TOWARD A FRAMEWORK FOR INTERCULTURAL VISUAL COMMUNICATION

A critical review and call for research

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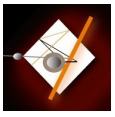
The treatment of the visual as a universal language, though less widely accepted than in the past, is still common. Two critical assumptions underlie this approach. First, that the ability to read images, sometimes known as visual literacy, is universal; and second, that the images, icons, colors, and other elements that comprise visual communication transcend cultural differences. Both of these assumptions are problematic, but in this article, I focus on the latter.

Consider, for instance, international signage or instructions meant to transcend cultural boundaries. Though intended to be more inclusive, such visual communication is often neither culturally transparent, nor easy to decipher. IKEA instructions are a perfect example, serving as a source of hilarity for many, but also a source of frustration for anyone who needs to decipher the instructions to accomplish a task. Similarly, some companies have claimed to develop universal communication campaigns, arguing that designing for specific cultural groups promotes discrimination and separatism. However, a look at public communication in a global market quickly makes apparent the cultural connotations carried by more complex visual images.

In short, a one size fits all model is no more appropriate for visual communication than it is for verbal communication. Practitioners' lore generally supports this



assertion, albeit prescriptively. Research in a variety of disciplines has connected intercultural models developed by Hofstede and others more explicitly to professional communication practices; however, relatively little of this work has examined visual communication specifically, and many scholars find the models to be outdated and overly simple. On what, then, should we base decisions about crafting visual language in order to communicate most effectively with intercultural and international audiences? As importantly, what should guide decision-making about when to localize visual language and when to globalize it?

In order to make informed and effective design decisions for various audiences and contexts, we need a framework for understanding cultural aspects of visual communication, one that, as Kostelnick (1995) argued, "accounts for the overt as well as the hidden aspects, the rational and the irrational, the aesthetic and the pragmatic" (p. 182). To build that framework, we need a foundation that integrates both theory and empiricism. Through a critical review of the existing practitioner lore, theoretical categorizations, and empirical research on intercultural visual communication, this article synthesizes what we know, and examines what we still need to learn in order to develop a framework for effectively practicing visual communication in a global environment. I begin with an overview of philosophical perspectives regarding the universality—or lack thereof—of visual communication.

A Philosophical Continuum

Almost two decades ago, Charles Kostelnick (1995) described the use of visual language in intercultural communication as a continuum that ranged from a global approach to a culture-focused approach (see also Bosley 1999), or, in more theoretical terminology, a modern approach to a postmodern approach. The modern approach assumes that "images can be simplified and homogenized" to transcend cultural differences (Kostelnick, 1995, p. 184). A widely recognized example is the International System Of Typographic Picture Education (Isotype) developed by Otto and Marie Neurath beginning in the 1930s; Isotype was intended to serve as a means of global communication, particularly communication of statistical data (Sandner, 2008). The use of highly simplified, abstract, and generic human forms that carry no suggestion of race or gender is typical of the modern approach (Arnold, 1998; Horton, 1993; Horton, 2005). As Kostelnick (2011)

notes, this approach became popular following World War II, but still has many followers. It downplays cultural difference, and it also is attractive for purely practical reasons: if visual language can be crafted to be culturally-neutral, then it can be utilized in place of verbal language to reduce translation costs and document sizes (Horton, 1993). According to Horn (MacroVu, Inc.), "Visual language facilitates intercultural communication by tightly integrating the instantly comprehensible images with words. Visual language makes translations easier and less expensive because there are often 30 percent fewer words to translate in visual language documents."

However, the global or modern approach is limited in its applicability. First, meaning may be lost or distorted through simplification attempts (Kostelnick, 1995), so rather than serving a broad range of readers, the design may serve none of its readers. Second, the global approach tends to be most successful within discourse communities that have their own specialized visual communication practices and conventions; essentially, such communities function as cultures within themselves (Bosley, 1999), suggesting that the visual communication isn't global after all, but, rather, is culturally-focused, as the postmodern perspective demands.

The postmodern perspective is based on the premise that ". . . visual language is largely a social construct that is learned through experience, that varies across cultural groups, and that therefore requires sensitivity to context" (Kostelnick, 1995, p. 183). In short, readers have culturally-derived expectations for visual communication; their meaning-making practices do not function in isolation (Aiello & Thurlow, 2006), but, rather, depend on cultural context. That is, we use our cultural preferences, practices, attitudes, etc. to read—and create—visual communication (Del Galdo, 1996; Bloomer, 1997). Additionally, how well we read a particular piece of visual communication depends, not only on these broader cultural constructs, but also on the specific demands of the task at hand, and the unique characteristics of the individual performing that task. The postmodern approach therefore insists that ". . . visual language must match the cultural and social context in which it is deployed" (Kostelnick, 2011, p. 43), and foregrounds the complexity of those contexts.

Like the global/modern approach, the postmodern has both advantages and limitations. It essentially calls for visual language to be designed, or redesigned, for each culture in which it will be used. Theoretically, this should lead to documents

that are more appealing and more helpful for their intended users. At the same time, however, it simply is not feasible to translate visual communication for each cultural context. Particularly given the array of design choices and the subtle nuances of each, translating visual language effectively may prove even more complex than translating verbal language.

Somewhere in between the two extremes of the continuum is a balancing point. In some situations, treating visual language as universal may be sufficient. In others, a high degree of cultural specificity may be required. Most often, some combination of globalization and localization is likely to be necessary (Horton, 2005). Additionally, as Kostelnick (2011) eloquently reminds us, communication actually takes places "one reader at a time, so the broad brush strokes of culture must be sharpened with a more local and in-depth understanding of cultural context" (p. 33). Currently, however, the practice of intercultural visual communication tends to rely more heavily on prescriptions than it does on theory and research.

Prescriptions

Much of the practice of visual communication for intercultural and international contexts relies on lists of dos and don'ts that invariably come with a disclaimer that they "are just guidelines"; they generally grow, not from close study, but from the shifting sands of past customs and practices. Prescriptions abound for color use in particular, possibly because color tends to be so strongly imbued with cultural connotations. For instance, it is not uncommon to see a list of colors accompanied by the "meanings" of those colors within certain countries or cultures (see, for example, Aykin & Milewski, 2005). So, the color red—or a particular shade of red—might be attributed with good luck, prosperity, and happiness in China, but with danger or anger in the United States. Similar statements are plentiful for images, particularly those involving animals: in India, the owl is considered bad luck; in Brazil, a deer represents homosexuality; in Japan, the turtle is a symbol of long life (Fernandes, 1995). McCool (2008) refers to this as the "taboo approach to culture"—an approach that essentially says to avoid certain colors for certain cultures because they "deliver risky or even offensive messages" (p. 1).

Such prescriptions present many of the same problems as those for colors: although they draw on cultural and national traditions—on "ritual, legend, and custom" (Bloomer, 1997, p. 43)—they tend to be oversimplifications that rarely account for subtle variations having a dramatic impact on meaning. One shade of red may carry a certain connotation, while another shade may be viewed quite differently. The connotations may shift with the occasion, be it social or professional, personal or public, and they shift as well over time. And, culturally specific associations may be layered over meanings that are shared across cultures (see, for example, Madden, Hewett, and Roth, 2000).

Even more importantly, though, prescriptive advice does not offer a foundation for sound and consistent decision making in visual communication. Even if we could be certain that the prescriptions are accurate—which they may or may not be in a given context—and even if we could assume that cultural associations are static—which they aren't—using prescriptions as a basis for design decisions is neither sustainable, nor feasible, given the complexity of issues that shape responses to communication. A more productive approach is to "teach people how to think about the problem rather than presenting a list of items to check off" (Fernandes, 1995, p. x).

Theoretical Categorizations

One way to think about visual communication problems is through the lens of cultural dimensions—particularly the values systems identified by Hofstede—power distance, individuality/collectivism, masculinity/femininity, uncertainty avoidance, long- and short-term orientation—and Hall—high/low context. Several scholars have theorized about the ways in which these cultural dimensions may manifest themselves in visual communication, based on the understanding that "Ideology underpins the discourse system of [a] culture" and, in turn, that the "form and style of discourse arise from ideology" (Tebeaux & Driskill, 1999, p. 239).

Marcus & Gould (2000), for instance, proposed a number of ways in which Hofstede's dimensions might shape the design of websites. For example, user interfaces from cultures that score high on the dimension of power distance might be highly structured, with use of images that reflect expertise, authority, and social hierarchy, while those that score low on power distance would demonstrate a stronger sense of

Figure 1

Mexican government page

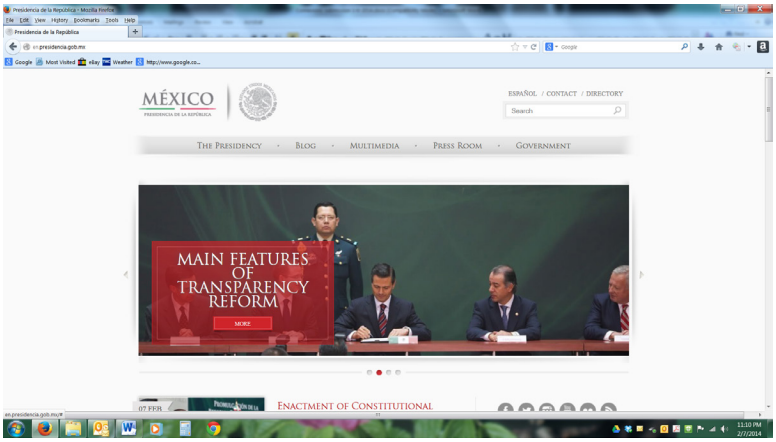
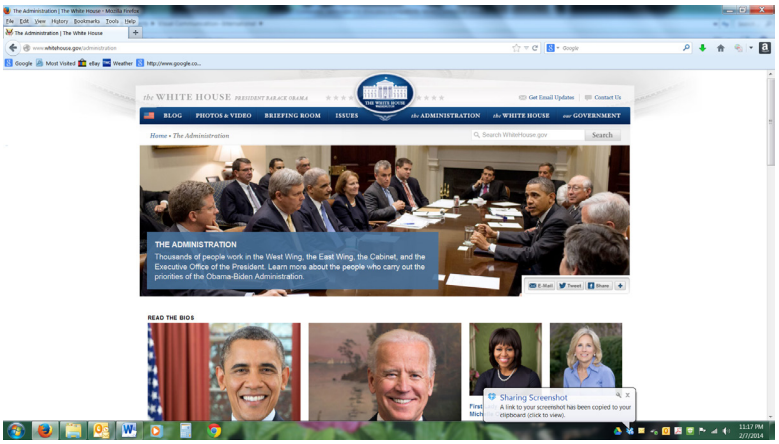


Figure 2

US government page



equality (see Figures 1 and 2, for example: the web page from Mexico—a high power distance culture—appears very formal and authoritarian, while that from the US—a low power distance culture—gives a much more casual and egalitarian impression).

Similarly, the interfaces of cultures ranked high on individualism might foreground individual achievement, youth, and activity, while those ranked low on individualism would, instead, emphasize group achievement, wisdom, and "states of

being." A high ranking on the dimension of masculinity might mean visual language that emphasizes traditional gender roles, with graphics that are utilized predominantly for practical goals, while a low masculinity ranking might instead mean blurred gender roles and greater attention given to aesthetics. (For example, see Figures 3 and 4: although both pages are similarly laid out, the Japanese, high masculinity, tourism page relies much more heavily on the textual messages; the organization of the page seems intended primarily to support the text; on the Swedish page, the situation seems

Figure 3

Japanese tourism page

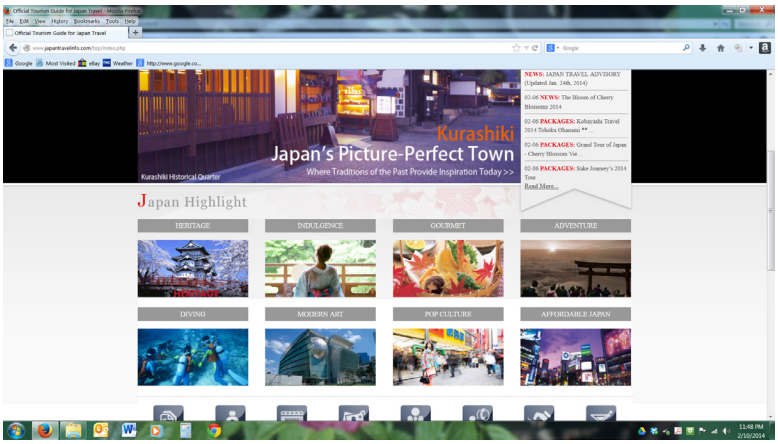
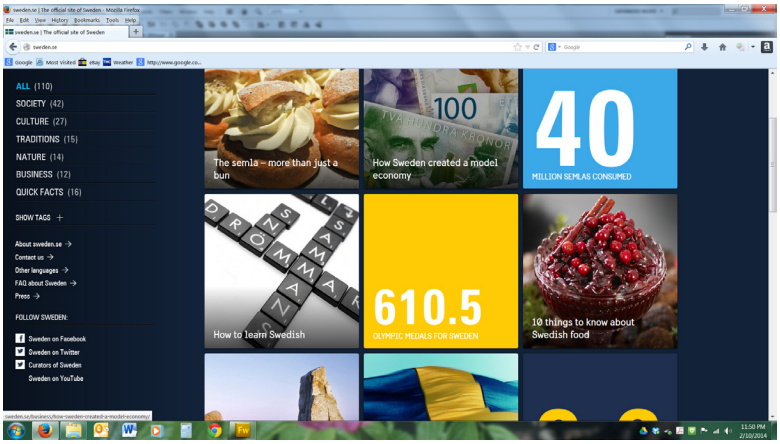


Figure 4

Swedish tourism page



reversed, with the aesthetic impact of the images carrying the weight, and the text almost an afterthought).

High uncertainty avoidance may manifest itself through clear navigation schemes and use of multiple organizational cues, while low uncertainty avoidance may entail a looser interface structure, with more user choices. Finally, a long-term orientation might reveal itself through a focus on relationships and patience, while a short-term orientation might instead be revealed through a focus on rules and results. Marcus and Gould's suggestions are comparable to those of other scholars seeking to map Hofstede's cultural dimensions onto visual communication (see, for example, Callahan, 2005; Tebeaux & Driskill, 1999).

Similarly, scholars have theorized about how other cultural values may shape visual communication, most notably the concept of high- and low-context identified by Hall. For example, Bosley (1999) suggested that high-context cultures, which tend to rely more heavily on implied or implicit communication, would utilize more abstract visuals that speak for themselves and incorporate less text. In contrast, low-context cultures would expect more concrete and detailed visuals that incorporate textual explanations.

Many have questioned whether cultural value categorizations offer a sound basis for analysis in a communicative landscape that is far different from that of Hofstede's and Hall's original research. They argue, rightly so, that it is increasingly problematic to treat geographical boundaries as cultural boundaries. As Roberts (2003) argued, ". . . Given the existence of transnational identities (not to mention multinational corporations), the notion of viewing the world as being organized by national boundaries alone becomes dangerously simplistic" (p. 4). Additionally, culture is fluid rather than static, and categorizations like those presented by Hofstede and Hall promote fixed stereotypes that work against intercultural communication. However, as Wurtz (2006) noted, "In spite of these important criticisms, communication patterns today still resonate with the cultural dimensions proposed decades ago" (p. 276). Still, these categorizations by themselves cannot provide us with a sufficient framework for understanding intercultural visual communication. As importantly, "The ability to label prospective audiences by categories may help us anticipate the probable predispositions of cultural groups, but it still leaves us tantalizingly distant from the actual processes of specific individuals" (Driskill, 1997,

pp. 254-255). However, utilizing cultural dimensions and values to identify potential patterns serves as a theoretical starting point that can then be expanded through research.

Research

A comprehensive framework of intercultural visual communication requires both a broad-strokes understanding of cultural patterns that may shape design, and a research-based detail-oriented investigation of cultural artifacts—for the purposes of this discussion, documents of various types—and user interactions with those artifacts. The research on intercultural visual communication tends to take the form of either analyses of documents, typically websites; or studies examining user behaviors, including color associations, scene perception and comprehension, and user preferences and usability. Below, I provide highlights of this research. The goal here is not to provide a comprehensive and all-inclusive review of the literature, but, rather, to identify patterns that emerge across the different types of research, patterns that might identify directions for future inquiry and, in turn, contribute to a larger conceptual framework.

Document Analyses

Document analyses are arguably the most prevalent form of research in intercultural visual communication. Such analyses usually take as their starting point the cultural dimensions discussed above and attempt to determine whether or not the documents adhere to these categorizations. In general, these studies suggest that the cultural values categorizations do reveal themselves in visual communication, although not always as strongly or clearly as the theories suggest.

For example, continuing in the same vein from his earlier work with Gould, Marcus (2005) used Hofstede's dimensions to analyze the characteristics of websites from various cultures with different values. (It should be noted, however, that Marcus based his findings on personal experience rather than on what he termed "detailed study" (p. 59)). Marcus indicated that sites from more individualist cultures tended to have images of products and individuals, while those from collectivist cultures had images of groups. However, for most of the cultural dimensions, Marcus noted that

there was overlap in the website characteristics; that is, visual design characteristics did not necessarily vary neatly with differences in Hofstede's rankings.

More systematic and rigorous studies have also revealed some differences in visual design across websites from different cultures. Singh and Baack (2004), for example, found that design characteristics of U.S. and Mexican corporate websites varied in ways that corresponded with Hofstede's cultural dimensions. Their study involved an extensive content analysis of U.S. and Mexican corporate websites. For the US, they looked at the sites of top global fortune 500 companies that sold products/services in the US and Mexico; for Mexican sites, they used a sample of top local Mexican company sites. In all, they analyzed 95 websites, each with approximately 20–25 pages of content. Singh and Baack reported statistically significant differences in aspects that reflected collectivism, uncertainty avoidance, power distance, and masculinity. For instance, the Mexican sites reflected clear gender roles in which men were depicted conducting business and women, when included, were depicted in more traditional roles.

Callahan (2005) also examined websites using Hofstede's dimensions as a framework for analysis. In her comparative analysis of university websites from eight countries, she found, like Singh and Baack, patterns that for the most part aligned with the cultural dimensions. However, Callahan also reported that the correlations were weaker than expected.

Würtz (2006) conducted a similar comparative analysis, but used Hall's high- and low-context as the theoretical framework; she also used versions of one company's—McDonald's—website that had been designed for different cultures, rather than using sites from different entities. Würtz hypothesized that the sites from high-context cultures would incorporate more visual communication and less text than sites from low-context cultures; likewise, she predicted, too, that the types of imagery would differ, in keeping with the differing values systems. Finally, she expected that high-context cultures would give priority to aesthetics, while low-context cultures would give more attention to a highly structured organization that would foster efficient usage. Würtz found that the websites from high-context cultures utilize more—and more elaborate—animation, as well as more images in general. And the images reflected collectivism,

such as family activities, while the images on sites from low-context cultures reflected individualism, such as free time (p. 26).

Finally, a handful of document analysis studies have looked at more traditional user documents, rather than websites, but with similar findings that, again, appear to correlate with the cultural value categorizations. Qiuye (2000) examined the graphics used in Chinese and US popular science magazines and instruction manuals for household products. She found that the Chinese visuals tended to provide more contextual information, while US visuals tended to be more direct. Additionally, the U.S. manuals provided larger and more detailed illustrations to aid task performance, with one-to-one correspondence between a visual and a textual explanation. Qiuye concluded that the differences she observed corresponded to general cultural differences in communication style.

Similarly, Wang and Wang (2009) examined technical documents intended for Chinese and German mechanics; they looked at the arrangement, integration, and explicitness of text and graphics in order to identify cross-cultural differences in the text-graphic relationship. They, too, found that the Chinese documents had more graphics and less redundancy between graphics and text.

Taken as a body of work, these studies would seem to provide solid support for the theoretical propositions put forth by Marcus and Gould (2000), Bosley (1999), Tebeaux and Driskill (1999) and others. That is, the criticisms of Hofstede's and Hall's work notwithstanding, the patterns revealed by the body of document analysis studies appear to align with their cultural values/dimensions. It is particularly telling that the patterns appear to hold across different types of documents. Yet, there are some critical points that merit further discussion. First, the analyses begin with the unstated assumption that the design of the documents is shaped primarily by culture. However, in every case, the documents for comparison were chosen by geographical borders, rather than cultural borders. One might argue, for example, that university websites are a product of a distinct subculture—academia—that crosses national borders. This could account for the weaker patterns Callahan (2005) observed.

Even more important is the fact that many other factors beyond culture are likely to shape the visual communication of professional documents (Callahan, 2005). Were the designers influenced by broader genre conventions? By the designs of other

documents? Did they have to adhere to organizational standards and guidelines, and who developed those, with what influences? Were the designs constrained by issues of technology or accessibility? For that matter, there could be a chicken and egg pattern at work: if the designers had even a limited knowledge of intercultural communication—which seems a safe assumption, given their positions—they would certainly be aware of Hofstede's and Hall's work. Would it not then be likely that they would utilize this in their designs? That is, do the designs reflect cultural patterns in visual communication? Or do they reflect what the designers have been told are cultural patterns in visual communication? Because there is virtually no way to control for these factors in a document analysis, we cannot conclude with any certainty that an observed difference between documents is due to the independent variable of cultural values (Hoeken & Korzilius, 2003).

Finally, the analyses cannot tell us whether the design differences influence usability for various audiences, whether individuals from a particular culture exhibit a preference for documents designed specifically for their culture, or whether either of these factors might change over time and with ongoing changes in access to communication technologies. Ultimately, these are all questions that can be answered only through research that examines user behaviors and preferences (Callahan, 2005; Würtz, 2006).

User Behavior—Color Associations

As mentioned, color is an aspect of visual communication that is considered to be particularly laden with cultural associations. And yet, there is some research that suggests color associations may be less culturally-specific than indicated by practitioner lore. Madden, Hewett & Roth (2000), for example, looked at consumer color preferences and associations in eight countries. The authors used semantic differential scales to identify meanings associated with 10 different colors. The study participants then rated each of the colors in terms of how much they liked them. The authors found that blue, green, and white were strongly associated with "peaceful," "gentle," and "calming" in all eight countries. However, for some countries, these colors also had additional meanings that did not transcend national boundaries. Black and brown similarly had shared associations across countries, but also had additional unique associations. Most of the

colors had some degree of shared meaning in addition to country-specific connotations. The authors concluded that ". . . the meanings associated with some colors may be pancultural, regional, or unique to a given culture" (p. 102).

Amare and Manning (2013) have also demonstrated that color associations may be less culturally-specific than previously thought. They argue that "the primary contribution of color . . . in text design is emotional . . . and that the core emotional meanings of colors are much more universal and consistent" (p. 73). The results of their survey of 120 undergraduate students revealed no apparent differences between US-born and non-US-born participants in their emotion spectrum responses to colors.

Methodological aspects of each of these studies may muddy the findings. For example, the semantic differential and 7-point scale utilized by Madden, Hewett & Roth (2000) may themselves be culturally-biased, which would affect the study results. Likewise, Amare and Manning (2013) focused on the core emotional meanings of colors, but their study did not disprove the idea that there may be conceptual meanings overlaying the emotional meanings, particularly since their study participants cannot be considered a random sample of individuals from distinct cultures. In short, both studies certainly complicate the notion that color connotations are culturally-specific; but they do not necessarily dispel that view.

User Behavior—Viewing Patterns and Focal Points

Two other areas predicted to vary across cultures are viewing patterns and attention to focal points. One would certainly expect differences due to reading patterns—left-to-right, right-to-left, and top-to-bottom—but the research suggests there is more at work. Returning once again to cultural dimensions, scholars have utilized a variety of methodologies to demonstrate that what individuals attend to when looking at visual material appears to be linked to their reliance on context, as well as the value they accord relationships.

Callow & Schiffman (2002), for example, investigated the ways in which "contextual communication style" (p. 261) influenced individual's ability to interpret the visual appeals in printed advertisements. The researchers presented Filipina and U.S. female undergraduate students with fictitious perfume ads, and asked them to rate the extent to which each ad communicated different ideas, including a desire for personal

challenge, for independence, for leadership, for meeting one's own expectations, and for power—again, the terms themselves are culturally-dependent, which may alter the participants' responses. In keeping with the idea that individuals from high-context cultures rely on implicit meaning, the Filipina participants read more into the ads, and this held true for even the more explicit ads. However, as the researchers noted, product type may influence the viewer's "tendency to derive implicit meaning from visual ads" (p. 273).

A second approach to examining viewing patterns assesses the degree to which participants are aware of changes in visual stimuli. Masuda and Nisbett (2001) showed participants animated vignettes of underwater scenes and asked them to report on the contents. Participants were given a recognition text in which they were shown objects, either in the original setting or in a novel setting, and were asked to judge whether they had seen the objects. The researchers replicated this task using photographs of wildlife. In each experiment, responses of the East Asian participants—Japanese students at Kyoto University, in Japan—differed from those of the Western participants—American students at the University of Michigan. Japanese participants made more comments than did American participants about contextual information and relationships. Additionally, Japanese participants more accurately identified previously seen objects that were presented in their original background than those in a novel background, a change that did not affect American participants (p. 932-933). In a subsequent study, Masuda and Nisbett (2006) tested similar hypotheses with the same types of participants. Their data again supported the idea that East Asians attended more to context and relationships than did Westerners, who attended more to focal objects.

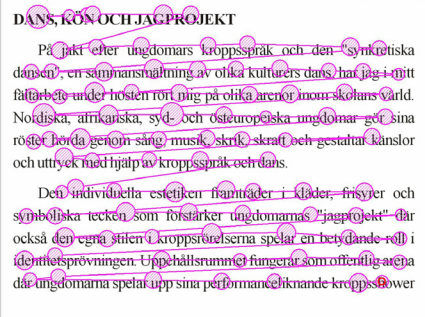
Boduroglu, Shah, and Nisbett (2009) likewise looked at East Asian and Western participants' awareness of contextual information. However, because responses to scenes and photographs may reflect cultural biases regarding what is important in a scene (p. 350), their study relied on stimuli with simple geometric shapes. Participants—East Asian and American students at the University of Michigan—were asked to look at and "encode" a visual display of colored squares and then view a second display and determine whether any of the colors had changed. Boduroglu, Shah, and Nisbett found, once again, that East Asian participants were more attuned to relationships and context than were Western participants.

Eye-tracking provides another useful methodology for examining viewing patterns. Eye-tracking studies can record both the patterns of eye movements as someone looks at a page or screen and the location and duration of eye fixations—points at which the viewer's eye pauses—on that page or screen (see Figures 5 and 6).

Chua, Bolan, and Nisbett (2005), for example, studied the eye movement patterns of Chinese and American graduate students at the University of Michigan.

Figure 5

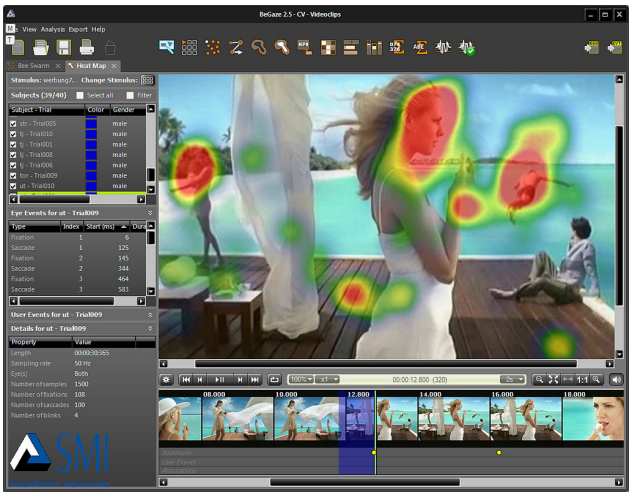
Eye movements (lines) and fixations (circles)



Source: http://en.wikipedia.org/wiki/File:Reading_Fixations_Saccades.jpg

Figure 6

Heat Map of Eye Fixations from eye-tracking study



Source: http://www.flickr.com/photos/smieyetracking/5470335055/

Participants looked at photographs that had a focal object on a complex background. The researchers found that the American participants fixated on the focal objects more quickly, and looked at them for longer periods than did the Chinese. The Chinese participants, in contrast, made more saccades—eye movements—to the background of the photograph.

Similarly, Dong and Lee (2008) conducted an eye-tracking study that examined Chinese, Korean, and American participants' interactions with websites. The researchers reached similar conclusions: the East Asian participants focused on the web page as a whole, as well as relationships within the page. Western participants, in contrast, focused on specific objects, and were more sequential in their viewing patterns.

In short, studies examining viewing patterns and focal points, regardless of methodology, point to the conclusion that individuals from high-context cultures are more attuned to implicit information and relationships in visual communication than are individuals from lower-context cultures. It is interesting, as well, that these patterns persisted even in the face of methodological concerns. Most notably, with the exception of Callow & Schiffman (2002), the studies have typically involved small groups of participants, and the participants tend to be college students, which suggests a certain level of homogeneity in age, of course, but also, perhaps, in exposure to visual communication, and even in approaches to communication. These characteristics could result in smaller observed differences, meaning that the cross-cultural patterns could actually be stronger than reported.

User Behavior—Preferences

While research on viewing patterns investigates physical and cognitive behaviors that are largely habitual and automatic, research on user preferences investigates whether more conscious or deliberate interactions with visual material are shaped by those viewing patterns. Here, the research findings are much less clear cut.

For example, Maitra and Goswami (1995) studied the responses of American viewers to documents designed for Japanese readers. The study began with the premise that the design of Japanese documents emphasizes aesthetics and ambiguity, rather than clarity, explicitness, and simplicity (p. 198). Study participants had skills in desktop publishing, professional communication, graphic design, and engineering, but

little knowledge of Japanese culture or design (p. 199). They were asked to comment upon the effectiveness of the visual elements—including photographs, line drawings, and charts—design features, and text-visual integration of an annual report that was translated into English. Not surprisingly, participants applied Western standards for design, in their evaluation. The researchers concluded that U.S. readers "expected similar graphic design principles in the Japanese document" (p. 202), and applied different standards of evaluation than would Japanese readers. However, the study involved only eight participants and did not collect data from Japanese designers or readers.

Fukuoka, Kojima, and Spyridakis (1999) similarly looked at visual communication preferences among Japanese and American readers, specifically, preferences regarding the inclusion of illustrations in instructional documents. Results were based on participants' first impressions of the layouts, as well as responses to a questionnaire regarding ease of use. Interestingly, there were no significant differences between the groups—American and Japanese individuals (primarily students) in the Seattle, Washington, area—regarding their perceptions of cartoon graphics; the majority of participants were indifferent to the use of cartoons in instructional manuals. Additionally, all of the participants preferred a layout that incorporated illustrations, and both groups indicated that they thought having more illustrations would make the instructions easier to use. This could mean that the particular task was better explained through visuals, regardless of culture; it could mean that there is a general preference—irrespective of culture—for visuals in instructions; it could mean that the preferences of the Japanese participants reflected the time those participants had been living in the US. Ultimately, the small sample size—a total of 29 participants—and artificial task again limit the extent to which valid and reliable conclusions can be drawn.

Finally, Ichimura (2001) used survey methodology to assess the best approaches to localize the design of customer documents for Asian/Pacific audiences—specifically those from Japan, Australia, Korea, Singapore, and Taiwan. The design characteristics examined were color, typography, layout, text-visual integration, and inclusion of pictographs. Although there were some shared preferences across participant groups, the data did not reveal strong patterns.

Although it seems reasonable to expect that cultural differences in viewing patterns would lead to differences in preferences as well, the research does not provide

clear evidence for that. Does this mean that cultural preferences regarding visual communication simply aren't very strong? Possibly, but other explanations seem more likely. First and foremost, each of the studies summarized here has significant methodological shortcomings, ranging from sample size and selection to experimental task. Additionally, interpreting user preferences may not be straightforward because preferences are inherently subjective, may shift with changes in context, and are, at times, difficult to articulate.

User Behavior—Performance

Studies that examine user performance move from identifying differences and preferences in viewing behaviors to questioning what these differences and preferences might mean in practical terms. That is, how might they affect users' understanding or ability to complete a task? These are the questions that reflect actual user experience, the final piece of the intercultural visual communication puzzle.

One approach to looking at user performance involves measuring how quickly individuals can perform an assigned task. Faiola and Matei (2005) used this approach to test the hypothesis that task performance should be faster when users are working with documents created by designers from their own culture (p. 381). The materials used were two websites, one designed by an American designer and translated into Chinese, the other designed by a Chinese designer and translated into English. American and Chinese students from a variety of U.S. universities agreed to join the study as participants. To help maintain the validity of the study, each student participant viewed one website. Moreover, details of a web-designer's country of origin were kept from each participant. As such, a student could not know which of the designers developed the website used in a particular test. Participants navigated sites developed in their first language: American participants in English and Chinese participants in Chinese. Participants were asked a series of six factual questions for which they had to find the answers embedded on the website. For four of the six questions, performance time was better when the national cultures of participants and site designer matched. That is, Chinese students performed better with the Chinese-designed site, and American students performed better with the American-designed site. The researchers noted that the lack of significant results for the last two questions could be due to the fact that

far fewer participants completed those tasks, which required more in-depth navigation through the site. Overall, though, the data aligns nicely with the user preference data reported by Maitra and Goswami (1995).

Although the time involved in completing a task can be an important measure of performance, even more important is completing the task successfully. Here, too, culturally-linked viewing patterns and preferences, theoretically, should impact performance. For example, Wang and Wang (2009) found that Chinese mechanics were better able to comprehend the graphics in the document than were German mechanics, which is in keeping with other research studies that suggest Chinese participants should outperform the U.S. participants in reading visual material.

However, Olmstead (1999) reported a contradictory finding. She examined the usability of "language independent" signs from hospitals. The data she collected in the US and in China revealed that most participants, regardless of culture, actually had difficulty identifying the symbols on the signs. The elderly had more trouble than younger participants, and men had more difficulty than women. Interestingly, though, the differences between the U.S. and Chinese groups were small. Olmstead concluded that the age difference could be due to younger participants' greater exposure to visual communication, while the gender difference could be due to the fact that women, in their role as primary caregivers, more frequently visit hospitals (p. 319).

In short, the differences that emerged were most likely not due to deeply ingrained cultural differences, but rather to greater exposure/experience. This seems to counter both theory and other research studies that suggest the Chinese participants should be better than the U.S. participants at reading visual material. However, the abstract symbols used on language independent signs are typically depicted on a flat background without any visual context, which could conceivably make them more difficult to interpret for individuals from high-context cultures.

As yet, the intercultural visual communication research that looks at user performance is limited, at best, and, as the studies summarized here suggest, the findings are still far from conclusive.

Conclusions

As Kostelnick and Hassett (2003) noted, "Although scholars have theorized about how visual language develops in social and cultural contexts, these avenues of inquiry remain fragmented across many disciplines" (p. 4). This remains true a decade later. The studies discussed here draw on advertising, computer-mediated communication, design, marketing, psychology, and, of course, technical communication (see Table 1).

Table 1

Summary of Studies Discussed

Type/Focus	Field	Studies
Document Analyses	Computer-Mediated Communication	Wurtz (2006) Callahan (2005) Singh & Baack (2004)
	Design	Marcus (2005)
	Technical Communication	Wang & Wang (2009) Qiuye (2000)
User Behavior—Color Associations	Marketing	Madden, Hewett & Roth (2000)
	Technical Communication	Amare & Manning (2013)
User Behavior—Performance	Computer-Mediated Communication	Faiola & Matei (2005)
	Design	Olmstead (1999)
	Technical Communication	Wang & Wang (2009)
User Behavior—Preferences	Technical Communication	Fukuoka, Kojima & Spyridakis (1999)
	Technical Communication	Ichimura (2001) Maitra & Goswami (1995)
User Behavior—Viewing Patterns & Focal Points	Advertising	Callow & Schiffman (2002)
	Design	Dong & Lee (2008)
	Psychology	Boduroglu, Shah & Nisbett (2009) Chua, Bolan & Nisbett (2005) Masuda & Nisbett (2001)

The goal of this article has been to begin weaving these strands into a cohesive whole that highlights patterns and can foster development of a framework of intercultural visual communication. What patterns have emerged?

- Whether for good or ill, the dimensions/values outlined by Hofstede and Hall permeate investigations of intercultural visual communication; the findings suggest that we should not rush to do away with Hofstede's and Hall's cultural values categories.

- The visual characteristics of documents from different cultures appear to reflect the values outlined by Hofstede and Hall, but more research is needed to better understand designers' decision-making processes that lead to those characteristics.
- Some color associations are likely to be culturally-linked, while others may transcend cultural boundaries. More research is needed.
- The viewing patterns of individuals reflect the extent of their reliance on contextual information and relationships.
- The connections between viewing patterns and design preferences remain unclear. Much more—and more rigorous—research is needed into user preferences and their impacts.
- User performance appears better when design is matched to viewing patterns, but, again, more research is needed.

The common theme here is that more research is needed. A number of the studies have methodological issues that detract substantially from their reliability. Additionally, much of the research is several years old; scholarly activity in intercultural visual communication seems to have waned, rather than grown, over the past several years, which is troubling given the prevalence of visual communication. Although on the surface it may appear that we know a fair amount about intercultural visual communication, a deeper look reveals that there is far more we do not know.

What do we still need to know? We could benefit from more comparative analyses—essentially studies of contrastive visual rhetoric that systematically examine the use of various visual features, much like contrastive rhetoric examines the use of linguistic features. Such studies might delve more deeply into cultural patterns in use of

- color (choices, quantity, application)
- static and other images (type, position, quantity)
- typography
- space and balance
- visual organization and navigation.

Systematic document analyses utilizing large data sets to identify cultural design conventions in a particular genre—instructional documents, annual reports, etc.—could offer useful guidelines for practitioners from other cultures. If comparable studies are conducted with a number of genres, the results could conceivably enable us to generate a design framework that is genre independent. However, as useful as such studies would be, they would still be one-dimensional, in the sense that they focus on artifacts, rather than fluid behaviors; they look backward, not forward. As such, they can add to a framework of intercultural visual communication, but they cannot stand by themselves.

Ultimately, the most productive research will be user-centered rather than document-centered. It will involve individuals from different cultures in carefully designed studies that rely on different approaches and methodologies: usability, eye-tracking, interviews, surveys, and so on. It will be research that centers on individuals' interactions with visual language and relies, not only on observation, but also on participant input and feedback. Such research would enable us to address larger questions that document-based research cannot:

- Can basic perceptual principles of design—e.g. contrast, grouping, etc.—truly be considered universal?
- How significantly do cultural differences in visual communication affect document usability and effectiveness?
- If a cultural preference exists, how does it impact individual performance?
- How are cultures affected by imported design? That is, what cultural changes—in viewing patterns and preferences, for example—may occur over time in response to an influx of foreign design?
- Are new cultural patterns in visual communication emerging, for example, within *hybrid* cultures that develop as a result of globalization?

We currently have the bare bones of a framework of intercultural visual communication. The studies discussed in this article begin to layer flesh on those bones, but much more work is needed. Only through well-conceived and rigorous research that looks both at visual communication artifacts and at visual communication behaviors can we craft a comprehensive framework that will enable us to communicate effectively in a global environment. ■

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