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Cross-cultural influence on communication effectiveness and user interface design

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ABSTRACT

The objective of this study was to investigate the impact of cultural diversity on communication effectiveness with different communication styles and to apply the results in the field of user interface design for computer-based communication systems. The scope of this study was limited to the relationship between context and verbal/nonverbal communication, and also the relationship between power distance and communication interaction. The results indicated that high context people (HCP) had better communication effectiveness in comprehending nonverbal clues than low context people (LCP), while LCP had better communication effectiveness in verbal communication than their counterparts. It was also found that high power distance people (HPDP) could not communicate as effectively as low power distance people (LPDP) during communication with interaction, but there was no significant difference between HPDP and LPDP in dealing with communication without interaction.

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1. Introduction

While globalization has resulted in shorter distances between individuals, cross-cultural problems arise in many aspects, especially communication conflicts caused by cultural diversity. Hall (1976) remarked that culture is communication and communication is culture, and therefore, the way people communicate and the way they perceive communication is culturally influenced (Levy, Wubbels, Brekelmans, & Morganfield, 1997). In other words, the choices of communication styles depend on cognitive differences reflected in cultural diversity, and such dependence may disrupt or stop communication altogether (Richman, 2002). The influence of cultural diversity on communication also exists or is even more serious during computer-based communication, which refers to a wide variety of communication systems, ranging from electronic mail to the international conferences distributed over the Internet. Although computer-based communication shortens time spans and abridges geographical distances, it exacerbates the ambiguity and misunderstanding among communication parties with different cultural backgrounds by replacing direct human interaction with human–computer interaction. To overcome this dilemma, it is necessary to consider and highlight cross-cultural influences as early as in the design phase of computer-based communication systems, especially in the design of user interfaces.

Many researchers have noticed and studied cross-cultural influences on user interface design. Most of them stressed the surface layers, such as text, date, time and number formats, symbols, images, colors, and functionality (Del Galdo, 1990;

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Ossner, 1990; Russo & Boor, 1993; Spencer, 1988). However, it is also essential to study cross-cultural influences on user interface design in a more profound fashion. The objective of this study was to investigate the impact of cultural diversity on communication effectiveness with different communication styles and to apply the results in the field of user interface design for computer-based communication systems. Rather than people's preference for communication styles, this study mainly focused on communication effectiveness, which is concerned with whether the information is correctly and completely transferred between the sender and the receiver. This is because the essence of effective cross-cultural communication has more to do with releasing the right responses than with sending the right messages (Hall, 1990).

Various models of cultural diversity have been developed (Fukuyama, 1995; Hall, 1976; Hampden-Turner & Trompenaars, 1993; Hofstede, 1991; Lessem & Neubauer, 1994). The scope of this study encompasses the relationship between context (Hall, 1976) and verbal/nonverbal communication (Knapp & Hall, 1992), and also the relationship between power distance (Hofstede, 1991) and communication with/without interaction (Berlo, 1960). It has been proven that context can significantly affect preferences or tendencies in selecting verbal/nonverbal communication styles (Hall, 1990; Ting-Toomey, 1999), and power distance influences choices of interaction during communication (Hofstede, 1991; Merkin, 2006). In this study, by comparing the communication effectiveness, we expect to find that (1a) high context people (HCP) have better communication effectiveness than low context people (LCP) in nonverbal communication; (1b) LCP have better communication effectiveness than HCP in verbal communication; (2a) high power distance people (HPDP) have better communication effectiveness than low power distance people (LPDP) in communication without interaction; and (2b) LPDP have better communication effectiveness than HPDP in communication with interaction.

2. Literature review

2.1. Cross-cultural user interface design

"The concept of 'user interfaces for all' implies the availability of and easy access to computer-based systems and services among all people in all countries worldwide" (Marcus, 2003, p.442). Therefore, it is essential to consider the differences among user groups with different cultural backgrounds during user interface design.

Communication media is one of the most critical issues in cross-cultural user interface design. Two concepts correlated to communication media are information richness and interaction. Information richness, to a large extent, determines whether common ground among communication parties can be developed. The amount and type of effort required for establishing common ground varies between different communication media. Normally, the higher the information richness of a media is, the more easily common ground is developed through such media. For example, a conference meeting is superior to text for developing common ground due to its richness in nonverbal cues. However, information richness is not the only determinant that can explain individual media choice behavior (Bouwman & Van De Wijngaert, 2002; Rice, 1992). As cited by Richardson and Smith (2007), individual perceptions of media richness are constructed socially (Schmitz & Fulk, 1991), and the choice of media could differ in various cultures (Kim, Pan, & Park, 1998; Lee, 2000; Rice, D'Ambra, & More, 1998).

Interaction is defined as the means by which users communicate input to the system and the feedback supplied by the system (Marcus, 1995, 1998; Marcus et al., 1995). It also depends on the type of communication media. Marcus (2003) suggested that optimum minimum variations of input and feedback should be determined during localization of computer-based systems. However, he came to this conclusion only from the point of view of hardware restrictions. Actually, factors such as cultural diversity are also main determinants of interaction (Richardson & Smith, 2007). In the following sections, the influence of cultural diversity on information richness and interaction will be discussed in detail.

2.2. Verbal/nonverbal communication and context

Nonverbal communication refers to all nonverbal messages in a communicative setting, which are produced by the encoder in that specific context, and which have a powerful message value for either the encoder or decoder (Knapp & Hall, 1992; Argyle, 1988). Nonverbal messages consist of eye contact and gaze, facial expression, touching, posture and gesture, proxemics, and nonverbal vocalization (Argyle, 1988; Shulman & Penman, 1981). While verbal messages always involve some nonverbal cues (Ting-Toomey, 1999), nonverbal messages can be transferred without a verbal message. Therefore, up to 65% of a message's meaning (Birdwhistell, 1970), a figure which has even been estimated to be as high as 90% (Fromkin & Rodman, 1998), is communicated through nonverbal clues. On the other hand, nonverbal messages oftentimes express what verbal messages cannot express and are assumed to be more truthful than verbal messages (Ting-Toomey, 1999). As Mehrabian (1972) pointed out, during communication, words are 7% effective; tone of voice is 38% effective; and nonverbal clues are 55% effective.

Although the nonverbal portion has been found to have considerable effectiveness as well as make up the majority of a given communication process, it can also create friction and confusion, especially in the circumstance of cross-cultural communication. As Ting-Toomey (1999) indicated, there are three reasons for cross-cultural friction and confusion caused by nonverbal communication. First, the same nonverbal signal can mean different things to different people in different cultures. Second, multiple nonverbal cues are sent in each interaction, thereby creating interpretive ambiguities. Third, factors of personality, gender, relational distance, socioeconomic status, and situation create tremendous variations of nonverbal display patterns in different cultures. Therefore, it is crucial to understand the influence of cultural diversity on nonverbal communication in order to smooth away friction and confusion during cross-cultural communication.

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