

THE INFLUENCE OF CULTURE ON INFORMATION OVERLOAD

JAN M. ULIJN and JUDITH B. STROTHER

This dominance of technology over culture is an illusion. The software of the machines may be globalized, but the software of the minds that use them is not.

Geert Hofstede
Mechanical Engineer and Social Psychologist

ABSTRACT

Too often, all communication genres are analyzed without recognizing the unavoidable impact of a communicator's cultural framework on producing, receiving, or attempting to comprehend the document. Differing cultural preferences, varying rhetorical styles and discourse patterns, in addition to linguistic elements, can easily cause information overload. This chapter analyzes the impact of culture on information overload, primarily using Hall's high context versus low context model. We demonstrate that high and low context cultures correlate with typical discourse styles, using Kaplan's model as an example. Hinds' theory of Reader versus Writer Responsibility for comprehension provides further insights into possible causes of cross-cultural information overload. A shared professional and/or corporate culture may mitigate the cross-cultural issues in some cases, although it does not eliminate them. Cases from specific cultures—Latin American, Japanese, Chinese, and others—are used to demonstrate the issues discussed in this chapter.

With so many textual elements acting as potential problems for international communicators, translating documents from one language to another is often not enough. Localization, or making a

Information Overload: An International Challenge for Professional Engineers and Technical Communicators, First Edition. Edited by Judith B. Strother, Jan Ulijn, Zohra Fazal.

© 2012 Institute of Electrical and Electronics Engineers. Published 2012 by John Wiley & Sons, Inc.

product linguistically and culturally appropriate for the target audience, makes an important contribution to reducing the cognitive load. The significant conclusion is that the major cause of information overload in cross-cultural situations is having to process information in different discourse patterns from different cultural frameworks. This area is in need of solid empirical research to determine the nature and extent of the load, which will inform practices to reduce it.

5.1 Introduction

In so much of our discussion of information overload, the focus is on the technology and what it has brought us—e.g., too many e-mails, 24/7 access to information on the Internet, and almost compulsive connections to our phones and all manner of social networks. In this chapter, we remind ourselves that to really understand what is causing information overload, we cannot neglect the cultural element—what Hofstede so insightfully called *the software of the mind* [1]—in all forms of communication.

Many facets of intercultural communication can affect information overload. Perhaps, the most noticeable occurs when the communicators are using different languages. Just the cognitive effort to communicate in a second or additional language adds to the possible information overload caused by the volume and/or complexity of an individual message. In addition to Hofstede's work [1], there have been a number of studies about the various aspects of culture and their effects on the communicators and the communication events. (See, e.g., the work of Trompenaars [2], Triandis [3], Smith *et al.* [4], and Schartz [5].)

With the recognition of the many interlinguistic issues and the resulting cognitive effects, this chapter focuses on three important cultural factors that can affect information overload—varying discourse patterns, high versus low context cultures, and the related issue of reader-centered versus writer-centered text. We also look at the impact of shared professional culture as a potential mitigating factor in information overload for intercultural engineers and technical communicators.

Almost all professional communicators face linguistic and intercultural challenges as they deal with information. These challenges may result from work with multinational companies, work in different countries, or work in a diverse workplace within one's own country. The latter may apply especially in areas where groups of cultural minorities live and work, for example, in parts of the United States, where Hispanic or Asian populations exist, or in parts of Europe, where Turkish and Moroccan populations are prevalent. However, most countries reflect the result of today's increasingly mobile population, with the result that the diverse workplace is no longer limited to areas with concentrations of ethnic populations.

The proliferation of the Internet is exponentially increasing the frequency of cross-cultural business communication. Because the Internet now connects people around the world, a number of researchers have hypothesized that all forms of electronic communication could somewhat level or equalize discourse styles, thereby decreasing intercultural misunderstandings [6]. However, McFadden and Richard [7, 8] conducted two studies of Chinese and American business associates exchanging e-mails within a corporate setting. They found definite stylistic differences and discovered fairly strong reactions to differences in style, leading to a greater desire to do business with someone who exhibited similar rhetorical patterns and politeness conventions in the e-mail exchanges. As Hofstede [1] stated and other studies have clearly demonstrated, the Internet does not necessarily act to reduce cultural differences and in some instances may help solidify and exaggerate cultural values and communication norms [6, 9].

Brewer [10] conducted a multinational study of the causes of miscommunication in virtual workplaces with participants from Sweden, the United States, France, the

Philippines, Singapore, Canada, and Australia. She found that culture was specifically identified as a cause of miscommunication. In addition, a number of other elements also revealed underlying cultural influences. For example, under the broad heading of Information Sharing, “a lack of clear detail, incorrect assumptions about receiver knowledge, disparity of information, unnecessary information, volume of correspondence, and missing information” were listed [10]. Lack of detail provided in a communication event caused a number of issues, from frustration about knowing how to complete a problem to causing extra time and additional costs to track down the information needed to complete a project. There is no doubt that these kinds of problems could contribute to the information overload issue. It would also be logical to conclude from the above study that high versus low context cultural backgrounds (discussed in Section 5.4), which have a strong influence on the amount of detail provided, are a contributing factor to these communication problems and therefore to information overload.

5.2 Levels of Culture

As many researchers have observed, there are multiple levels of cultures and subcultures—from supranational cultures (regional, ethnic, religious, linguistic) to multiple kinds of group cultures or communities of learning of specific professionals, such as engineers, economists, lawyers, and medical doctors. Karahanna *et al.* [11] visualized the interrelated levels of culture as shown in Figure 5.1. In their efforts to integrate the different levels of culture and individual behavior, they propose an overall perspective for any global

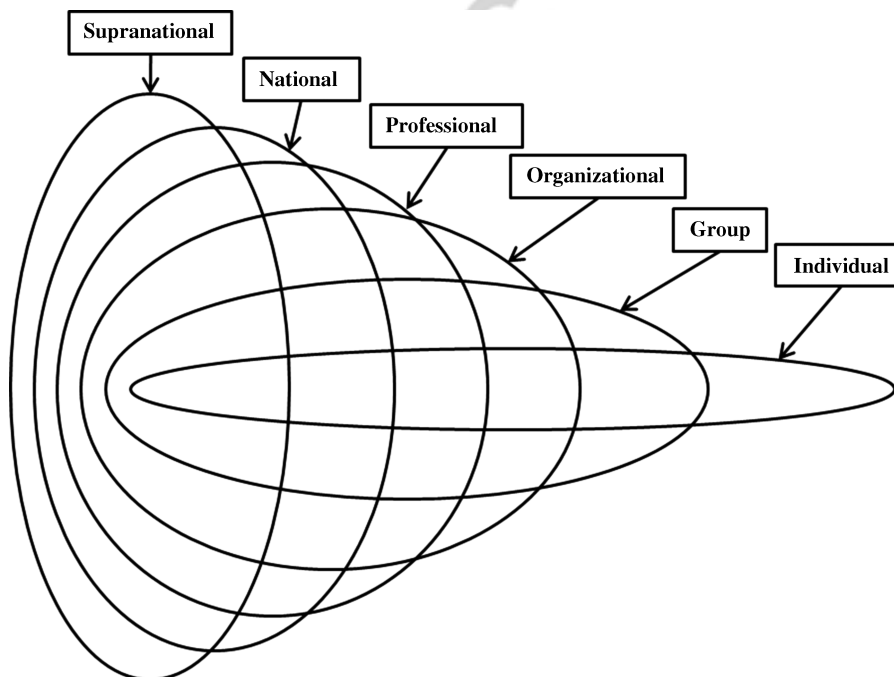


Figure 5.1 Interrelated levels of culture. There are multiple interrelated levels of cultures and subcultures—from supranational (regional, ethnic, religious, linguistic) cultures to multiple kinds of group cultures. This figure helps to illustrate the complexities of culture and it can contribute to the challenges of information overload [7].

information receiver, which, for the current audience, refers to engineers and technical writers (group level) within the scope of their firms (organizational level). The individual level deals more with the psychological level rather than any specific cultural level, an analysis which is beyond the scope of this chapter [12, 13].

Figure 5.1 helps to illustrate the complexities of culture and how challenging it is to discuss its effects on information overload in such a short chapter. However, the contribution of culture to all aspects of communication cannot be ignored. In our discussion, we limit this topic to the main elements of discourse patterns and national or regional cultures.

5.3 Cultural Patterns of Discourse Organization

There is no doubt that in addition to individual characteristics that influence the way text is organized and processed, a person's ethnic and national culture and the related language influence the way he or she deals with information. One of the earliest studies in this area was by Kaplan [14], who analyzed compositions written in English by students with different cultural backgrounds, such as French, Spanish, and Russian. These compositions, written on the same subject, had paragraph structures that diverged in a systematic way from typical linear paragraph structure commonly used in countries such as the United States, the United Kingdom, and The Netherlands, and therefore, reflected a different line of thought. Kaplan then correlated these different text structures with the historical typology of language

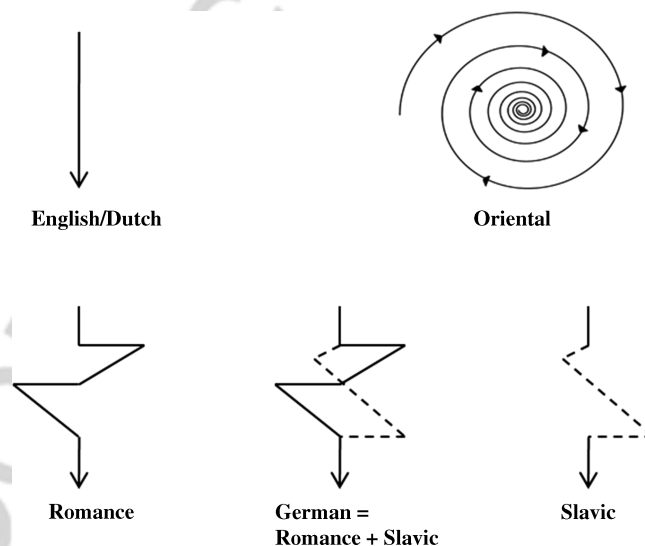


Figure 5.2 Examples of cultural styles of discourse organization. The English (U.S. and U.K.) and Dutch patterns of thought are linear, focused, direct, and monochronic, handling only one thing at a time. The Romance approach (e.g., French, Spanish, and Italian) is polychronic, discussing several things at the same time. In the Slavic culture, the rather long digressions seem to be irrelevant to those unfamiliar with this pattern of discourse. German discourse is a combination of the Romance and Slavic approaches, while the Asian cultures (e.g., Japan, China, and Korea) have an indirect approach, moving in a circular pattern as the writer approaches the subject indirectly [10].

families, such as Romance, Germanic, and Slavic. Figure 5.2 presents a visualization of the differences in styles of organization for some cultural groups.

The English (U.S. and U.K.) and Dutch patterns of thought are linear, focused, and direct without digressions, and they are monochronic, handling only one thing at a time. (From now on, in this chapter, this style is referred to as a linear textual pattern.) The Romance approach (e.g., French, Spanish, and Italian) allows for digressions. These “side paths” are clear and fit into a rational line of argument, which is polychronic, discussing several things at the same time. In the Slavic culture, the rather long digressions seem to be irrelevant to the central topic to those unfamiliar with this pattern of discourse. German discourse is a combination of the Romance and Slavic approaches and accepts both functional and nonfunctional digressions. In contrast, the Asian cultures (e.g., Japanese, Chinese, and Korean) have an indirect approach, moving in a circular pattern as the writer approaches the subject indirectly [14, 15] (referred to, hereafter, as an indirect discourse organization or textual pattern).

Understanding the major storytelling patterns of other cultures can inform how the reader can unpack technical information as well. The challenge comes to a reader who is unfamiliar with the cultural pattern of a text he or she is trying to understand. For example, an Irish engineer (who is familiar with linear writing) may be trying to find the main points from a complex technical report written by the company’s Vietnamese subcontractor (who is more likely to use indirect structures). Because the Irish engineer has to cope with an unfamiliar discourse structure and possible second language errors, in addition to the complex technical content, he or she can easily experience information overload. We need to understand how various communication barriers can cause information overload, as defined in Chapters 1 and 2. In the following sections, we examine how differing discourse patterns as well as high and low context cultural patterns can influence the load of handling various forms of communication.

5.4 High Context Versus Low Context

In addition to contrasting patterns of discourse structure, another important way to analyze cultural differences in information structure develops from the work of Edward Hall [16, 17] and his concepts of high context (HC) and low context (LC) cultures. His early work was with Native Americans in the United States, and he later expanded his analysis to European companies in France and Germany using the same anthropological methods.

The theory of high and low context of information relates to linguistic and cultural differences, specifically to implicit versus explicit ways of communicating. Implicit corresponds here to the indirect discourse organization mentioned above; explicit reflects rather linear textual patterns. Those from high context cultures know implicit sources within the culture itself because they are more homogeneous in sharing nontext-based common knowledge. Communicators from these cultures tend to prefer indirect patterns of organization in text, fewer details, and higher levels of politeness and ambiguity. While these people may need some more details when dealing with new or unfamiliar material, they generally prefer communication without detailed explanations. In contrast, people from low context cultures, which are quite heterogeneous, share much less knowledge, so everything must be explained clearly and in much more detail. Communicators from low context cultures usually prefer messages that are direct and concise [18].

Most Asian and South American cultures are high context. In contrast, North America, especially the United States and Canada, as well as Northwest Europe, for example, the United Kingdom, Germany, The Netherlands, and the Nordic countries, are low context. However, it appears that the high–low context determination is not a simple dichotomy. Ulijn [19] suggested a continuum where only the poles are clear: the Swiss Germans are the champions of low context according to Edward Hall, and the Chinese and Japanese lead the high context cultures, but the position of French and British cultures in Europe is not as clear. With that caveat, we present examples of high context cultures (Latin cultures from several South American countries, Mexico, and France, and Asian cultures from China and Japan) and examples of low context cultures (from the United States, The Netherlands, and Germany).

Interestingly, the national cultures involved in the different patterns of text organization (shown in Figure 5.2) correlate with high and low context. For instance, the linear approach from Figure 5.2 reflects a low context culture demanding an explicit message and concrete facts, where the external conditions of the communication are less important. To illustrate, if one is from a low context culture, there may be much more cognitive overload when one tries to understand the real meaning of a communication from a person in a high context culture without benefit of explicit information as in the earlier example of the Irish (low context) engineer trying to cope with a Vietnamese (high context) document.

High context readers from Asian and Latin cultures with the digressions in the text as illustrated in Figure 5.1 can deal with an implicit message. As a case in point, a Chinese reader will see that the circular way of writing about a topic without mentioning it explicitly will lead eventually in the end to a very clear problem description. A western reader, used to the perspective of a linear text structure, expects this problem description to be put up front. One might assume that because of their ability to process diverse information in routine communication experiences, people from high context cultures may not experience information overload as quickly as those from low context cultures. The external conditions, such as the relationship with the writer, are usually more important. Since the oral often overrides the written communication, information may flow quickly; hence, there may be less risk of information overload.

Japanese and Chinese readers might need implicit information from oral sources in order to connect with their communication partners (relationship building). This is very much the tradition of an oral culture, where the spoken word can be trusted, even without written contracts. (See the Japanese example below of how high context communication can be very quick.) A high context Chinese reader who accepts oral information as a routine source of information on which to base business decisions may ignore the written checks and controls that a western low context reader demands. This detailed text may cause information overload for the high context reader, for instance, in the case of intellectual property or engineering specifications, where only the written text counts.

Fussell *et al.* [20] concluded that high context communicators are expected to count more on *affective* trust through relationship building, whereas low context communicators depend more on *cognitive* trust, based upon one's intelligence, competence, and reliability, mainly because these are very task-oriented cultures.

For both high context and low context readers, computer-mediated communication, such as instant messaging, texting, teleconferencing, and video conferencing, is often helpful in reducing intercultural differences, since misunderstandings can be resolved more quickly and rather informally. However, professionals who depend on highly detailed documents (low context), such as attorneys, may not be able to take full advantage of these techniques to resolve complex differences. In addition, those in high context cultures who

depend heavily on relationship building may not be able to take full advantage of these short-term solutions.

In studies of annual joint design projects between students from The Netherlands (low context) and Hong Kong (high context), both national and professional cultures led to challenges [21, 22]. The Dutch were fourth year industrial engineering students; in contrast, those from Hong Kong were business and accounting students. Both teams used electronic group support systems, e-mail, and NetMeeting with each other, and they used video conferencing at the beginning and middle of the term. As the Dutch focused on meeting deadlines, they were more distant with each other (within group); however, the Chinese took action only when all uncertainties were resolved through constant interaction. The Dutch suffered more from lack of face-to-face contact and poor interaction with the Chinese, while the Chinese reported time pressure and technical issues to be more problematic. In both cases, increased videoconferencing could have helped resolve their differences, which could have reduced the overall load from both sides [21, 22].

In many cases where differences in cultural framework (high versus low context) and discourse structure exist, localization of content may help at least decrease the probability of information overload caused by intercultural differences.

5.5 Internationalization Versus Localization

When most people think of translation, they often think of only the linguistic elements—taking words from one language and finding equivalents in the other language. However, cultural translation (a key part of localization)—making the discourse structure and overall tone of the text appropriate for the target culture—is critical.

An increasing amount of research is being done on the topic of internationalization (or globalization) and localization of communication products. However, much of the focus, for example, is on information technology, with consideration of character sets and expansion of text due to translation issues. However, the content of the text itself must be localized because of cultural issues among other considerations. Although the Localization Industry Standards Association (LISA) dissolved in Spring 2011, we can use the LISA Educational Initiative Taskforce (LEIT) guidelines to briefly define these key terms [23, 24]. Localization involves taking a product and making it linguistically and culturally appropriate to the target locale (country/region and language), where it will be used and sold. A similar definition for localization is the process of creating or adapting a product to a specific locale, i.e., to the language, cultural context, conventions, and market requirements of a specific target market. Internationalization is the process of generalizing a product so that it can handle multiple languages and cultural conventions without the need to redesign. LISA used the acronym GIL to describe the combination of globalization, internationalization, and localization, referring to all aspects of the process of taking products to an international audience.

Currently, the Globalization and Localization Association (GALA), with a membership of 280 companies from 50 countries, is the world's largest localization organization [25]. GALA stresses that the need for a local mindset is an indispensable part of company's strategy to reach a target market in foreign countries. As the organization purports, "Communicating locally is necessary to succeed globally" [25].

One decision engineers and technical writers have to wrestle with is whether to do a straight translation of text for other countries or whether to localize the text, i.e., do

a cultural translation. For efficiency and budgetary reasons, engineers and technical communicators might be tempted to universalize their products and related documents as much as they can, but globalization in this sense is not always an advantage. Recent studies [26–28] indicate that national/ethnic cultural localization might reduce information overload. Localization to a specific national cultural model, in addition to creating more successful business models, can help an organization's members prevent information overload. With regard to international audiences, the high–low context distinction remains an important element in transmitting information.

When document designers localize documents for readers in other cultures, they should consider what text organization will best suit those readers. Let us look at research on three cultures with distinct cultural patterns to help us understand some of the issues.

5.5.1 Latin America

The area covered by the label “Latin America,” which includes Central and South America, while very similar in many cultural patterns, also has great diversity. For the sake of our discussion of general cultural differences between Latin America and other cultures, such as the U.S., European, or Asian cultures, we state the caveat that we are generalizing, but include specific examples to demonstrate the points.

In general, the Latin American cultures are high context, which means they do not always need very specific details, especially when dealing with familiar topics. Thatcher's work on adapting information for South American readers (especially in Venezuela, Colombia, Ecuador, Peru, and Bolivia) demonstrated that there were a number of different rhetorical patterns as well as cultural influences that caused misunderstandings and/or challenges for both the Latin American readers as well as for the people from the United States with whom they were communicating [28]. One of the most challenging characteristics was the tradition of orality (conveying most information through oral channels and using an oral-like writing style) by the Latin Americans. This meant that they had a challenging time processing the direct, highly detailed written materials produced routinely by the low context U.S. writers. On the other hand, the U.S. communicators were challenged to understand the very different writing style of their South American counterparts.

This study uncovered a number of other factors that influenced the challenges and misunderstandings, including the purpose technical documents serve in each culture as well as cultural factors such as Hofstede's dimensions of individualism/collectivism and power distance [1]. Both groups were experiencing information overload caused by the extra cognitive load of struggling with different rhetorical structures of the information they had to work with. Thatcher confirmed these same kinds of intercultural issues in his study of joint U.S.–Mexico manufacturing facilities, called *maquilas*. Interestingly, in the four *maquilas* he studied, he found little hybridity or adaptation between the two cultural styles of communicating [29]. This certainly points out the need for much more research in this area to determine what kinds of strategies are necessary to bridge intercultural and rhetorical differences.

Localization of texts for a specific ethnic culture in a country with a different mainstream culture might be less needed than writing for a national culture with a completely different educational system or diverging information needs. St. Germaine-Madison [30] tested 35 focus groups, which included five Hispanic focus groups (conducted in Spanish), to determine the best approach to communicate information about the dangers of the Human Papilloma Virus (HPV) to the Hispanic population in the

United States. In some cases, members of this group preferred some text that reflected their traditional pattern of organization, a more indirect rather than linear style. However, because of their experiences in the United States, where highly detailed low context texts are common, this audience dealt better with the brochure in a low context style than if it had been in a simple but implicit version. In this case, the low context, more explicit text, spelling out all the details, worked better for Spanish high context speakers located in a low context country than the text with their own more Latin orientation, where fewer details (high context) are more common. For this group, how long they had been in the United States and what kind of educational system they went through may have been influencing factors.

5.5.2 Japan

Nonaka and Takeuchi [31] developed a theory of an ideal knowledge-creating company, based on the best attributes of the Japanese and western cultures and their corresponding typical corporate cultures. They address how each culture has its own communication styles, which often conflict or cause misunderstandings. For example, they mention that the Japanese tend “to overemphasize the use of figurative language and symbolism at the expense of a more analytical approach in documentation.” Our audience of technical writers may appreciate the old example of a manual for the first Apple computer introduced in Japan. It started with a fairy tale about an orchard of apple trees and ended up with one apple and one computer being the same [32]. As in this example, too much figurative language and symbolism, which work well in Japan, can also be an indirect cause of information overload as those unfamiliar with this style struggle to understand the main message.

Spyridakis and Fukuoka [33] examined American and Japanese readers’ comprehension of and preference for expository text that contains a thesis and is organized either inductively or deductively. The results revealed that while Americans performed equally well with either organizational structure, Japanese readers recalled more information from the inductively organized text. The implications for document designers in English- and Japanese-speaking countries are that, on the one hand, localization of text could prevent information overload for readers from implicit high context traditions. Reader-responsible cultures prefer inductively organized texts, for example, Japan [33], China [26, 34], France [27], and Latin America [28, 35]. On the other hand, if the same cultures are exposed long enough to explicit low context cultures, such as the mainstream Anglo-Germanic one in the United States, such localization may not be as important.

5.5.3 China

Honold [36] conducted a study comparing Chinese and German subjects learning how to use a cellular phone in their home country. Neither group had been trained to use a cell phone in the other country. This study found a clear difference between learning objectives, learning styles, and high context/low context cultural dimensions. The majority of the Chinese users had a definite affinity for depending on relationships for learning about their new cell phones, which is very collectivistic and indicates a high context society. They were quite pragmatic about their learning objectives, feeling that learning only the basic features they needed was enough. For this group, reading the instruction book was a last resort. In contrast, the more individualistic Germans (low context) went directly to the formal instructions as the way to learn.

Another interesting finding in Honold’s study was that the Chinese have a much stronger picture orientation, preferring to depend on visuals rather than text for information

and instructions. In contrast, the Germans preferred complete and consistent textual information. In this case, it is easy to imagine that information overload could happen for each of these cultural groups if the instruction manual for the cell phone did not meet expectations. For example, the Chinese users could be overloaded with text when they need graphics to better understand the procedure for operating their new phone.

When studying the influence of U.S. and Chinese national cultures on the style of communication and types of knowledge-sharing activities in virtual communities, Siau *et al.* [37] found that Chinese communicators depend more on relationships; thus, they generally had a more closed system of information exchange than the U.S. communicators, who had a more open system of knowledge exchange. In other words, the Chinese participants were more likely to share information with people with whom they already had an establishing relationship, whereas the U.S. participants in the virtual communities were more willing to share information, whether they knew the receiver or not. This is another example of potential information overload (or underload) as members of each group are sending and/or receiving an amount of information considered inappropriate or uncomfortable by members of the other cultural group.

Websites provide additional elements of virtual information exchange. Barnett [9] conducted a longitudinal review of websites from both China and the United States. He reported that U.S. websites were constructed in a significantly lower context structure compared to Chinese websites. Other studies have confirmed this difference in high versus low context in Asian versus American websites [38–40] as well as in other forms of written communication [41–44]. Fujimoto *et al.* [6] found that when individuals from high context cultures communicate with those from low context cultures, they are less satisfied with the communication and are often stressed as a result. As mentioned earlier, McFadden and Richard [7, 8] confirmed this finding.

These cases illustrate that while people from different cultural and linguistic backgrounds are attempting to communicate to create understanding, linguistic and/or cultural interference can contribute to cognitive barriers, therefore leading to the perception of information overload. One might conclude that localization (writing text in either the low context or high context style of the target audience) meets the information load level of readers better than universal texts, which are usually written in a low context style for global audiences.

5.6 The Effect of Professional Culture

Organization or corporate culture deals with the culture of a particular company and can affect the degree of openness of communication, attitudes toward human error, and level of trust between managers and employees. Corporate culture may operate within or across national borders. A professional culture is shared by those who are in the same career field since they share much common knowledge. As cases in point, we provide some examples from the United States and the global aviation sector (airline pilots), Dutch high-tech firms (software engineers, electronic engineers in the military sector, and hydraulic engineers), German and Chinese mechanical engineers, as well as Dutch and French facility managers.

For example, think about the professional culture of commercial airline pilots. Most commercial flights have more than one crew member, and in many cases, crew members come from different cultures. These multinational crews must learn to communicate effectively in order to function as a team. Because of the potential disaster of bad decisions

or commands based on flawed information, Cockpit Resource Management (CRM) was implemented [45]. CRM training programs do not deal as much with technical expertise as with the cognitive and interpersonal skills necessary for situational awareness, problem solving, and decision making within this high-stress environment where interpersonal and communication skills are critical. When CRM operates as it should, any member of the cockpit flight crew, regardless of rank or status, is encouraged and empowered to speak out when necessary. However, because of cultural characteristics such as traditional hierarchical or power distance issues, questioning a decision made by the person in authority, in this case, the pilot, may be unacceptable. For example, cockpit voice recordings of various air disasters tragically reveal cases where the first officer and flight engineer attempt to bring critical information to the captain's attention, but they do so in an indirect and ineffective way. By the time the captain understands what is being said, it is too late to avert the disaster. In some cases, language issues are complicating factors, as was true in the case of the crash of Avianca Flight 52. The flight had originated in Colombia with New York as the destination. Because of delays in the flight and being put in a holding pattern above New York, the plane was running very low on fuel. The pilots were handicapped in communicating with the air traffic controllers because of their limited English. The language issue was compounded because the crew did not know, or at least did not use, standard ICAO phraseology, causing the air traffic controllers to misunderstand the urgency of their situation. The National Traffic Safety Board (NTSB) summarized that in addition to poor weather and fuel mismanagement, the cause of the accident was "the failure of the flight crew . . . to communicate an emergency fuel situation to air traffic control before fuel exhaustion . . . and the lack of standardized understandable terminology for pilots and controllers for minimum and emergency fuel states" [46].

Thus, although CRM, aviation's "safety culture," is an essential part of aviation's professional culture, its implementation is still influenced by national culture. Helmreich *et al.* [47] found that while professional and organizational cultures do have an impact on flight operations, national culture has a much stronger influence.

In today's mobile world, the national, professional, and organizational cultural values are interconnected in complex ways. Following our aviation example, an Asian pilot may have been trained in a western country, such as the United States. However, when that pilot returns to Asia to fly for a commercial airline, the home country's culture of practices may conflict with the western teachings, and thereby affect the cockpit culture for that pilot and the crew. This is just one example of a professional group that may have overlapping and sometimes contradictory cultural values [48].

With a different perspective, in their study of professional communication in a global business context, where English is spoken as a *lingua franca*, Louhiala-Salminen and Kankaanranta [49] made a number of important observations about the influence of culture on the communication process. Among other things, they found that there was a form of solidarity among those speaking Business English as a *lingua franca*, which created somewhat of a professional culture beyond just the business knowledge shared by the participants. Their participants seemed aware of varying discourse patterns and other cultural influences on their cross-cultural interactions. These researchers concluded that "multicultural competence stems from the acknowledgement of factors related to national, corporate, and/or professional cultures as fundamentals of any communicative event, and enables the flexibility and tolerance needed for GCC [Global Communicative Competence] to succeed" [49]. This result helps to confirm the idea that a professional culture could reduce information overload somewhat because of shared backgrounds and

knowledge as well as the participants' awareness of the need to adapt to differing culturally influenced communication styles.

What effect do professional cultures have on information overload? When people share a professional culture, they might avoid some information overload because of their common knowledge, which creates a kind of high context, as discussed earlier. Hall and Weaver [50] also suggested that people who are attracted to a certain profession share patterns of cognitive learning skills and styles. These cognitive patterns, as well as other facets of a particular culture—such as values, beliefs, attitudes, and customs—are reinforced through common educational backgrounds and workplace behaviors and are passed down to the neophytes in a given profession and/or organization [51]. (See also [52] for a discussion of a professional culture's influence in the field of midwifery; also see Chapter 4.)

In the context of five Dutch high-tech firms involving the professional cultures of software engineers, electronic engineers in the military sector, and hydraulic engineers, Van Luxemburg *et al.* [53] studied the use of computer-mediated communication (CMC) in the design process between supplier and customer. Based on their findings, we can infer that the suppliers and customers have reduced information overload because they share a similar professional culture.

However, we cannot overgeneralize. Wang and Wang [26] conducted a user study with German and Chinese mechanics using their own service manuals for the same injection system of Mercedes-Benz. This study was unique in linking the professional culture of German and Chinese mechanical engineers to the necessary audience analysis and usability testing Mercedes-Benz had to do to export its products to China. The study was done in each country using two manuals with the two different styles in each country. The Chinese version had more implicit text organization (more graphics and less text) and the German one relied on explicit patterns: more text and details and fewer graphics.

The Mercedes-Benz Chinese manuals reflect the *chi-cheng-juan-he* structure [54, 55] given below.

- The beginning, *chi*, would contextualize but would not correlate directly to the English or German topic sentence in a western linear prose structure.
- Next, the *chi* and *cheng* elements would be very general.
- The *juan* element would provide a digression (such as the *ten* in Japanese). In the *juan*, there is a connection to the main topic, but since it does not seem directly related, it is confusing for western readers.
- Finally, the *he* element would include all the details and the conclusion in a very inductive style.

In the automotive example, this means that the Chinese writer would come to the point of troubleshooting much later in the text, which would not seem as logical for the western reader. On the other hand, a German version would have these details up front, which could seem confusing to a Chinese reader. Those findings confirm the high–low context distinction between these two cultures, evidenced earlier by Ulijn and St. Amant [34], who also used German and Chinese subjects in a study of the interpretation of oral negotiation discourse. Therefore, while technical communicators can use the common professional culture to reduce information overload, they should be prepared for different national cultural styles, in this case between Germany and China. In many cases, the

engineers may have not been trained in the same way in their respective countries, and they probably have different communication styles, especially relating to discourse structure.

Another example of the need for localization comes from a French client purchasing a Dutch coffee maker. The French client wanted the Dutch coffee maker's manual localized through cultural translation. In a simple organization pattern of (1) technical data, (2) operation, (3) maintenance, and (4) troubleshooting, the Dutch writers preferred to put the operation up front; however, the French are more used to having the technical data up front. When the two versions of the manual were tested with both Dutch and French readers, for both cultures, the readers were able to complete a reading-to-do task faster in their own cultural structure [56]. In this case, the Dutch and French share a fairly limited and multilayered professional culture, which ranges from facility managers, who have to operate professional coffee makers in restaurants, to technicians, who have to serve as troubleshooters if the apparatus fails to do its work.

For all of these examples, each group was able to better handle text that was written in the discourse style that the readers were familiar with. This implies that corporations must use this knowledge when they are writing documents for international audiences.

5.7 Japan and U.S. Discourse Structures

Section 5.5.2 outlines the way Japanese see sharing and increasing professional knowledge. While this probably has consequences for the development of professional cultures within Japan, in this chapter, we limit our discussion to the consequences for the technical communicator, in this case, for writers from the United States producing text for Japanese audiences. Using Spyridakis and Fukuoka's results [33] (see Section 5.5.2), it is easy to see that the indirect, circular, high context, inductive, implicit style of Japanese communicators contrasts directly with the linear, low context, deductive, explicit style reflected in American English.

Perhaps, Hinds' theory about Reader versus Writer Responsibility [55] can help explain text differences here so that a technical communicator could act as a bridge builder between two cultures. Hinds points out that a key issue in crafting any text, especially for those used to the English pattern of organization, is unity. He emphasizes that transitions and landmarks are essential and help the reader follow the pattern of organization of information presented in the text. Since these transitions and landmarks may be scarce in, for example, Japanese text, increased cognitive load may result on the part of English readers from text that is organized according to Japanese rhetorical organization patterns.

The example of the Apple computer manual introduced in Japan, mentioned earlier, illustrates this indirect, quasi-inductive expository style. For western readers and clients, this kind of indirect story may give the impression of lack of focus. Hinds [55, 56] made this point of focus, along with unity and coherence, explicit in his translation experiment. A reader-responsible culture, such as the Japanese one, will look in an American text for focus, unity, and coherence in a Japanese way, which is through the *ki-shoo-ten-ketsu* discourse structure. In this style, *ki* introduces the topic, *shoo* develops the topic, *ten* forms an abrupt transition or a vaguely related point, and *ketsu* concludes the topic. A U.S. reader, coming from a writer-responsible culture, might blame the Japanese writer for causing miscommunication by using so much indirect language, even if the text is translated literally into English.

Consider the example of a popular Japanese newspaper column, "Tensei Jingo," which reported on a car accident in a tunnel in northern Japan. The article was both

literally and culturally translated into English. The literal translation kept the traditional Japanese discourse structure, in which the *ten* part had considerable digression, with percentages about car accidents during the last 10 years in Japan. Both Japanese and English readers were asked to evaluate the two versions with regard to focus, unity, and coherence, and not, surprisingly, each group preferred its own discourse structure. For the native English readers, the *ten* part of the Japanese version, which had a connection but not a direct association with the rest of the text, simply did not meet their western expectations of focus, unity, and coherence of a text. This could have increased cognitive load required to process this different style of text certainly contributed to information overload. Other studies have confirmed that comprehension is definitely affected by rhetorical patterns and discourse markers (e.g., see [54, 58, 59] for several languages, including Chinese).

In another study, Maitra and Goswami [60] asked American readers who had been trained in document design to analyze Japanese annual reports that had been translated into English. The Japanese reports had been designed carefully to reflect the cultural framework of valuing aesthetics and ambiguity. However, the American readers used their own perceptual framework when reading these reports. This meant they expected a clear logical line of reasoning and images that were purposeful and conveyed specific information to support the text. This group of readers felt the images lacked function and were too “flashy” whereas the Japanese readers believed the images conveyed important cultural values. (For additional information on visual communication, see [61] and Chapter 6.) The above might suggest that the Japanese version is illogical, nonpurposeful, and difficult to understand. Although this may be the perception of the western low context reader, it certainly is not the perception of the Japanese.

5.8 Cultural Issues in Reader Versus Writer Responsibility

Hinds' [55, 56] landmark typology dealing with reader versus writer responsibility within different cultures purports “that in some languages, such as English, the person primarily responsible for effective communication is the speaker, while in other languages, such as Japanese, the person primarily responsible for effective communication is the listener.” For English speakers, this means that the speaker or writer has the responsibility to clearly communicate his or her message explicitly. In contrast, for Japanese speakers, the listener or reader is responsible for decoding and understanding what the author's message is. This reader versus writer responsibility can be correlated with high versus low context cultures.

Thus, any breakdown in intercultural communication would be analyzed very differently depending on the national culture of both the sender and the receiver. Consider the following example: a woman from the United States was taking a taxi to the Ginza Tokyo Hotel in Japan. The taxi driver mistakenly took her to the Ginza Dalichi Hotel. She said, “I'm sorry, I should have spoken more clearly.” The taxi driver responded, “No, I should have listened more carefully” [55]. Although the politeness conventions of the Japanese culture probably influenced the taxi driver's response, it is clear that the driver was taking responsibility for his perceived role in the conversation.

Communicators from high context cultures, such as the Japanese client/reader, who consults product information or the Japanese taxi driver in the above example, tend to feel more responsible for digesting the text themselves rather than depending on the

communicator to make all information explicit. On the other hand, people from low context cultures, such as the U.S. female taxi passenger or a German engineer reading product information, feel the ones originating the communication (speakers or writers) are definitely responsible for conveying all the necessary details. In cases where international professional communicators do not provide enough contextual information, these people from low context cultures may be more likely to feel information underload.

When a technical professional from a low context culture, such as the United States, writes a highly detailed text (a marketing message or user manual for a new American product), people from different cultures could have dramatically different reactions to those texts. If those texts were to be read by a Japanese reader (high context culture), who had difficulty understanding, that reader may respond, *I am experiencing information overload. I must not be intelligent enough to understand this (reader responsibility) and therefore I will not buy it.* A U.S. reader facing the same situation would blame the writer for any information overload and may respond, *I am entitled to explicit, clear information without overload or underload (writer responsibility) and without that, I will not buy it.* The (negative) marketing result might be the same for both people: *If the product information does not meet my cultural expectations, I will not buy that product.*

The same issue extends to the situation of the readers of, for example, German product information if they are not fluent enough in that language. If they do not understand the information, they will not blame the writer, but consider themselves to be not intelligent or not educated enough, and hence, may not buy the product, a case of reader responsibility. In contrast, a low context American reader/client may sue the product information provider, often a technical writer and/or engineer, for not providing clear enough information (writer responsibility).

5.9 Implications for Engineers and Technical Communicators and Their Corporations

What are the consequences for the writing process of an engineer or a technical communicator working on a global scale? In all cases, international professional communicators will face intercultural differences, which result not only from national but also from professional and corporate sources. The high context of the same nation, same ethnic group, the same profession, or the same corporate environment might reduce information overload because, in those cases, not everything has to be spelled out as explicit information. According to a Dutch proverb, *a good listener needs only half a word.*

However, in most cases, localization of information can certainly help a corporation serve its clients better. For example, as mentioned with high versus low context cultures and various discourse patterns, producing text in a form that readers are familiar with reduces cognitive load and therefore may decrease the amount of information overload. Too often, companies are tempted to take their documents and make a direct, linear translation from one language into another. However, the above-cited examples of culturally diverse text organizations demonstrate that cultural translation—making the appropriate cultural adaptations to the original text—is essential.

It is well established, as shown by the research results presented in this chapter, that there are culturally different discourse patterns that are evidenced when producing or

processing text. It is also logical to think that processing text from a culture that uses a different discourse pattern creates a heavier cognitive load than processing text in familiar discourse patterns and that increased cognitive load can contribute to information overload. Therefore, technical writers must understand that it is very difficult to globalize all text. As demonstrated through this chapter's examples, some localization is critical for linguistic and cultural regions that have contrasting rhetorical patterns and cultural contexts. However, as noted in the Latin American study of Hispanics living in the United States, sometimes, a more specific kind of localization (e.g., adapting to patterns of organization taught in a certain educational system) may be even more important than national or ethnic localization.

For knowledge creation, companies must “have the organizational capability to acquire, accumulate, exploit, and create new knowledge continuously and dynamically, and to recategorize and recontextualize it strategically for use by others in the organization . . .” [31]. For example, consider a Dutch technical information firm, Tedopres, which specializes in troubleshooting software for the aviation industry. In this case, 15 Indonesian engineers had to cooperate with 15 Dutch technical writers who had the task of localizing the software documentation for international clients through both linguistic and cultural translation. Engineers know their product very well, but the organization often needs to employ technical writers to prepare the content, in this case, the product knowledge, in such a way that their clients can use it successfully. To do so, the engineers (Indonesian) and technical writers (Dutch) within the organization had to find an effective way to communicate with each other so the technical writers could understand the product information well enough to make the cultural translation [12]. It took six months of training for the Indonesian software engineers and the Dutch technical writers to be able to communicate effectively enough to prepare the required aviation software documentation.

This implies that strong communication systems must be in place to control the quantity as well as quality of information so that information overload is not a constant threat both up and down the chain of command. Nonaka and Takeuchi “. . . believe that the future belongs to companies that can take the best of the East and the West and start building a universal model to create new knowledge within their organizations. Nationalities will be of no relevance. . . .” [31]. Needless to say, this is also true for cultures from the North and South, where differences can be just as dramatic. Although this may seem extreme, it is certainly true that to reduce intercultural interference in communication, all communicators will have to find ways to adapt—meet in the middle—to reduce both cognitive and information overload. Audience analysis has always been an essential tool for the technical writer and, as this chapter has demonstrated, analyzing the reader's cultural framework is an essential part of this analysis.

Technical communicators must increase feedback opportunities to fully address issues leading to miscommunication. An open dialog can at least begin to address information overload issues among all parties of cross-cultural communication events. Computer-mediated communication (CMC), such as videoconferencing and teleconferencing and instant messaging, can facilitate this process in real time.

It is essential to train all technical communicators and writers about cultural elements, such as reader expectations of discourse organization as well as amount and kind of textual detail expected and needed to process a text without excessive cognitive load. It is also important to encourage better communication and teamwork between engineers, the experts on the technical information, and those who must write technical documents and make them readable for a multicultural audience.

5.10 Conclusion

This chapter barely scratches the surface of the impact of culture on information overload as it relates to the way people receive and decode texts and other forms of information from a variety of national rhetorical styles, cultural preferences, and professional and corporate cultural styles. It might, however, give practicing engineers and technical and professional communicators an awareness of how to decrease the cognitive load and therefore to reduce potential information overload.

Discourse patterns and high versus low context cultural frameworks give solid insight into elements necessary to reduce the effort it takes to process cross-cultural oral and written discourse. Perhaps, the most important conclusion is that these patterns *within* a culture are not so important. It is the extra cognitive load caused by having to process information in *different* discourse patterns from *different* cultural frameworks that is a major factor in information overload. The examples given in this chapter clearly demonstrate that corporations must localize their product information and that localization must include thorough audience analysis, consideration of cultural discourse structural preferences, as well as careful usability testing. To produce successful documents, engineers and technical managers must attempt to match the expected discourse structure and therefore the cognitive load of the target reader to truly reduce information overload.

REFERENCES

- [1] G. Hofstede, *et al.*, *Cultures and Organizations: Software of the Mind*, 3rd ed. New York: McGraw-Hill, 2010.
- [2] F. Trompenaars, *Riding the Waves of Culture: Understanding Cultural Diversity in Business*. London, U.K.: Nicholas Brealey, 1994.
- [3] H. Triandis, *Culture and Social Behavior*. New York: McGraw-Hill, 1994.
- [4] P. B. Smith, *et al.*, *Understanding Social Psychology Across Cultures: Living and Working in a Changing World*. London, U.K.: Sage, 2006.
- [5] D. G. Schwartz, *et al.*, *Internet-Based Organizational Memory and Knowledge Management*. Hershey, PA: Idea Group Publishing, 2000.
- [6] Y. Fujimoto, *et al.*, "The global village: Online cross-cultural communication and HRM," *Cross-Cultural Manag.: Int. J.*, vol. 14, no. 1, pp. 7–22, 2007.
- [7] M. McFadden and E. M. Richard, "Cross-cultural differences in business request emails," *presented at the 25th Annual Society for Industrial and Organizational Psychology*, Atlanta, GA, Apr. 2010.
- [8] M. McFadden and E. M. Richard, "Cultural and individual level differences in business request emails," *J. Appl. Psychol.*, unpublished.
- [9] G. A. Barnett, "A longitudinal analysis of the international telecommunications network: 1978–1996," *Am. Behavioral Scientist*, vol. 44, no. 10, pp. 1638–1655, 2001.
- [10] P. E. Brewer, "Miscommunication in international virtual workplaces," *IEEE Trans. Prof. Commun.*, vol. 53, no. 4, pp. 1–17, Dec. 2010.
- [11] E. Karahanna, *et al.*, "Levels of culture and individual behavior: An integrative perspective," *J. Global Inform. Manag.*, vol. 3, no. 2, pp. 1–20, Apr.–Jun., 2005.
- [12] J. Ulijn and M. Weggeman, "Towards an innovation culture: What are its national, corporate, marketing and engineering aspects, some experimental evidence," in *Handbook of Organisational Culture and Climate*, C. Cooper, S. Cartwright, and C. Early, Eds. London, U.K.: Wiley, pp. 487–517, 2000.

- [13] J. Ulijn and T. Brown, "Innovation, entrepreneurship and culture, a matter of interaction between technology, progress and economic growth," in *Entrepreneurship, Innovation and Culture: The Interaction Between Technology, Progress and Economic Growth*, T. Brown and J. Ulijn, Eds. Cheltenham, U.K.: Edward Elgar, pp. 1–38, 2004.
- [14] R. B. Kaplan, "Cultural thought patterns in intercultural education," *Language Learning*, vol. 16, no. 1, pp. 1–20, 1966.
- [15] J. Ulijn and J. Strother, *Communicating in Business and Technology: From Psycholinguistic Theory to International Practice*. New York/Frankfurt, Germany: Lang, 1995.
- [16] E. T. Hall, *Beyond Culture*. New York: Doubleday, 1976.
- [17] E. T. Hall, "Three domains of culture and the triune brain," in *The Cultural Context in Business Communication*, S. Niemeier, C. P. Campbell, and R. Dirven, Eds. Amsterdam, The Netherlands: John Benjamins, pp. 11–30, 1998.
- [18] K. Leung, *et al.*, "Culture and international business: Recent advances and their implications for future research," *J. Int. Business Studies*, vol. 36, no. 4, pp. 357–378, 2005.
- [19] J. Ulijn, "Is time still money? Why a new construct of innovation culture in an East-West setting would need inclusion of the concept of time?" in *Strategie Maakt het Verschil (Strategy Makes the Difference)*, G. J. Melker, W. Have, N. Filipovic, and F. van Eenennaam, Eds. Amsterdam, The Netherlands: Mediawerf, pp. 88–109, 2009.
- [20] S. R. Fussell, *et al.*, "Global culture and computer mediated communication," in *Handbook of Research on Computer Mediated Communication*, S. Kelsey and K. St. Amant, Eds. New York: Information Science Reference, vol. 2., pp. 901–916, 2008.
- [21] D. Vogel, *et al.*, "Exploratory research on the role of national and professional cultures in a distributed learning project," *IEEE Trans. Prof. Commun.* vol. 44, no. 2, pp. 114–125, Jun. 2001.
- [22] A. F. Rutkowski, *et al.*, "E-collaboration, the reality of virtuality," *IEEE Trans. Prof. Commun.*, vol. 45, no. 4, pp. 219–213, Dec. 2002.
- [23] Localisation Industry Standards Association. (2010) [Online]. Available: <http://lisa.org/leit/terminology.html> (Website no longer active.)
- [24] Localization Institute Terminology. (2011) [Online]. Available: <http://localizationinstitute.com/switchboard.cfm?page=terminology> Aug. 22, 2011 (last date accessed).
- [25] Globalization and Localization Association. (2011) [Online]. Available: <http://www.gala-global.org/about-association> Dec. 22, 2011 (last date accessed).
- [26] Y. Wang and D. Wang, "Cultural context in technical communication: A study of Chinese and German automobile literature," *Tech. Commun.*, vol. 56, no. 1, pp. 39–50, 2009.
- [27] J. Ulijn, "Translating the culture of technical documents: Some experimental evidence," in *International Dimensions of Technical Communication*, D. Andrews, Ed., Washington, DC: STC Press, pp. 69–86, 1996.
- [28] B. Thatcher, "Cultural and rhetorical adaptations for South American audiences," *Tech. Commun.*, vol. 46, no. 2, pp. 177–195, 1999.
- [29] B. Thatcher, "Intercultural rhetoric, technology transfer, and writing in the U.S.-Mexico border maquilas," *Tech. Commun. Quar.*, vol. 15, no. 3, pp. 383–405, 2006.
- [30] N. St. Germaine-Madison, "Localizing medical information for US Spanish speakers: The CDC campaign to increase public awareness about HPV," *Tech. Commun.*, vol. 56, no. 3, pp. 235–247, 2009.
- [31] I. Nonaka and H. Takeuchi, *The Knowledge-Creating Company: How Japanese Companies Create the Dynamics of Innovation*. New York: Oxford Univ. Press, 1995.
- [32] J. Ulijn, private communication.
- [33] J. H. Spyridakis and W. Fukuoka, "The effect of inductively versus deductively organized text on American and Japanese readers," *IEEE Trans. Prof. Commun.*, vol. 45, no. 2, pp. 99–114, Jun. 2002.

- [34] J. Ulijn and K. St. Amant "Mutual intercultural perception: How does it affect technical communication? Some data from China, The Netherlands, Germany, France and Italy," *Tech. Commun.*, vol. 47, no. 2, pp. 220–237, 2000.
- [35] S. Koeszegi, *et al.*, "National cultural differences in the use and perception of internet-based NSS—Does High or Low Context matter?" *Int. Negotiation*, vol. 9, no. 1, pp. 79–109, 2004.
- [36] P. Honold, "Learning how to use a cellular phone: Comparison between German and Chinese users," *Tech. Commun.*, vol. 46, no. 2, pp. 196–205 May 1999.
- [37] K. Siau, *et al.*, "Effects of national culture on types of knowledge sharing in virtual communities," *IEEE Trans. Prof. Commun.*, vol. 53, no. 3, pp. 278–292, Sep. 2010.
- [38] N. Singh, *et al.*, "Cultural adaptation on the Web: A Study of American companies' domestic and Chinese websites," *J. Global Inform. Manag.*, vol. 11, no. 3, pp. 63–80, 2003.
- [39] A. Marcus, "International and intercultural user interfaces," in *User Interfaces for All: Concepts, Methods, and Tools*, C. Stephanides, Ed., Mahway, NJ: Lawrence Erlbaum, 2001.
- [40] T. Ahmed, *et al.*, "Website design guidelines: High power distance and high-context culture," *Int. J. Cyber Soc. Edu.*, vol. 2, no. 1, pp. 47–60, Jun. 2009.
- [41] Y. Chang and Y. Hsu, "Requests on e-mail: A cross-cultural comparison," *RELC J.*, vol. 29, no. 2, pp. 121–151, 1998.
- [42] E. Chen, "The development of email literacy: From writing to peers to writing to authority figures," *Language Learn. Tech.*, vol. 10, no. 2, pp. 35–55, 2006.
- [43] A. Kirkpatrick, "Information sequencing in Mandarin in letters of request," *Anthropologic. Linguistics*, vol. 33, no. 2, pp. 183–203, 1991.
- [44] A. Kirkpatrick, "Information sequencing in modern standard Chinese," *Australian Rev. Appl. Linguistics*, vol. 16, no. 2, pp. 27–60, 1993.
- [45] R. L. Helmreich, *et al.*, "The evolution of crew resource management training in commercial aviation," *Int. J. Aviation Psychol.*, vol. 9, no. 1, pp. 19–32, 1999.
- [46] R. L. Helmreich, *et al.*, "Models of threat, error, and CRM in flight operations," in *Proc. 10th Int. Symp. Aviation Psychol.*, 1999, pp. 677–682.
- [47] Flight Safety Foundation. (2011). Accident description, in *Aviation Safety Network* [Online]. Available: <http://aviation-safety.net/database/record.php?id=19900125-0> Dec. 22, 2011 (last date accessed).
- [48] J. B. Strother, "Cultural adaptation of cybereducation," in *Culture, Communication, and Cyberspace*, K. St. Amant and F. Sapienza, Eds. Amityville, NY: Baywood Publishing, 2011.
- [49] L. Louhiala-Salminen and A. Kankaranta, "Professional communication in a global business context: The notion of global communicative competence," *IEEE Trans. Prof. Commun.*, vol. 54, no. 3, pp. 244–262, Sep. 2011.
- [50] P. Hall and L. Weaver, "Interdisciplinary education and teamwork: A long and winding road," *Med. Edu.*, vol. 35, no. 9, pp. 867–875, 2001.
- [51] P. Hall, "Interprofessional teamwork: Professional cultures as barriers," *J. Interprofessional Care*, vol. 19 (Suppl. 1), pp. 188–196, May 2005.
- [52] S. Kelsey and K. St. Amant, Eds., *Handbook of Research on Computer Mediated Communication*. New York: Information Science Reference, 2008.
- [53] A. P. D. Van Luxemburg, *et al.*, "Interactive design process including the customer in 6 Dutch SME cases: Traditional and ICT-media compared," contribution to a special issue of the *IEEE J. Prof. Commun.* on The future of ICT-studies and their implications for human interaction and culture in the innovation management process, J. Ulijn, D. Vogel, and T. Bemelmans, Eds., vol. 45, no. 4, pp. 250–264, 2002.
- [54] U. Connor, *Contrastive Rhetoric: Cross-Cultural Aspects of Second Language Writing*. Cambridge, U.K.: Cambridge Univ. Press, 1996.

- [55] J. Hinds, "Reader versus writer responsibility: A new typology," in *Landmark Essays on ESL Writing*, T. Silva and P. K. Matsuda, Eds. Mahwah, NJ: Erlbaum, 2001.
- [56] J. Hinds, "Inductive, deductive, quasi-inductive: Expository writing in Japanese, Korean, Chinese, and Thai," in *Coherence in Writing: Research and Pedagogical Perspectives*, U. Connor and A. M. Johns, Eds. Alexandria, VA: TESOL, 1990, pp. 87–110.
- [57] J. Ulijn, "Translating the culture of technical documents: Some experimental evidence," in *International Dimensions of Technical Communication*, D. Andrews, Ed., Washington, DC: STC Press, 1996, pp. 69–86.
- [58] X.-Q. Yang, "The influence of discourse organizational patterns on Chinese EFL learners' listening comprehension," *US-China Foreign Language*, vol. 5, no. 3, pp. 22–40, 2007.
- [59] U. Connor, "Intercultural rhetoric research: Beyond texts," *J. English Acad. Purposes*, vol. 3, no. 4, pp. 291–304, Oct. 2004.
- [60] K. Maitra and D. Goswami, "Responses of American readers to visual aspects of a mid-sized Japanese company's annual report: A case study," *IEEE Trans. Prof. Commun.*, vol. 38, no. 4, pp. 197–203, Dec. 1995.
- [61] S. Hilligoss and T. Howard, *Visual Communication: A Writer's Guide*, 2nd ed. New York: Longman, 2002.



PRACTICAL INSIGHTS FROM A2Z GLOBAL LANGUAGES

GLOBALIZATION VERSUS LOCALIZATION

Globalization (G11N—an acronym meaning “globalization,” which starts with a “g,” has 11 letters and ends with an “n”) means different things to different people. It could refer to taking a product or information out to the big wide world—in other words, trying to make the product or information suitable to any market (something we typically call Internationalization—I18N). The same principle applies to working with culturally diverse folks all over the world in unison. As any user might have difficulty with new subject matter in a presentation, he or she would definitely experience information overload if forced to consume the material while burdened with an approach that was entirely foreign. (For the theories behind these issues, see Chapter 5.) To communicate at such a global or international level requires patience, flexibility, and understanding. The following text includes examples that I have encountered in my business, in which we help clients localize or internationalize their information.

Flexibility is probably the key feature to understand and accept the cultural habits of other participants who share similar goals although they differ in their approaches to achieving those goals. For example, the Japanese tend to organize their text in a more circular or indirect manner while Americans are taught to think sequentially. I once was asked by an American in Tokyo if I could translate a very large training manual into Japanese. As I reviewed the document, I noticed that it was created with very beautiful slides in a very easy-to-follow sequential order. I pointed out that the Japanese audience would be very confused by this type of linear presentation. If the American author wanted to localize the manual, he should have recreated the entire presentation with a Japanese person participating in the rewriting.

Information Overload: An International Challenge for Professional Engineers and Technical Communicators,
First Edition. Edited by Judith B. Strother, Jan Ulijn, Zohra Fazal.
© 2012 Institute of Electrical and Electronics Engineers. Published 2012 by John Wiley & Sons, Inc.

Cultural differences have the strongest impact when one is trying to be accepted by another culture. For example, it can be extremely challenging for those from the United States to adapt to foreign cultures, especially since they are accustomed to an open spirit and a drive that is often seen as aggressive or even obnoxious in many cultures. Consider the following examples of someone from the United States attempting to understand someone from another culture.

- How one negotiates has been a rude awakening to many from the United States who are trying to understand those from Japan. As they present their cases and get a persistent response of “yes” in Japan, they may not realize that the “yes” merely means “I understood you” and not that the beholder agrees with the message being delivered.
- Similarly, imagine someone from the United States leading a “Train the Trainers” meeting in Indonesia. When asking the potential trainers for comments, he or she will get virtually no feedback, as speaking out as individuals would be embarrassing to the Indonesians. They respond better once they have a consensus of all the participants. This means they must get together, discuss the training methods proposed, and reach an agreement before they respond.

Now this does not mean that those from the United States must in essence “become Japanese” or “become Indonesian.” We can expect that participants from other countries should also be culturally sensitive to Americans. However, I must point out that, no matter what culture one is from, the onus is on the seller to adapt and present his or her information or product so that it will be accepted by the local recipient or buyer. This is called localization (L10N), where one adapts the product/information to the local market, including locale-specific requirements. This effort can be adversely affected if the presenter does not know the local marketing and sales styles; uses offensive language, inappropriate colors, or icons that have no meaning whatsoever in the country; or worse yet . . . tries to use a power cord that does not fit the outlet! While localization is extremely important for success, businesses must remember not to go overboard. For example, a debate about whether to call a device a “probe” or a “sensor” kept one company deliberating over a single term for several years! What happened to the “Time to Market” principles? Make an educated decision and move forward, or consult with a localization company if need be.

Even when everyone is working in the same language—English—depending on the verbiage and order of words, readers from different cultures may perceive information differently. For example, the users or workers from one culture perceive that they are responsible for their own safety in the workplace whereas people from another culture may perceive the science behind the process, the equipment itself, or the document to be responsible for safety concerns.

When content is not localized for a particular culture, miscommunication or misunderstandings often result. The following are a few examples of noninternationalized content for a Standards of Business Conduct document written by an American author for an international audience in 23 countries.

- An employee who was gay asked his boss what he needed to do to get a promotion. The boss took him aside and said, “You need to play down the ‘gay’ thing. If I promote you and your new supervisor finds out you are gay, it will reflect poorly on me.” (The lesson: Find out whether this kind of reference to being gay is a nonissue or could mean a beheading.)

- A broker approaches you and complains that things have not been going well for him recently—at work, in his financial situation, and in his personal life. He tells you that one of these days, someone will catch him on the wrong day and they would “pay” for it. A few days later he was seen throwing his calculator on the floor while screaming at a colleague on the phone. (The lesson: Find out the limits of acceptable behavior. Some behavior may be so offensive that it simply would not be allowed.)
- An American girl joined a Japanese company and found it had no softball team, so she decided to start a company softball team. The poor girls in Japan had no idea what softball even was. (The lesson: Be sure your audience will understand any cultural references. For example, avoid references to sports that may not exist everywhere in the world.)

As the examples given above show, it is important for anyone who is trying to work in a different culture to be conscious of word choice. Additionally, common images to avoid are symbols such as birthday cakes, mail boxes, phone booths, and the like. It is also important to learn about such cultural issues as gender roles. For example, Arabic countries have a whole host of rules for women that do not apply to men. The international communicator must be sure to know them before he or she graphically uses a woman’s picture, especially uncovered, or even refers to a woman doing certain work that would be unheard of in an Arab country.

Even software strings and dialog boxes require careful thought. Keep in mind that in software strings, while the dialogs might automatically resize, text space will expand in some languages (Spanish and French are examples), whereas it will contract in others (Japanese is an example). In the Japanese culture, the style of technical communication is much more graphic and filled with cartoons. This is unheard of in the United States, as well as most western cultures. We might surmise that the Asians would be overwhelmed with large volumes of text to convey something that a simple picture might convey better.

Internationalizing your text requires study and understanding of how people in the target cultures think and how they remit information. If a text is not internationalized adequately, then the localization of that text is virtually impossible without extensive rewriting. In order to keep the reader engaged, make sure to incorporate locale-specific information gathered from the local marketplace. Any irregularities may cause the reader to feel overwhelmed. He or she is trying to understand the document, but the method of delivery or the subject matter being used to make the point may hinder the process, causing the perception of information overload and hindering the overall purpose of the document.

Contributor to Practical Insights from A2Z Global Languages

- Theodora Landgren, Director

UNCORRECTED PROOF