention and flow. Following MacInnis and Jaworski's (1989) cognitive framework of ad processing, we hypothesize that A_{site} mediates the effect of focused attention on flow. Attention is defined as the general distribution of mental activity to the tasks being performed by the individual (Moates and Schumacher 1980). Attention is a finite resource that can be allocated in various degrees to processing the Web site being visited, the primary task, or secondary tasks such as generating unrelated thoughts or engaging in social interaction.

MacInnis and Jaworski (1989) described how individuals, when they focus attention on a stimulus such as an ad or a Web site instead of a secondary task, are better able to understand the site content and relate it to themselves. This increased capability for understanding provides an opportunity for deeper processing of the site and its meaning. In addition, under highly focused attention, individuals are likely to engage in constructive processing (i.e., relating the site content to their selves) and role-taking operations. If the Web site supports this type of processing and is framed in a generally positive context, A_{site} will tend to be positive (MacInnis and Jaworski 1989).

Site characteristics such as supporting graphics, cultural congruity, and having the site in visitors' first language may lead to more focused attention and allow more elaborative processing than sites including incongruent or no graphics or sites that are culturally incongruent or in visitors' second language. If such elaborative processing is of a positive nature, it will likely lead to positive A_{site}.

Proposition 5: Site content characteristics will influence the amount of focused attention dedicated to the site, which will influence visitors' attitude toward the site.

Attitude toward the site. The construct of attitude toward the ad (A_{ad}) has been extensively studied in the marketing literature. MacKenzie and Lutz (1989) defined it as "a predisposition to respond in a favorable or unfavorable manner to a particular advertising stimulus during a particular exposure occasion" (p. 49). A_{ad} has been found to mediate the influence of advertising on brand attitudes, or A_b (Homer 1990; MacKenzie, Lutz, and Belch 1986). Mitchell (1986) offered evidence that A_{ad} and A_b are indeed separate constructs and examined the process through which verbal and visual components of ads affect both attitudinal

FIGURE 2
A Web Site's Use of Ethnocentric Symbols

constructs. That study found that both picture and copy manipulations can affect A_{ad} and that A_{ad} has a significant impact on A_b.

In an interactive medium such as the Web, a similar construct to attitude toward the ad, A_{site}, should be expected to have an important effect (Chen and Wells 1999). To have a "sticky" site, one that motivates visitors to return to it, visitors must have a positive A_{site}. Furthermore, to absorb consumers into a state of flow, a Web site may have to induce intrinsic enjoyment (Csikszentmihalyi 2000), which in a Web environment could be conceptualized as positive A_{site}. Visitors who have positive A_{site} will tend to lose track of other activities unrelated to their site navigation. Our reasoning follows Ghani and Deshpande (1994), who argued that the enjoyment derived by human-computer interactions is one of the most important characteristics of flow. Empirical studies have found that attitudes toward communications technology are positively associated with the achievement of flow (Trevino and Webster 1992). However, the relationship between attitudes and flow in specific Web sites has not been examined empirically to date.

Proposition 6: Positive attitude toward the site will lead to a higher likelihood of achieving flow in that site.

We should note that A_{site} may not be the only direct antecedent of flow, and flow may not always occur when consumers have a positive A_{site}. For example, consumers may engage in flow while navigating across sites, so when they arrive at a merchant's site, even if that particular site is not conducive to flow, they could still experience flow, at least temporarily.

Flow and Site Stickiness

One of the goals of this research is to consider the consequences of flow from a marketing perspective. Some consequences of flow described by the literature include exploratory behavior and a positive subjective experience, which would make a site "sticky," leading visitors to linger on in the site. Another characteristic of sticky sites is the propensity of consumers to revisit the sites in the future (eLab 2001). We will conceptualize this dimension of stickiness as consumers' intention to revisit and purchase from the site. We hypothesize that if consumers report that they achieved flow in a specific site, they will also report higher intentions to revisit that Web site and purchase from it in the future.

> *Proposition 7:* Higher levels of reported flow are associated with higher levels of reported intention to revisit and purchase from the site in the future.

In turn, higher intentions to revisit the Web site and purchase from it will likely lead to higher probabilities of purchase, both offline and online, provided the Web site is transactional in nature.

PRELIMINARY EMPIRICAL SUPPORT

A series of three experiments provide preliminary evidence for some components of our model. The methodological details of the experiments are reported elsewhere (Luna, Peracchio, and de Juan 2002, forthcoming), so here we will only describe some of the most relevant results. The experiments consisted of examining the impact of site content characteristics on A_{site} and then evaluating our propositions regarding the antecedents and consequences of flow. The experiments were conducted with two Spanish samples and one U.S. sample, all of which included Spanish-English bilingual participants.

Site Content Characteristics and A_{site}

Language and graphics. Two of our experiments examined the interaction of language and graphics. For these studies, we created a Web site for a fictitious camera retailer modeled after typical camera retailing sites. The site consisted of 61 pages, which contained a total of 50 pictures/graphics. Spanish-English bilinguals began the study by completing an online questionnaire (including demographics and other scales) in the language of their choice. Once participants completed the first questionnaire, they were directed automatically to the home page of the experimental Web site to which they were assigned, where they began browsing the site. Respondents were randomly assigned to one of the four Web sites: (1) Spanish language and high-congruity graphics, (2) Spanish language and low-congruity graphics, (3) English language and high-congruity graphics, and (4) English language and low-congruity graphics. After they were finished browsing at their leisure, they were instructed to click on and fill out the final questionnaire (including the dependent measures) in the language of their choice.

The results were analyzed as a language by graphic congruity experimental design. The moderating effect of language and graphic congruity on A_{site} followed the anticipated pattern in both studies. In the high graphic-congruity condition, the second-language site resulted in more positive attitudes than the first-language site (Experiment 1: $M = 4.25$ vs. $M = 3.27$; $F = 5.38$, $p < .05$). However, in the low graphic-congruity condition, the reverse effect was found: the first-language site resulted in more positive attitudes than the second-language site (Experiment 1: $M = 4.52$ vs. $M = 3.49$; $F = 7.02$, $p < .01$). Analyses of the thoughts listed by respondents supported our evaluation findings. Both experiments yielded similar results.

Overall, these two experiments explore the relationship between two site content characteristics, language and graphic congruity, on the effectiveness of cross-cultural Web sites targeting bilingual consumers. As our model had anticipated, the results suggest that the level of graphic congruity can moderate language effects on attitudes toward cross-cultural Web sites. Countering marketers' intuitions, first-language sites do not always deliver superior persuasion effects relative to second-language sites, particularly when the sites' graphics support their verbal content. Indeed, in such high-congruity conditions, second-language sites may be even more persuasive than sites in the visitors' local language, perhaps because the latter become too unchallenging to process. For low-congruity sites, the first-language sites were more persuasive than second-language sites as the incongruity presented by the site's graphics and verbal content increased the difficulty of processing the Web site.

Language and culture. To test the potentially interactive effect of culture and language on Web site attitudes, we developed an experimental Web site different from the one used in the "Language and Graphics" studies. It was a fictitious camera retailer's site, which included 20 pages and 17 different graphics. This study was conducted in Spain with Spanish-English bilinguals. Cultural (in)congruity was accomplished by changing the site's content. Two factors were manipulated, text and graphics. Thus, the text was either Spanish or U.S. specific in nature. The graphics were neutral, Spanish specific, or U.S. specific. The resulting congruity conditions were as follows: Spanish text/Spanish graphics (high congruity), Spanish text/neutral graphics and U.S. text/neutral graphics (moderate congruity), and U.S. text/U.S. graphics (low congruity).

Cultural (in)congruity of the text was manipulated by using values, heroes, rituals, and symbols that were typical and specific of each culture (Spain vs. United States). For example, the Spanish-specific text of the Web site included a page in which the value of extended family orientation was emphasized, while its U.S.-specific equivalent focused on fraternization with roommates. A hero mentioned in the Testimonials section of the Spanish-specific site was Penélope Cruz (the study was conducted prior to her recent American success), while the U.S.-specific equivalent was Helen Hunt. A ritual included in the Spanish-specific site was the feast of the three kings, while the U.S.-specific site described a Thanksgiving dinner. A symbol included in the Spanish-specific site was a paella (Spanish traditional meal), while its U.S.-specific equivalent mentioned a barbecue. The text of each of the pages in the site was developed through focus groups in Spain and the United States. Care was taken that the structure, length, and descriptive and narrative content of the text were equivalent across cultural versions.

The procedure, measures, and respondents were similar to the other two experiments. The results were analyzed as a language by cultural congruity experimental design. Our analysis of the attitudinal data revealed that for A_{site}, the two-way interaction of language by cultural congruity was not significant. However, we observed that high-congruity sites resulted in lower site evaluations than moderate- and low-congruity sites, $M = 3.13$ versus $M = 3.74$, $F(1, 139) = 4.71$, $p < .05$. The lack of the predicted language effects on this measure is perhaps due to the simpler design of the site and the more prominent place that the products sold by our fictitious camera e-tailer occupied in the design of the site for this study.

For $A_{products}$, however, the two-way interaction of language by cultural congruity was significant, $F(2, 136) = 4.25$, $p < .01$. Similar to our graphic congruity findings, in the high-cultural congruity condition, second-language sites resulted in higher evaluations than first-language sites, $M = 5.40$ versus $M = 4.43$, $F(1, 139) = 4.69$, $p < .05$. On the other hand, in the moderate-congruity condition, there was a superiority of first-language sites over second-language sites, $M = 5.28$ versus $M = 4.72$, $F(1, 139) = 4.04$, $p < .05$. Unlike the graphic congruity studies in the low-congruity condition, there was no difference between first-language and second-language sites ($F < 1$).

The results of our studies provide evidence for the moderating role of cultural congruity on language processing. Similar to graphic congruity, high cultural congruity results in higher $A_{products}$ for second-language sites relative to first-language sites. Congruity, therefore, regardless of how it is operationalized, can lead to enhanced persuasion in second-language conditions. It is reasonable to conclude, then, that in our research, cultural factors affect site responses through cognitive processes (i.e., schema congruity). While the results described in this section do not explore the mediating role of the cognitive antecedents of flow, they do show the importance of site content characteristics on affective measures of site effectiveness and how those factors interact with each other.

Antecedents and Consequences of Flow

Next, we explored the mediating role of the cognitive antecedents of flow described in our propositions. We estimated and validated a path model, including challenge, attention, and interactivity as antecedents of A_{site}, which mediated the effect of the three variables on flow. Flow, in turn, was hypothesized to lead to intentions to revisit and purchase from the site. Our model was based on data from our three samples and used the two Web sites described above. Sample 1 was Spanish and navigated through Web Site A. Sample 2 was from the United States and navigated through Web Site A. Sample 3 was Spanish and navigated through Web Site B.

The model was estimated with Sample 1 and validated across cultures and across Web sites with Samples 2 and 3. We found that the model fitted the data well ($\chi^2 = 178.27$, $df = 155$, root mean squared error of approximation [RMSEA] = .037, comparative fix index [CFI] = .98, goodness-of-fit index [GFI] = .86). All the relevant parameter estimates were statistically significant, lending support to our expectations regarding the mediating role of A_{site} on the relationship between cognitive factors (challenge and attention) and flow.

Path	Parameter Estimate
$A_{site} \rightarrow$ flow	.28
Attention $\rightarrow A_{site}$	.29
Challenge $\rightarrow A_{site}$	.22
Interactivity $\rightarrow A_{site}$	.38
Flow $\rightarrow$ purchase intent	.40
Flow $\rightarrow$ revisit intent	.37

To validate our model, we analyzed data from the other two samples. Sample 2 was analyzed to validate our model across cultures with a different population and the same Web site as our original model estimation. Sample 3 was analyzed in an attempt to replicate the results of the first sample with the same population and a different Web site. We measured all constructs, including flow, through respondents' answers to scales in a questionnaire (Luna et al. 2002). The methodology used to validate our model was adapted from Byrne (1998), Durvasula, Andrews, Lysonski, and Netemeyer (1993), and Jöreskog and Sörbom (1996). The results of our validation procedure were encouraging. We found that factor and covariance structures were not significantly different across the three samples and that the structural parameters were also not

significantly different from sample to sample. Therefore, we can conclude that our model is robust across Web sites and populations: we validated the model cross-culturally with two populations and two Web sites, and the results yielded similar fit and structure characteristics.

Our research highlights the important role of A_{site}. We find that A_{site} mediates a great deal of the influence of interactivity, challenge, and focused attention on flow. This finding is of particular relevance considering that prior research on flow had not explored this phenomenon. It is also significant that we found flow to mediate the effect of A_{site} on intentions variables. Altogether, the successful integration of flow with more traditional measures of marketing effectiveness in one single model may constitute an important step forward in our understanding of the flow construct and its influence on site visitors' behavior.

CONCLUSIONS AND FUTURE RESEARCH

In conclusion, this review helps shed light on how consumers worldwide process information online. Our results are of particular significance because we build into our cognitive model a cross-cultural dimension. Our model identifies some of the site content characteristics that can lead Web site visitors to an optimal navigation experience, or flow, in a cross-cultural context. In particular, our model suggests that the congruity of a site with a visitor's culture is a key site content characteristic that influences a visitor's likelihood of experiencing flow. As described, our preliminary empirical research supports the model.

Managerial Implications

Our research on the Web underscores the marketing adage, "Think global, act local." The Web provides a tool to build a global brand image while using local imagery, a practice long advocated by many marketing academics. For example, Nike could develop a global image as an athletic equipment brand standing for the values of hard work and success common across many cultures. However, depending on the domain of its visitors, nike.com could expose them either to Michael Jordan or to the soccer player Rivaldo. Paying close attention to the manifestations of culture, such as values and symbols, can enhance the navigation experience of visitors.

For marketers, the findings of our research can result in increased effectiveness when they engage in multicultural e-marketing. Increased effectiveness is derived from the targeting possibilities facilitated by server tools that can identify the domain to which a visitor belongs. If the domain belongs to, for example, a Spanish Internet service provider, marketers could serve certain culture-specific content that would not be available to visitors from a U.S.

domain. With currently available technology, this procedure could be made completely transparent to the end user.

Potential savings may also be derived from the finding that if marketers design their Web sites to include graphics that "make sense" (that support the verbal site content and can be used to decode it), translation to the site visitors' first language may not be essential. This can mean significant savings, especially for small and mid-size marketers because of the elevated costs of creating and maintaining multilingual sites (Josephson 2002). We must be cautious regarding this last point, however, because as Internet use becomes more widespread around the world, we may begin encountering users who do not speak English with a sufficient level of fluency. In any case, as with any other marketing medium, e-marketers must base their strategies on their knowledge of their target market, including linguistic behavior and preferences.

Future Research Directions

Our conceptual model and preliminary empirical findings suggest a number of areas for future research. First, they suggest the applicability of our model of flow across cultures. This result will add to the growing corpus of studies that find that many structural models of consumer behavior indeed apply to different cultures (e.g., Durvasula et al. 1993; Lee and Green 1991). Perhaps if marketers designed their marketing communications materials carefully enough so they could be easily processed by individuals from different cultures, similar responses could be expected across a variety of cultures. While this would be a very appealing hypothesis, much research remains to be done in its exploration.

Future empirical tests of our cross-cultural model of Web site effectiveness should examine languages other than English and Spanish. Our conceptual model should be validated among a broad cultural context to determine if the findings are robust for cultures other than the United States and Spain. For example, it is possible that the use of ideographic or logographic languages may have different implications than are presented in this research (Schmitt, Pan, and Tavassoli 1994). Languages such as Chinese, in which visual processing is key, may provide an interesting extension of our conceptual model.

Finally, future research needs to address the possible domain or context specificity of language. For instance, some consumers may find English to be the standard language of the Internet and may not respond well to sites in their local languages. It may be that consumers have established scripts for processing information on the Web, and processing information in English has become a central part of those scripts. Foreign consumers may expect to encounter sites in English in certain circumstances. For example, international pop music bands or technology-oriented sites may benefit from English-only sites because

of the fit between their image/values and that language. These issues need to be tested empirically by examining how visitors from a variety of cultures respond to native-versus English-language sites.

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