

INTER- AND INTRA-CULTURAL INFORMATION TRANSMISSION
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Abstract

Past research indicated that lack of communication with mainstream culture was a major health problem among Chinese immigrants in Canada. To investigate the magnitude of the communication problems in inter-cultural interactions, the present study tested the hypothesis that inter-cultural interactants would transmit significantly less information than intra-cultural interactants with other variables held constant. 40 Canadian and 40 Chinese university students participated in an experiment where subjects were randomly assigned to one of the four conditions: Canadian/Canadian; Chinese/Chinese; Canadian physician/Chinese patient, and Chinese physician/Canadian patient. Each dyad engaged in two conversations: one was an analogue of taking a personal case history, and the other required communicating instructions about the use of a common medicine.

The major hypothesis was supported by the data: inter-cultural communicants transmitted significantly less information than intra-cultural communicants, thus documenting that inter-cultural communication significantly differs from intra-cultural communication

in the amount of information transmitted.

Additional findings of the research include: (1) Intra-cultural dyads achieved significantly higher redundancy scores than inter-cultural dyads. (2) Redundancy scores were correlated with achievement scores in the open-ended tests. Dyads who had higher redundancy scores tended to achieve higher scores in their open-ended tests. (3) Neither Canadian nor Chinese subjects perceived their inter-cultural conversations very much different from intra-cultural conversations. They perceived little language and cultural difficulties in their conversations.

Findings of the study had methodological and practical implications for inter-cultural communication. Methodologically, the discrepancy between perceived and actual behaviours in inter-cultural conversations found in this study carries a strong message: to study inter-cultural communication, we must study face-to-face interaction, not perceptions of face-to-face interaction. . To study perceptions alone in inter-cultural communication is misleading.

Practically, the findings documented that there are substantial differences between inter- and intra-cultural communication in the amount of information transmitted. To obtain effective inter-cultural communication, we must, first of all, realize this

difference. Without this awareness, it is highly unlikely for inter-cultural interactants to take measures to improve inter-cultural communication. One such a measure was suggested by the findings: asking more clarifying questions and repeating the information in various terms.

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Dedication

To Peng Peng

INTER- AND INTRA-CULTURAL INFORMATION TRANSMISSION

Chapter 1.

Introduction and Literature Review

According to the findings of a recent health needs assessment survey in a randomly selected sample of 224 Chinese immigrants in the province of British Columbia, Canada, lack of communication with mainstream culture was identified as a major health problem which had an impact on every other aspect of their life in Canada (Li, 1992). Similar findings were reported among Vietnamese immigrants in Victoria, British Columbia, Canada, that most of their problems "were rooted in the failure to communicate accurately and meaningfully" (Stephenson, 1991, p. 6). In order to find out the magnitude of the communication problem in inter-cultural interactions, this study compared the amount of information transmitted between inter- and intra-cultural communicants in simulated health care settings.

Among the earliest scholars who studied culture and communication were cultural anthropologists (Sapir, 1921; Malinowsky, as cited by Yousef, 1974; Hall, 1959). During the 1960's to 90's, anthropologists (Hall, 1972, 1976; Hofstede, 1980, 1991; Hsu, 1985; Mead, 1967), joined by cross-cultural social psychologists (Bond & Shiraishi, 1974; Gudykunst & Ting-Toomey, 1988; Kim & Gudykunst, 1988; Triandis,

Leung, Villareal, & Clark, 1985) have attempted to make inter-cultural communication an independent discipline. It seems, however, there is no clear consensus as to what inter-cultural communication is about (Gudykunst, 1991; Gudykunst & Ting-Toomey, 1988). As an independent discipline, we need a clear definition. In this dissertation, I will propose one obvious, but neglected, point: inter-cultural communication should be an extension of intra-cultural communication in inter-cultural settings. In intra-cultural communication, communicants are from the same cultural background, whereas in inter-cultural communication, communicants are from different cultural backgrounds. Therefore, in inter-cultural communication, one must study communication in inter-cultural situations. Let's start with a definition of communication.

I. Defining Communication

According to Weaver (1966), communication is the "transmission of information by use of a shared code" (P.15). Whether in intra- or inter-cultural communication, there must be a **source** that selects a **message** that is **encoded** into **signals** by a **transmitter**, and a **receiver that decodes** the signals so that the person at the **destination** can recover the original message (Weaver, 1966, p.15). Below is Weaver's

communication system (1966, p.15).

A COMMUNICATION SYSTEM

SOURCE->TRANSMITTER->CHANNEL->RECEIVER->DESTINATION

ENCODING

DECODING

In a face-to-face interaction, the information source is person A's mind; the transmitter is person A's voice and nonverbal acts; the channel is the air and light to carry sound and visible signals; the receiver is person B's auditory and visual systems; and the destination is person B's mind.

Weaver's communication system is mostly a linear process with a beginning and an end, i.e. a source and a destination. The system changed into a circular process when Wiener introduced the concept of "feedback" (Smith, 1966). Wiener's reports on the studies of feedback controls opened up a new branch in the field of communication, which was called communication engineering (Wiener, 1966).

Although human beings communicate in many forms, there are, broadly, two types of communication: written and speech (Linell, 1982). There are three major differences between written and speech communication (Linell, 1982). (1) A written text is made up of discrete symbols, i.e., words organized according to certain syntactic rules, whereas speech is made up of

both words and gestures. (2) A written text is static whereas speech is dynamic. (3) Written communication requires less common background knowledge between the writer and the reader, whereas speech communication requires certain amount of shared background knowledge between the speaker and the listener. These three differences will be contrasted below.

First, written communicative act is accomplished through the use of language in written form alone. "The prosodic features and the non-verbal signals of the communicative acts in speech situations have almost no correspondence in writing (Linell, 1982, p. 8)." Whereas speech communication is a "comprehensive communicative act" (Linell, 1982, p.6) in which the intractants communicate through both "verbal means (speech) and non-verbal means (gesticulation)" (Linell, 1982, p.6). "The message is conveyed, or shown, in several ways simultaneously, and the role played by spoken language cannot be properly understood without taking into consideration of the whole communicative act (Linell, 1982, p.6)." In other words, spoken language cannot accomplish the communicative act alone, as it

may be implicit and unclear. Interpretations of the words may be made more precise and clear through "gestures, facial expressions, tones of voice" (Linell, 1982, p. 6).

Second, "a written text and its component parts (letters, words, sentences, paragraphs etc) have the character of objects; they are persistent and static. Considerable sections may be scanned (almost) simultaneously or at least repetitively (in principle as many times as required). Rapid, urgent responses are usually not necessary (Linell, 1982, p.8)."

In contrast,

speech is a dynamic, ephemeral behaviour distributed in time; it proceeds continuously and its inherent dynamics, the changes at various levels, must be subject to on-line monitoring and analysis by both communicating parties; as one goes on, one can no longer observe that which was produced earlier. The speaker's activities (behavioral movements and sound waves) fade rapidly over a period of time, and the same applies to the listener's activities (Linell, 1982, p.5).

In other words, speech is a dynamic process in that it

requires not only "on-line monitoring, analysis" (Linell, 1982, p.5) but also continuous judgement, decision-making, and reaction. What the speaker says has impact upon the listener, and in turn, how the listener reacts influences the speaker. The relationship between the speaker and listener is a state of reciprocal influence (Bavelas & Segal, 1982).

Lastly, in written communication, the reader can start reading a text without much background knowledge of the writer or the topic. The text is expected to be self-explanatory or, the reader can always use a dictionary or an encyclopedia. It is possible for a twentieth-century Chinese student (majoring in English) to understand Francis Bacon by reading his essays. It may be impossible for them to understand each other in a face-to-face conversation!

To engage in a conversation, the speaker and the listener need to have some "background knowledge about each other" and the topic (Linell, p.6). How much shared knowledge the two interactants have, how fast they are capable of learning about each other, or how well they are capable of building a common ground in the conversation process are directly related to the degree of success of the conversation (Clark, 1985; Clark & Brennan, 1991).

In short, compared to written communication, face-

to-face communication is more demanding, complex, and, therefore, fallible. To study conversation we need to examine, simultaneously, many on-going activities and their products. These include: (a) how much of the information is transmitted, (b) how the speaker and listener cooperate on content and process through verbal and nonverbal means, and (c) how shared background knowledge contributes to the success of a conversation. It is this entire interactive process that has been the focus of research in the field of interpersonal communication (Knapp & Miller, c1985) but not, as we will see, in inter-cultural communication.

In inter-cultural communication, it seems that researchers have studied everything around communication, but not communication per se. In other words, scholars have examined cross-cultural similarities and differences in values, norms, attitudes, and perceptions (Bond, 1986; The Chinese Culture Connection, 1987; Gudykunst, Yoon, Nishida, 1987; Hofstede & Bond, 1984; Triandis, Bontempo, Leung, & Hui, 1990) or relationship rules (Argyle, Henderson, Bond, Iizuka & Contarello, 1986) but not the actual interactive process. To support this assertion, I will first review and evaluate the major substantive literature in this field in light of the above-mentioned definitions of communication. Second, I will

introduce a new approach to inter-cultural communication: Clark's concepts of collaboration, common ground, and grounding in communication. This review is not intended to be comprehensive but rather is meant to discuss the major issues in the study of intercultural communication that are relevant to the proposed dissertation.

II. A Review of Literature in Inter-cultural Communication

To date, the major literature in inter-cultural communication falls into three categories: (a) theory and theory testing; (b) intercultural training, and (c) cross-cultural perceptions and observations of facial expressions and communicative body movements. The literature will be reviewed according to these three categories.

Theories and Theory Testing

According to Gudykunst (1991), the most important two theories in the field of inter-cultural communication are individualism-collectivism (Mead, 1967, Hofstede, 1980), and low- and high-context communication (Hall, 1976). To test the theory of individualism-collectivism, a number of researchers have examined cultural similarities and differences

regarding values, attitudes, and perceptions of interpersonal relationships using questionnaire surveys (Bond, Leung, & Wan, 1982a; Gučykunst et al., 1987). Low- and high-context communication has not been tested as much with questionnaire surveys, rather it has been supported by cross-cultural observations and anecdotes. Both individualism-collectivism and low- and high-context communication will be introduced below.

Individualism-collectivism. "Culture is a fuzzy, difficult-to-define construct" (Triandis et al., 1986, p.258). One way to study cultural differences is to put cultures into categories. Mead (1967) argued that cultures differ in the extent to which cooperation, competition or individualism is emphasized. Based on the results of two surveys of 116,000 business people in multinational corporations in 1968 and 1972, Hofstede (1980) proposed that cultures could be categorized into two types: individualistic and collectivistic. Hofstede (1980) found that the U.S. and other English-speaking countries were particularly high on ratings of individualism, whereas countries of East Asia and Latin America were high on collectivism.

To test the generalizability of Hofstede's theory, cross-cultural psychologists (The Chinese Culture

Connection, 1987) asked 100 students of Chinese origin in 22 countries to rate the importance of 40 Chinese values on a nine-point scale from "not important at all" to "of supreme importance." Because some of the Chinese students did not speak Chinese, the questions were translated into their native language (e.g., Malay). The findings of this study indicated that Chinese scored high on collectivism regardless of where they lived, which provided support for Hofstede's theory.

The individualism-collectivism distinction was further supported by Triandis et al., (1985) and Triandis, Bontempo, and Marcelo (1988). In these two questionnaire surveys, they found that subjects from collectivist cultures (Japan and Puerto Rico) were more likely than U.S. subjects to subordinate personal goals to group goals and to regard in-group as an extension of the self. American subjects were found to have lower concern for in-groups. They kept distance from groups, and they subordinated in-group goals to personal goals.

People in individualistic cultures would be more open to meeting outsiders and forming new groups. In contrast, people in collectivistic cultures would tend to "stick together" and to be less open to outsiders. Bond (1992, p.52) observed that "Chinese are reluctant

to talk to strangers and will rarely initiate a conversation with someone they do not know". In a questionnaire study comparing Chinese and American college students regarding their daily interaction with in-group and out-group members, Wheeler, Reis, and Bond (1989) found that the Chinese reported fewer interactions than the Americans (2.45 vs. 5.99 per day); the Chinese reported fewer interaction partners than the Americans but were higher than the Americans on disclosure; the Chinese had more task interactions and fewer recreational interactions than the Americans; and a higher percentage of the Chinese interactions were group interactions. Leung (1988) found that Chinese described themselves as more willing than North Americans to pursue conflict with a stranger but as less willing to do so with a friend. Chinese felt much stronger about insults directed toward their in-group members than insults directed toward an out-group member (Bond & Venus, 1991).

To be liked by one's in-group members, a Chinese learns to be humble. That is, one needs to attribute one's achievements to external factors such as luck or somebody's help rather than one's own ability. Being self-effacing is considered a virtue by the most important Chinese philosopher, Confucius (Cheng, 1974). In a survey of 56 Hong Kong Chinese, Bond, Leung, and

Wan (1982) found that self-effacing performers were better liked than self-enhancing ones.

Critique. Individualism-collectivism has provided a powerful explanatory framework for understanding East-West similarities and differences in interpersonal relationships. This theory, however, is not directly related to the study of inter-cultural communication in that it does not actually refer to or study communication components. Recall that, according to Miller (1951) and Weaver (1966), communication requires both a source and a destination, using a transmitter, channel, and receiver. The act of communication cannot be accomplished if any part of the system is missing, and one is not studying communication if one studies the components in isolation. Starting with Hofstede's (1980) survey, individualism-collectivism has been studied by questionnaires and self-reports. That is, people were studied as individuals, not as participants in a communication system. I therefore propose that individualism-collectivism is not a communication theory and that the studies testing this theory are not studying communication. Rather, they are studying aspects of cross-cultural values, norms, attitudes, perceptions, and interpersonal relationship rules as mental constructs. Manifested communicative behaviours were not studied in the literature.

Low and high-context communication. From his cross-cultural observation, Hall (1976) differentiated cultures on the basis of communication styles. He concluded that communication styles could be divided into two kinds: low and high-context communication. In low-context communication, "the mass of information is vested in the explicit code" (p. 70), so that no other contextual information is required to decode it. In other words, low-context communication is characteristic of using a more direct communication style.

In contrast, high-context communication is characterized as using a more indirect style. "Most of the information is either in the physical context or internalized in the person, while very little is in the explicit, transmitted part of the message" (p. 79). While no culture is at either extreme of the continuum, the cultures of North America and Europe are placed toward the lower end. Most Asian cultures such as the Japanese, Chinese, and Korean are placed toward the higher end of the continuum.

According to Hall (1976), the difference in communication style between low- and high-context cultures is obvious:

High-context cultures make greater distinction between insiders and outsiders

than low-context cultures do. People raised in high-context systems expect more of others than do the participants in low-context systems. When talking about something that they have in their minds, a high-context individual would expect his [or her] interlocutor to know what's bothering him [or her], so that he [or she] doesn't need to be specific. The result is that he [or she] will talk around and around the point, in effect putting all the pieces in place except the crucial one. Placing it properly--this keystone--is the role of his [or her] interlocutor (1976, p. 98).

High-context communication depends critically on shared knowledge and common assumptions between the communicators. Also, high-context communication relies on the communicators' ability to observe and draw much of the meaning from the context. Homogeneous groups of people with long-time associations often use high-context communication. Triandis (1990, as cited in Gudykunst, 1991, p.50) told a story of how an Indonesian mother skilfully used the context to say "no" to a match-maker, whose son was interested in her daughter.

Since in collectivistic cultures

relationships with others are extremely important, people learn to pay attention not only to what is said, but also to the context of what is said--the gestures, the orientation of the body, the objects associated with what is being said. In other words, they pay more attention to context than people in individualist cultures. To save face sometimes they let the context speak for itself. For example, in Indonesia a young man courted an upper class woman, and sent his mother to visit the woman's mother to arrange a marriage. The woman's mother served his mother tea and bananas. Since tea is never served with banana that was the signal that the answer was "No." This way the woman's mother did not have to insult the young man's mother by openly saying "No."

The object spoke for her!

In this instance, the information was transmitted in the context, not in the overt messages.

According to Triandis (1990, as cited in Gudykunst, 1991, p.50), the relationship between low- and high-context communication and individualism-collectivism is such that people in individualistic cultures tend to use low-context communication style,

whereas people in collectivistic cultures tend to use high-context communication. Indonesia is considered to be a collectivistic culture. As pointed out by Gudykunst and Ting-Toomey, (1988, p.102): "the value orientation of collectivism constrains members of cultures such as China, Japan, and Korea from speaking openly through explicit verbal communication style." Instead, they make use of nonverbal channels to express themselves. In contrast, "people from individualistic cultures such as North Americans tend to speak their minds through direct verbal messages" (Levine, 1985, p.28). The North American culture calls for clear and direct communication. This notion is expressed in common phrases such as "Say what you mean," "Don't beat around the bush," and "get to the point" (Levine, 1985, p.28).

Critique. In contrast to individualism-collectivism, low- and high-context could have become a communication theory. Low- and high-context differences could lead to the study of observable communicative behaviour rather than mental constructs. The theory differentiates styles people use to communicate in face-to-face interactions. The essential parts of this theory include the source, transmitter, channel, receiver, and destination. (For example, in the "Bananas and Tea" anecdote, the

information source was the mind of the girl's mother; the transmitter was her voice, gestures, and context (banana and tea served together); the channel was the air and the light to carry sound and visual signals; the receiver was the auditory and visual systems of the boy's mother; and the destination was the mind of the boy's mother.) Unfortunately, not much research has been done to test this theory, which is supported mainly by cross-cultural observations and anecdotes such as those given above. If it is agreed among prominent researchers in this area (Hall, 1976; Gudykunst & Ting-Toomey, 1988) that low- and high-context communication is a valid dimension of culture, and it is an inter-cultural communication theory, more research needs to be devoted to the establishment of this theory. To do so, this theory needs to be tested in actual communication settings.

Research on Inter-cultural Training

Inter-cultural training and attitude change. The earliest inter-cultural training experiment was conducted among 50 British and 10 Arab students at Oxford University (Collett, 1971). The 50 British were randomly assigned to either a control or experimental group. Those who were in the experimental group received the following instructions before they met an

Arab student:

- (1) When you are introduced to your Arab partner, rise to your feet, then shake hands while lowering your head slightly. Nod and smile, all the time looking him into the eyes.
- (2) Arabs always sit "straight on", try to do likewise.
- (3) Do not point the soles of your feet at an Arab, for in his culture it is an insult, meaning that "you are worth as much as the dirt on my feet."
- (4) When the experiment is over, get up, shake hands with the Arab, then walk to the door. Allow him to leave the room first by opening the door and touching him on the shoulder.

Collect (1971) reported that behaviours of the Englishmen who received the training differed significantly from those who did not receive the training. The trained group sat closer; engaged in more handshakes; touched the shoulders more; and looked more and longer into the eyes of their Arab interlocutors. However, results of a subsequent questionnaire showed no difference between the trained and untrained group regarding attitudes toward their Arab interlocutors. Interestingly, a subsequent questionnaire revealed that significantly more Arabs

who interacted with the trained Englishmen than those who interacted with the untrained Englishmen preferred to share a flat or be friends with their interlocutors.

Critique. In this study, Collett did not study communication per se. Rather, he examined if the cross-cultural training session would predict attitude changes in the Englishmen (experimental group), and consequently, in their Arab interlocutors.

The Culture-General Assimilator. In recent years, an encyclopedic training program called the Culture-General Assimilator, or intercultural sensitizer, prepared for people who were about to interact with a foreigner or to live in a foreign country, has become popular (Brislin, Cushner, Cherrie & Yong, 1986; Flanagan, 1954). The culture-general assimilator consists of a number of short stories, or critical incidents, about interactions between two or more individuals from different cultures. Each story or incident involves a conflict where the individuals involved were unable to complete a task due to some cross-cultural miscommunication or misunderstanding. Trainees are asked to explain the situation and to think of a solution.

Broadus (1986) provided indirect support for the effectiveness of the culture-general assimilator. It was found that individuals trained with the culture-

general assimilator responded better to 15 presented critical incidents than untrained individuals. However, no significant differences were found regarding trainees' ability to analyze a personal critical incident of intercultural misunderstanding or in their ability to distinguish between the terms "culture", "race", and "class".

Cushner (1989) reported that the culture assimilator was an effective device in preparing international students for their studies abroad. In an experimental study, 28 adolescent exchange students from 14 countries studying in New Zealand for a period of one year received the culture-general assimilator training, whereas 22 students did not receive the training. Results indicated that trained individuals were adjusted better to their new lives as determined by the responses on the Culture Shock Adjustment Inventory (Juffer, 1982 as cited in Brislin et al., 1986) and scored higher in the Means-Ends Problem-Solving test (Spivak, Platt & Shure, 1976).

Critique. A major concern about the culture-general assimilator is its usefulness for culture-specific situations. Although all international students share some frustrations when they first arrive in a foreign country, they also have different dilemmas due to their specific cultural backgrounds.

Another concern about the culture-general assimilator is the doubtful validity of the training materials. Brislin et al. (1986) had no previous research to offer them guidelines for developing the training materials, because no prior research studied actual interactions. They developed the training materials based upon their hypotheses and imaginations rather than on systematic observations of intercultural communication. Thus, one must question the validity of these materials. I would suggest a "bottom-up" approach. Before the development of training materials, we should first study actual intercultural interactions, then develop training materials based on the findings of this research.

A final reservation about the culture-general assimilator is that the effectiveness of the program was evaluated by questionnaires rather than indicators of subjects' actual adjustment to their new lives. Subjects who can think of a solution to an intercultural conflict in theory may or may not be able to implement this in practice.

Research on Nonverbal Aspects of Inter-racial Interactions

Among all the studies Gudykunst called intercultural communication, Ickes' (1984) is the closest to

the criterion of studying actual communication. Ickes (1984) examined the nonverbal aspects of initial, unstructured interactions of 40 inter-racial (black-white) dyads. He reported three major findings, based upon analyses of the videotaped experiments.

First, significant racial differences were found in "dynamic" behaviours (e.g., mutual gazes, smiles, and laughter) between white and black subjects. Across conditions, white subjects "talked and smiled more often than their black partners", and white subjects looked at their black partners more often and for longer periods of time. White subjects were perceived--both by themselves and by their black partners--as having more involvement in the interactions than their black partners. White subjects were also perceived as more assertive, directive, and accommodative in the interactions than their black partners.

Second, white subjects who had been classified as approachers (i.e., willing to interact with blacks) tended to smile at their black partners twice as long in duration as whites classified as avoiders (i.e., not willing to interact with blacks). Dyad members (both white and black) looked at each other more often (more non-verbal involvement) in dyads whose white members were approachers than in dyads whose white members were avoiders.

Third, the race of the experimenter had a significant effect on the behaviours of white subjects. It was found that members of dyads looked at each other more when the white partner was an approacher and the experimenter was a black. In dyads with a black experimenter, white approachers talked nearly twice as long as avoiders did. White approachers were more concerned about offending their black partners when the experimenter was black than when the experimenter was white. These perceptions were shared by both whites and blacks in the experiment.

Critique. Ickes' study was the closest to inter-cultural communication we have seen because he examined: (a) whether the communicative behaviours of the Whites were predicted by their attitudes toward their Blacks, and, (b) how the communicative behaviours of the White subjects were influenced by the presence of the Black experimenter. However, Ickes did not emphasize conversation as a reciprocal process involving both participants (e.g., he did not study how the nonverbal behaviours of the White approachers and the avoiders influenced the behaviours of their Black partners. Blacks in this study were treated as passive objects rather than active participants).

Also, in this study, Ickes studied inter-racial communication, which is not the same as inter-cultural

communication. There are two major differences between inter-racial and inter-cultural communications. First, inter-racial interactants share a culture. Second, inter-racial interactants have fewer language barriers than inter-cultural communicants. In Ickes's study, both whites and blacks spoke (more or less) the same language--English. According to Weaver's (1966) communication model, human beings communicate through shared codes. A language is a code which all people who speak the language share. Encoding and decoding is a form of behaviour that is learned and shared by the members of a communicating group. This learned and shared behaviour forms part of a culture (Hall, 1976).

Non-verbal Displays in Inter-cultural Research

A number of cross-cultural researchers have examined differences and similarities in non-verbal displays across cultures. Ekman and Friesen (1969, 1971) proposed that certain basic emotional displays are pancultural but that display rules are cultural specific. This proposal has been criticized for insufficient evidence (Leach, 1972; Mead, 1975) and negated with controversial findings (Matsumoto, 1991). However, Ekman et al. (1987) provided new evidence for this proposal from a 10-culture study.

Emotional displays are culture-general. The earliest scientific study of nonverbal displays was conducted by Darwin. Darwin gathered observations of facial expression and body movements from diverse sources, such as anthropological field data, animal studies, and observations of mental patients. In his book, The Expression of Emotions in Man and Animals (1872/1965), Darwin postulated theories concerning the origins and functions of patterns of facial expressions and body movements. He offered a biological explanation: certain facial expressions and body movements were universal and that emotional expressions were not for communicative purposes, but merely expressive. In other words, people from different cultural backgrounds share certain expressive behaviours. Some researchers have proposed that six emotions were recognizable in all cultures: anger, fear, happiness, sadness, surprise, and disgust (Ekman, 1973; Izard, 1971). Sogon and Masutani (1989) compared Americans and Japanese regarding their ability to recognize emotions in actors' videotaped emotional displays. Americans and Japanese who viewed the videotape were equally able to identify the emotions correctly. Ekman et al. (1987) asked subjects from Estonian S.S.R., Germany, Greece, Hong Kong, Italy, Japan, Scotland, Sumatra, Turkey, and the United States

to watch slides and judge six emotions and the intensity of the emotions. They found that cross-cultural agreement was very high.

Ekman (1973, pp.180-181) found that Japanese subjects displayed the same "negative facial expressions" as American subjects when watching a stress-inducing movie about sinus surgery ("subjects were videotaped without their knowledge"). However, when Japanese subjects were interviewed by a Japanese interviewer after the movie, they displayed less negative (more neutral) expressions than when they were viewing the movie. When American subjects were interviewed by an American interviewer, they were as expressive as when they were viewing the movie. Thus these researchers concluded that "fundamental similarities" existed regarding facial expressions across cultures. Differences lay in display rules because people regulated their emotional displays according to their cultural norms.

In the presence of others, the Japanese did not show their emotions as much, indicating that Japanese tend to suppress their emotional displays in the presence of others. Ekman and Friesen (1975) concluded that the culture is dictating certain rules about what feelings one should reveal to whom under what circumstances. These display rules are learned early

in life and become thoroughly automatic. With members of the same culture, we hardly notice these rules, but with members of another culture, serious misunderstandings can occur. If an American and a Japanese talked about the movie afterward, the neutral emotional display of the Japanese could easily lead the American into believing that the Japanese was an uncaring, unfeeling, perhaps even cruel, person.

Critique. It seems that these scholars have focused their research on the recognition (Ekman, 1973; Ekman et al., 1987) and verbal labelling (Russell, 1991) of emotions in facial expressions, generally in still photographs. In these studies, subjects from different cultures are asked to examine facial expressions as indicators or signs of emotions only. The communicative importance of facial displays was neglected. In intra-cultural communication, several researchers have proposed that facial displays are signals of information that are sent within social interactions. For example, both Kendon (1973) and Brunner (1979) observed that facial displays by the listener can act as "comments" upon what the speaker is saying. Brunner (1979) argued that smiles can provide information about listener agreement or disagreement. Chovil (1989; 1991/92) demonstrated that facial displays in conversation can serve a variety of

syntactic and semantic linguistic functions.

To explore the communicative function of facial displays in inter-cultural interaction, we would need to shift our focus from studying photographs to actual conversation. It is in actual conversation where we could discover how facial displays help to send or receive messages.

What does a nod really mean? Many cultural groups share the use of nodding the head, especially while listening. However, the interpretation of a nod differs from culture to culture. The Japanese nod signifies continued attention while a North American nod signifies both continued attention and agreement (LaFrance & Mayo, 1978, p.187). Without knowing this difference, North Americans can be very frustrated when, at the end of a long presentation, they find that their listener disagreed with them wholeheartedly in spite of constant nods.

The Bulgarian head movement for "no" consists of throwing the head back and then returning it to the upright position (Jakobson, 1972). When emphatically displayed, the return to the upright position can involve a slight bend of the head forward, thus appearing very much like the North American nod for "yes".

In his field trip to Greece, Eibl-Eibesfeldt

observed cultural differences in signals given to express "no". Greeks express "yes" with a nod as North Americans do, but they express "no" with head jerking back, eyes closing and eyebrows lifting for a while (Eibl-Eibesfeldt, 1972, p. 303).

Critique. It would be very interesting to examine the consequence of "wrong" nodding in inter-cultural interactions! There may be two types of consequences, one is its influence on the success or failure of the information conveyed in the conversation, the other is its impact on how communicants perceive each other (Smith & Bond, 1993). In the above example, constant nodding by the Japanese businessman certainly "facilitated" the conversation but ultimately caused huge frustration for the North American.

Eye contact during conversation. In both laboratory and field studies, LaFrance and Mayo (1978) found that black and white Americans differed in their listening behaviour. During a conversation, whites gazed steadily at the speaker while blacks did not look into the eyes of the speaker, although blacks and whites did not differ in the overall amount of looking. Similar observations were made by Hall (1972), namely, that white Americans noticed that their black communicants seldom looked into their eyes when spoken to.

Being a Chinese functioning in North America, I received a similar comment from an American friend of mine, Judith, five years ago. It was my first time abroad from China. Although I had learned English in China and worked with Judith for six months while she was doing her field work in China, I had never learned North American conversation rules, because they were not in the English text books. On the second day of my arrival in the U.S., I went to see the Department Chairman with Judith. To show my respect for the Chairman, I sat straight, my hands on my knee, and my eyes looking down. Most of the time I looked down; sometimes I looked at Judith, who was sitting on my right hand side. Then I heard Judith saying "Xiao Li, you are supposed to look at the speaker, not me." Both of them smiled, and I smiled too, but for a very different reason: I smiled to hide my awkwardness.

In the Chinese culture, there are no clear rules regarding where one should look in a conversation unless talking to a superior or a parent. In this case, one should look down to show respect. Looking into the eye of your mother while she is criticizing you would make her angry because "looking into the eye" is tantamount to "talking back". Looking down would be interpreted as modest, and as accepting her criticism.

Critique. So far, studies on eye contact have

been limited to cross-cultural observations. It would be fascinating to study how eye contact functions as communicative behaviour in actual interactions.

III. Introducing a New Approach to Inter-cultural Communication: the Collaborative View and Common Ground Building

From the above literature review of the major works in inter-cultural communication, it is concluded: (a) new theories and methods are urgently needed to give directions and strength to this field (Knapp, 1988), and (b) Most research belongs more to cross-cultural psychology than communication, except for some literature in non-verbal communication. Therefore, it is proposed that, instead of looking for theories and methods in cross-cultural psychology (Kim & Gudykunst, 1988), theories and methods in the disciplines variously called discourse analysis, intra-cultural, inter-personal communication, or psycholinguistics be used to study inter-cultural communication.

In the last 20 years, researchers in the field of inter-personal communication have made many discoveries about the subtle processes of face-to-face interaction (e.g., Bavelas, 1990; Bavelas & Chovil, 1993; Brenneis & Lein, 1977; Clark, 1985; Clark & Brennan, 1991;

Duncan & Fiske, 1977; 1985; Goodwin, 1981; Kraut & Johnston, 1979; McNeill, 1985). Among the many findings, one notion is especially relevant to intercultural communication: face-to-face conversation is a collaborative process, the success of which depends upon how well the participants build on and update their common ground (Clark & Brennan, 1991). To engage in a conversation, the speaker and the listener need to coordinate both on the process and the content. To be able to do so, the speaker and the listener need to establish a mutual understanding of what is being said moment by moment. Clark and Brennan (1991, p. 127) used the following analogy to elaborate their view:

Alan and Barbara, on the piano, must come to play the same Mozart duet. This is coordination of content. They must also synchronize their entrances and exits, coordinate how loudly to play forte and pianissimo, and otherwise adjust to each other's tempo and dynamics. This is the coordination of process. They cannot even begin to coordinate on content without assuming a vast amount of shared information or common ground--that is, mutual knowledge, mutual beliefs, and mutual assumptions (Clark & Carlson, 1982; Clark & Marshall, 1981;

Lewis, 1969; Schelling, 1960). And to coordinate on process, they need to update their common ground moment by moment. All collective actions are built on common ground and its accumulation.

Similarly, in conversation,

Alan must try to speak only when he thinks Barbara is attending to, hearing, and trying to understand what he is saying, and she must guide him by giving him evidence that she is doing just this. Accomplishing this, once again, requires the two of them to keep track of their common ground and its moment-by-moment changes (Clark & Brennan, 1991, p. 128).

From Clark and Brennan's elaboration, we can see that there are two distinct phases: prior common ground and the process of grounding. Prior common ground refers to Clark and Brennan's notion of "a vast amount of shared information or common ground" that exist before a conversation begins. The process of grounding refers to Clark and Brennan's notion of the continuous updating of this in a conversation.

In communication, common ground cannot be updated without a process we shall call grounding (see Clark & Schaefer, 1987, 1989;

Clark & Wilkes-Gibbs, 1986). In conversation, for example, the participants try to establish that what has been said has been understood. In our terminology, they try to ground what has been said--that is, make it part of their common ground. ...

Consider this actual exchange:

Alan: Now, -um, do you and your
husband have a j- car?

Barbara: -have a car?

Alan: Yeah

Barbara: No -

Even though Alan has uttered "Do you and your husband have a car?", he has not managed to ask Barbara whether she and her husband have a car. We know this because Barbara indicates, with "- have a car?", that she hasn't understood him. Only after Alan has answered her query (with "yeah") and she is willing to answer the original question ("no -") do the two of them apparently believe he has succeeded. So asking a question is more than uttering an interrogative sentence. It must also be established that the respondent has understood what the questioner meant. The Barbara's asking "have a car?" and Alan's

answering "Yeah" represent grounding. Imagine what would happen if grounding didn't occur. That is, if Barbara had not asked "have a car", instead, she arbitrarily murmured something like "- um". Alan could have assumed that Barbara understood his query and have taken her "- um" as "yes, we have a car." Misunderstanding would have resulted, and the information transmission would have failed.

There is a similar saying in the Chinese culture that can be applied to grounding: "put a stake at each step you finish in a journey." Applied to our topic, it means that what has been said should be established to be mutually understood before the conversation moves on.

Common ground building in inter-cultural communication

The concepts of prior common ground and the process of grounding are both especially important in inter-cultural communication because participants usually start with little common ground, and they often have a hard time creating a common ground.

One example of lack of prior common ground is a conversation on the topic of dogs between a North American and a Chinese. When the North American talks about her "lovely" Newfoundland dog, it only puzzles the Chinese. In China, dogs have a bad reputation for

biting all strangers, including children. Moreover, the possibility of rabies from a dog bite is high. The image of dogs is usually connected to frightening scenes and deaths. "Mad dog" is a common nickname for a dog.

For a Chinese to understand why a dog can be "lovely", the North American needs to explain that: (a) in general, dogs here don't bite people; (b) all dogs are vaccinated, so even if the worst happens, your life is usually not at risk; (c) dogs are considered to be loyal, affectionate, and protective and are the most popular pets in North America, and (d) some studies have even revealed that, among other factors, keeping a dog positively contributes to a person's mental and physical health.

Without knowing that her Chinese interlocutor didn't share her beliefs and feelings about her Newfoundland, the North American starts to brag about her "lovely" dog on and on. Reluctant to hurt the feelings of her interlocutor, the Chinese tries to smile and nod, but finds her thoughts drifting away from the topic of the conversation.

The point to be made here is that lack of mutual beliefs can cause great difficulties in an intercultural conversation. For the conversation to work, the North American needs to supply the above background

knowledge about dogs. If the background knowledge is not supplied, this conversation will certainly go to the dogs.

Another example of the process of grounding in inter-cultural communication is the mystery of the Chinese nodding. Imagine the following scenario between a North American Professor and a Chinese student.

Professor: You have read the assignment for this week, right?

Student: Yes (nods).

Professor: For this assignment, you need to define the concept of "communication" and then offer your own examples. I gave a few examples in class, but you need to come up with your own examples. Is this clear to you? (knowing that English was not his first language, the Professor was making special efforts).

Student: (Nods, nods, and nods).

A week later, the Professor was very puzzled: this student did not understand what she was explaining. His homework revealed his ignorance. But how could he keep nodding? Nodding in the Chinese culture can

indicate either understanding or only paying attention. To a North American professor, it is confusing and frustrating to see a Chinese student constantly nodding without understanding the message.

In this conversation, the process of grounding never occurred because cultural barriers inhibited them from finding the right means to do so. The listener gave the message that he was paying attention, which the speaker interpreted as understanding. The misunderstanding occurred because the speaker and the listener did not share the same interpretation of the nonverbal signal "nodding". The point to be made here is that lack of mutual knowledge of nonverbal communicative behaviours can cause misunderstandings, thus making grounding difficult.

In sum, in inter-cultural situations, lack of common ground--mutual knowledge, mutual beliefs, and mutual assumptions--makes mutual understanding initially very difficult. Nevertheless, grounding is still possible, as suggested in the "Newfoundland dog" example, as long as both the speaker and listener are aware of the difficulties and are willing to work on them. In other words, it takes more time and effort to achieve mutual understanding in inter-cultural communication. To study inter-cultural communication, researchers need to pay special attention to how

participants build their common ground and how this process facilitates or inhibits communication.

Conclusion

It seems clear that the future direction of inter-cultural communication is to study actual communication. This overview of existing literature in inter-cultural communication reveals that researchers have studied almost everything around communication except the interactive process. In contrast, Clark's collaborative view and especially the concepts of common ground and grounding may be enlightening. Unlike intra-cultural communication, in inter-cultural communication, participants have less common ground to start with and they may also have fewer shared resources for grounding. As a result, the collaboration necessary to achieve information transmission in the conversation process may demand more effort and be more susceptible to error. The challenge for cross-cultural researchers is to study such actual communication.

Chapter 2.

Rationale and Hypotheses

The above literature review suggested that past researchers had seldom studied information transmission in face-to-face interactions between inter-cultural communicants. The proposed study was designed to initiate such research.

The populations chosen for this study were Caucasian Canadians and Chinese residing in Canada. The Canadian subjects must be those who grew up in the West, and English was their first language. The Chinese subjects must be those who grew up in Mainland China, and Mandarin Chinese was their first language.

The goal of the research was to study inter-cultural information transmission via intra- and inter-cultural comparisons. The study compared the amount of information transmitted between intra- and inter-cultural communicants in actual conversations. In other words, the research examined if there was a significant difference in the amount of information conveyed between intra-cultural communicants (two Chinese or two Canadians) and inter-cultural communicants (a Canadian and a Chinese).

The study was conducted in a laboratory setting with assigned topics. Each dyad engaged in two conversations; one was an analogue of taking a personal

case history, and the other required communicating instructions about the use of a common medicine. Thus, the setting chosen for this study was simulation of physician-patient interaction. These topics were chosen as important because, among other difficulties immigrants faced, the inability to communicate with health professionals and consequent lack of access to health care systems seemed to be prominent (Li, 1992; Lin-Fu, 1988; Stephenson, 1991).

It was hypothesized that, by objective measures, inter-cultural interactants would convey significantly less information than intra-cultural interactants, with other variables held constant. By other variables being constant, it was meant that the nature and amount of information to be transmitted were the same for inter- and intra-cultural dyads, and the second language user had sufficient language knowledge and ability to be a participant. Two theoretical frameworks had shed light on the development of the hypothesis. The first was the oldest model in the discipline of discourse analysis, i.e., Weaver's information transmission model and the second was Clark's collaborative view and common ground building. Both were discussed in previous chapters. Since inter-cultural communicants usually started with little common ground, and they often had a difficult time

creating a common ground, their information transmission would be partially blocked. As a result, the amount of information conveyed and received would be significantly decreased.

A minor hypothesis was that in their conversations, the speakers in inter- and intra-cultural conditions would present the same amount of information for both tasks. The assumption for this hypothesis was that the second language speakers would not have language difficulties in presenting the information since their TOEFL score was 550 or above and they had memorized the information before they started the conversations (see details in method section). Therefore, there should not be a significant difference in the amount of information presented given that the second language speakers had memorized the information beforehand, and there would be a significant difference in the amount of information transmitted to the listeners. The rationale was that barriers other than language would prevent the inter-cultural dyads from getting the information through. In other words, more communication difficulties would occur in the information transmission process for the inter-cultural dyads than for the intra-cultural dyads. Thus, the inter-cultural dyads would fail to transmit as much information as intra-cultural dyads although

the amount of information presented for inter- and
intra-cultural conditions may be similar.

Chapter 3.

Method

Subjects

Eighty-four subjects volunteered to participate in this study, of which, 44 were males and 40 were females. The subjects formed 42 same gender dyads, two of which were dropped from data analysis because they did not follow the instructions¹. Subjects were either third year, fourth year or graduate students from the University of Victoria. The majority of the subjects were in their twenties and earlier thirties and their average age was 29.11. The mean age for the Chinese subjects was 30.0 and that for the Canadian subjects was 28.22. The means were not statistically significant from each other ($t(78) = -1.90, p > .05$). Subjects were solicited in classrooms, the university cafeterias and graduate students' offices in various departments at the University of Victoria.

Footnote¹. One dyad started to laugh in the middle of the first dialogue and the laughing continued for 60 seconds. The other dyad did not finish the second dialogue because the speaker was not feeling well.

Of the 80 subjects, 40 were Chinese whose first language was Mandarin Chinese, and 40 were Canadians whose first language was English. All Chinese subjects grew up in Mainland China and were studying at the University of Victoria, Canada at the time of the experiment. All Chinese subjects had a TOEFL (Test of English as a Foreign Language) score of 550 or above. At the time of the experiment, the Chinese subjects had been in Canada for an average of 27 months, with the longest stay of 60 months and the shortest stay of .5 month. The experiment was conducted between September, 1993 and November, 1993.

Experimental design

A between-subjects design was used with four conditions altogether. In each condition, one person played the role of a physician and the other the role of a patient. The four conditions were: Canadian/Canadian; Chinese/Chinese; Canadian physician/Chinese patient, and Chinese physician/Canadian patient. First, subjects were randomly assigned to one of the three conditions based on their available time. A Canadian participant was randomly assigned to one of the following three conditions: Canadian/Canadian; Canadian physician/Chinese patient, and Chinese physician/Canadian patient. In the same way, a Chinese

participant was assigned to one of the three conditions: Chinese/Chinese; Canadian physician/Chinese patient, and Chinese physician/Canadian patient.

In the intra-cultural conditions (i.e., the Canadian/Canadian and Chinese/Chinese conditions), the roles of physician and patient were randomly assigned. In the inter-cultural conditions (i.e., the Canadian physician/Chinese patient and Chinese physician/Canadian patient conditions), only half of the roles of physician and patient could be randomly assigned. The experiment was done in blocks, and every eight dyads was a block. In every block, there must be two dyads in each of the four conditions. For the four intra-cultural dyads (Canadian/Canadian and Chinese/Chinese), the roles of the physician and patient were always randomly assigned by a draw. For the first two inter-cultural dyads (Canadian physician/Chinese patient and Chinese physician/Canadian patient), the roles of physician and patient were randomly assigned. For the last two inter-cultural dyads, the roles of physician and patient were fixed.

In all 40 dyads, males were paired with males and females were paired with females. In each of the four conditions, males and females were evenly distributed so that there were 5 male and 5 female dyads in each condition.

Tasks

The two tasks for the experiment were an analogue of taking a personal case history and of giving instructions about the use of a common medicine. In developing the testing materials, repeated pretests were conducted with Canadian and Chinese students. After many modifications based on the experience and suggestions of these pilot subjects, the final version consisted of the following steps (the details of which can be found in Appendix A):

(1a) One subject adopted the case history of a 65-year-old patient who was suffering from chronic arthritis and recent chest pains (based on the true story of a Chinese immigrant). The subject was given time to learn the details of the case and then took a multiple-choice test to ensure that he or she had adequately mastered the role to be played.

(1b) Then the two subjects interacted freely, with one playing the role of a family physician whose task was to learn the medically relevant facts from the patient.

(1c) Afterwards, the subject with the role of physician took an open-ended test to measure how much information about the case history was actually transmitted.

(2a) Next, the subject playing the role of physician was given information on the use of codeine (taken from Compendium of Pharmaceuticals and Specialities (1982), which was appropriate for the case history just presented. After studying the information, the subject took a multiple-choice test (again, as a manipulation check).

(2b) Then the two subjects interacted again. This time, the physician informed the patient about the use of codeine.

(2c) Afterwards, the subject playing the patient took an open-ended test, which measured how much information about the medication was actually transmitted.

The role playing was as close to natural conversation as possible. The following guidelines were followed: (a) Neither physician nor patient was given specific instructions regarding how to pass the information; that is, the physician was not given a set format for asking questions or explaining codeine, and the patient was not told how to tell his or her case history or what to ask about the medication. (b) To prevent purely memory problems, both patient and physician could have their information sheet available during the interaction but could not simply read from it or show it to the other; the information must be

conveyed in a natural, "talking" manner.

Testing materials

All materials had English and Chinese versions. The Canadian-Canadian and Canadian-Chinese dyads used English, and the Chinese-Chinese dyads used Chinese. The method used for translation was a combination of **back translation** and the **bilingual technique** as recommended by Brislin (1980). The first version was written in Chinese because the original story was told by a Chinese immigrant. Two bilingual graduate students then translated the Chinese story into English. In the course of translation, we used the combination of literal and free translation (Brislin, 1980). Due to the differences in the two languages and cultures, we had difficulty finding some English equivalents for Chinese sentences. For example, the usual way a Chinese physician would greet a patient when he/she comes into the office is : "So, which part of your body bothers you today?" By being specific ("which part of your body"), the physician conveys the message that he/she is sincerely concerned with the condition of the patient. Doctors in Canada, however, don't ask such a question when a patient walks into their offices. After consulting a psycholinguist and a linguist, we decided to take a middle way between a

literal and a free translation. The final compromise was "So, what seems to be the problem?" The English version was then back translated into Chinese. In the open-ended tests of both tasks, the Chinese patient in the inter-cultural interaction could choose to write the test in either Chinese or English.

Scoring

First, an answering key was developed for the two open-ended tests (Appendix B). The first test (for dialogue 1) was composed of 10 open-ended questions. Questions 1-5, 7 and 8 each was worth 4 points; question 6 was worth 12 points, and questions 9 and 10 each was worth 8 points. The total points for test 1 (for dialogue 1) were 56.

The second test (for dialogue 2) contained 7 open-ended questions. Questions 1, 5, 6 and 7 each was worth 4 points; questions 2 was worth 28 points, questions 3 was worth 8 points, and question 4 was worth 16 points. The total points for test 2 (for dialogue 2) were 68.

The points for each question were allocated on the basis of the number of information units. Each unit of information was worth 4 points. Some questions required answers containing one unit of information while others contained several units of information.

That was why some questions had 4 points, others had as many as 28 points. For example, the answer to question 1 in test 1 "why did the patient come to see you" only contained one unit of information: chest pains.

Whereas answers to question 2 in test 2 "what are the possible side effects after you take codeine" contained 7 units of information: drowsiness, nausea, vomiting, constipation, an increase in heart rate, agitation, and respiratory problems. Thus question 2 in test 2 was worth 28 points.

For each question, one or several correct answers were provided in the "Answering key" (see Appendix B). If the answer was essentially identical to the answer key, it was scored as 4. If the answer was very close to the correct answer, it was scored as 3. If the answer was related to the correct answer (e.g., describing but not naming), it was scored as 2. If the answer was remotely related to the correct answer, but the meaning could be inferred, it was scored as 1. Blank or wrong answers were scored as 0.

For example, question 7 in test 1 was: what was the main reason the patient went swimming? If the answer was "the reason the patient went swimming was to exercise his/her legs; or to exercise his/her legs", it was scored as 4. If the answer was essentially "swimming is good for his/her legs", it was scored as

3. If the answer was essentially "to do exercise because the patient has difficulties walking", it was scored as 2. If the answer was essentially "for exercise or stay fit", it was scored as 1.

Inter-scorer reliability for open-ended tests

Based upon the scoring standards, three independent scorers scored the open-ended tests and the inter-scorer reliability was between .98 and .99. The main reason for the high reliability was that almost all subjects either recalled the information or did not. Rarely scorers needed to make a decision on the number of points given to a particular answer. Another reason was that the scoring standard was adequate for the tests. Originally, this scoring standard was developed to score the pilot data. It proved to be a sensitive measure for the answers of tests given by the pilot subjects. Therefore, no change was needed to make when applied to the present data.

Several factors made scorer bias minimal. First, facts were being scored. That is, the unit of information was either there or not there. Second, the scorers did not have to make a decision based on personal impression or perception of the subjects, which could have easily led to scorer bias. Third, the

two scorers who did not know the hypotheses achieved as high a reliability between themselves as with the third scorer. Therefore, knowledge of the hypotheses did not influence the scores.

Inter-scorer reliability for video-taped conversations

Using the same scoring standards as those for the open-ended tests, the same three scorers scored the information presented in the video-taped conversations and the inter-scorer reliability was between .98 and .99.

The reasons for such a high inter-scorer reliability were similar to those for the open-ended tests. In addition to the above-mentioned reasons, to score the video-taped conversations, scorers were asked to write down each unit of information presented by the subjects. It was unlikely for the scorer to manufacture a piece of information which was not there. It was, however, possible for the scorer to miss a piece of information. The .2% of the disagreement came from missing a unit of information by one of the scorers, not from disagreement in making a decision.

Training scorers was carried out using the following instructions:

1. Read criteria at least twice.
2. Watch the tape and digest scoring criteria.

3. Score for the first time by watching the tape and listening to the dialogue.
4. Score for the second time without watching the tape; just concentrate on the conversations.

Possible difficulties to be aware:

1. Rush to the task without understanding the scoring criteria thoroughly.
2. When scoring, we are tempted to be carried away by the story and the performance (e.g., humorous remarks and expressive facial expressions).
3. Task oriented; unwilling to go back and listen for another time when we were not sure.

Chapter 4.

Results and Discussion

Mean scores from open-ended tests

The average time was 5 minutes and 29 seconds for Task 1 and 4 minutes and 56 seconds for Task 2 across conditions. The mean time for the Canadian/Canadian condition was 4 minutes and 48 seconds for Task 1 and 4 minutes and 46 seconds for Task 2. The mean time for the Chinese/Chinese condition was 5 minutes and 16 seconds for Task 1 and 5 minutes and 38 seconds for Task 2. The mean time for the Canadian physician/Chinese patient condition was 5 minutes and 22 seconds for Task 1 and 4 minutes and 46 seconds for Task 2. The mean time for the Chinese physician/Canadian patient condition was 6 minutes and 32 seconds for Task 1 and 4 minutes and 35 seconds for Task 2.

The mean scores from the open-ended tests following the conversations are presented in Table 1. The lowest score was 4 and the highest was 49 for Task 1. The lowest score was 4 and highest was 48 for Task 2. As shown in Table 1, the total mean scores (derived from dividing the sum of the mean scores for Task 1 and Task 2 by two) for the Canadian/Canadian and Chinese/Chinese conditions are very similar ($M=39.3$, $SD=7.0$ and $M=35.4$, $SD=5.1$ respectively). The total mean scores for the Canadian physician/Chinese patient

and Chinese physician /Canadian patient are also similar (M=23.6 SD=6.2 and M=18.9, SD=6.0 respectively, see Table 1).

Table 1

Mean Scores of Open-ended Tests by Condition

Condition	<u>n</u>	Task 1		Task 2		Total	
		<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
Ca/Ca	10	39.8	8.2	38.8	8.9	39.3	7.0
Ch/Ch	10	34.0	5.6	36.7	7.6	35.4	5.1
CaDr	10	27.2	11.8	20.0	5.3	23.6	6.2
ChDr	10	17.7	7.2	20.0	7.7	18.9	6.0

Note. 1. n represents the number of dyads.

2. All dyads were same-gender; males and females were evenly distributed in all conditions.

The major hypothesis of this study was: intra-cultural interactants would convey significantly more information than inter-cultural interactants. As stated earlier, intra-cultural interactants were defined as either a Canadian talking to another Canadian in English or a Chinese talking to another Chinese in Chinese. Inter-cultural interactants were defined as a Canadian talking to a Chinese whose first language was Chinese (Mandarin). To test this

hypothesis, the mean scores of the intra-cultural dyads, i.e., the Canadian/Canadian and Chinese/ Chinese conditions, were pooled together. The mean scores of the inter-cultural dyads, i.e., the Canadian physician/Chinese patient and Chinese physician /Canadian patient conditions were also pooled together (see Table 2). Results from a T-test revealed that there was a significant difference between the mean scores of intra- and inter-cultural dyads for both tasks ($t(38) = 8.0, p < .0001$). Levene's test for equality of variance demonstrated that there were no significant differences between inter- and intra-cultural dyads ($F = 1.03, p > .05$). Thus the major hypothesis was supported by the data.

Table 2

Mean Scores of Open-ended Tests by Condition

Condition	<u>n</u>	Task 1		Task 2		Total	
		<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
Intra-	20	36.9	7.4	37.8	8.2	37.3	6.3
Inter-	20	22.4	10.7	20.0	6.4	21.2	6.4

Note. 1. n represents the number of dyads.

2. All dyads were same-gender; males and females were evenly distributed in both conditions.

As seen in Table 2, the mean differences between inter- and intra-cultural dyads were 14.4 for Task 1 and 17.8 for Task 2. To explore the data, T-tests were conducted to examine if the means for Task 1 and Task 2 were significantly different from each other for the inter- and intra-cultural conditions. Results from T-tests revealed that there were significant differences between the mean scores of inter- and intra-cultural dyads for Task 1 ($t(38) = 5.0, p < .0001$) and for Task 2 ($t(38) = 7.7, p < .0001$). Since the mean scores between inter- and intra-cultural dyads were significantly different from each other for both tasks, the next concern was whether the variances were similar. Levene's test for equality of variance demonstrated that there were no significant differences between inter- and intra-cultural dyads for Task 1 ($F = 2.06, p > .05$) and for Task 2 ($F = 1.61, p > .05$).

A Multivariate Analysis of Variance was conducted to further explore the data and the results were the following: (1) among the four conditions, at least the mean of one condition was significantly different from the mean of one other condition for the total mean scores ($F(6, 70) = 10.56, p < .0001$). (2) Among the four conditions, at least the mean of one condition was significantly different from the mean of one other condition for the mean scores for Task 1 ($F(3, 36) =$

12.5, $p < .0001$) and for Task 2 ($F(3, 36) = 18.8$, $p < .0001$). (3) The first two conditions (intra-cultural dyads) differed significantly from the last two conditions (inter-cultural dyads) in their total mean scores. These differences were statistically significant ($F(2, 35) = 35.9$, $p < .0001$). (4) The first two conditions (intra-cultural dyads) differed significantly from the last two conditions (inter-cultural dyads) in their mean scores for Task 1 ($F(1, 36) = 28.9$, $p < .0001$) and for Task 2 ($F(1, 36) = 56.04$, $p < .0001$). (5) The Canadian/Canadian condition did not differ significantly from the Chinese/Chinese condition in their total mean scores ($F(2, 35) = 1.2$, $p > .05$). (6) The Canadian/Canadian condition did not differ significantly from the Chinese/Chinese condition in their mean scores for Task 1 ($F(1, 36) = 2.3$, $p > .05$) and for Task 2 ($F(1, 36) = .39$, $p > .05$). (7) The two inter-cultural conditions did not differ statistically from each other in their total mean scores ($F(2, 35) = 3.1$, $p > .05$). (8) The two inter-cultural conditions (i.e., Canadian physician/Chinese patient and Chinese physician/Canadian patient) showed a significant difference for Task 1 ($F(1, 36) = 6.25$, $p < .05$), but did not show a significant difference for Task 2 ($F(1, 36) = .00$, $p > .05$).

Mean scores from video-taped conversations

A view of the video-tape, using the same scoring standards as that for the open-ended tests, revealed that speakers in the four conditions presented similar amount of information for Task 1 (Table 3). For Task 2, speakers in the Canadian/Canadian, Chinese/Chinese, and Canadian physician/Chinese patient conditions presented similar amount of information (Table 3). However, the mean score for the Chinese physician/Canadian patient condition was some 10 points lower than the other three conditions. Mean scores from video-taped conversations are presented in Table 3.

Table 3

Mean Scores from Video-tape by Condition

Condition	<u>n</u>	<u>Task 1</u>		<u>Task 2</u>		<u>Total</u>	
		<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
Ca/Ca	10	50.4	4.8	52.0	12.9	51.2	6.2
Ch/Ch	10	45.2	10.1	52.8	10.3	49.0	8.0
CaDr	10	43.6	10.7	50.8	11.3	47.2	6.0
ChDr	10	43.6	10.7	33.2	8.2	38.4	7.4

Note. 1. n represents the number of dyads.

2. All dyads were same-gender; males and females were evenly distributed in all conditions.

To test the minor hypothesis that the speakers in inter- and intra-cultural conditions would present the same amount of information of both tasks, a T-test was conducted. The mean scores for the intra-cultural dyads, i.e., the Canadian/Canadian and Chinese/Chinese conditions, were pooled together, and the mean scores of the inter-cultural dyads, i.e., the Canadian physician/Chinese patient and Chinese physician /Canadian patient conditions were also pooled together (see Table 4). Results of a T-test indicated that there was a significant difference between inter- and intra-cultural dyads regarding the mean scores of both tasks ($t(38) = 3.07, p < .005$). Thus the minor hypothesis was not supported by the data.

Table 4

Mean Scores from Video-tape by Condition

Condition	n	Task 1		Task 2		Total	
		<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
Intra-	20	47.8	8.2	52.4	11.4	50.1	7.1
Inter-	20	43.6	10.5	42.0	13.2	42.8	8.0

Note. 1. n represents the number of dyads.

2. All dyads were same-gender; males and females were evenly distributed in both conditions.

To explore the data further, more T-tests were conducted to examine if the mean scores for Task 1 and Task 2 were significantly different from each other for the inter- and intra-cultural conditions. Results of a T-test revealed that there was no significant difference between the mean scores of inter- and intra-cultural dyads for Task 1 ($t(38) = 1.42, p > .05$). However, there was a significant difference between the mean scores of inter- and intra-cultural dyads for Task 2 ($t(38) = 2.7, p > .05$).

In relation to the information provided by the speaker, inter-cultural dyads successfully transmitted 50% (21.2/42.8), whereas intra-cultural dyads successfully transmitted 75% (37.3/50.1). The difference was statistically significant ($\chi^2(1, N = 40) = 6.14, p < .01$).

Discussion

The findings of this research have provided evident support for the hypothesis that inter-cultural communicants transmit significantly less information than intra-cultural communicants, thus documenting that inter-cultural communication significantly differs from intra-cultural communication in the amount of information transmitted.

One implication of this finding for inter-cultural

communication is that, to achieve a good inter-cultural communication, we need, first of all, to develop an awareness. We need to be aware that inter- and intra-cultural communication differ greatly in the amount of information transmitted even in situations where the second language speaker has sufficient language ability to participate in the conversation. Without this awareness, inter-cultural communicants are highly unlikely to take any measures to facilitate communication in the conversation process.

Another implication from the findings of this research is that the second language speakers had difficulties mastering and presenting medical information. The hypothesis that dyads across the four conditions would present as much information in the dialogues was not supported because the second language speaker in the Chinese physician/Canadian patient condition failed to present as much information as the first language speakers in the other three conditions. This finding indicates that even though the Chinese subjects had a TOEFL score of 550 and they memorized the information before their conversations, they still had difficulties retaining and delivering the medical information. These difficulties could be partly language and partly other factors, i.e., cultural barriers.

It seems evident that besides language, other factors appear to have prevented inter-cultural communicants from transmitting their messages through. In this research, all second language-speakers were able to present in their conversations as much information as the first-language users for task 1. This demonstrated that the second-language users had sufficient language ability to present the case history which they had learned from the information sheet. It may be speculated that there were two major factors which hindered the listeners in the inter-cultural conditions from learning and retaining the information the speakers presented: language and cultural barriers. Although the second-language speakers in the inter-cultural conditions had enough language to carry on the conversations, they were not as proficient as native speakers. It may be reasoned that to interact proficiently, one also needed to know the hidden and unhidden cultural rules of one's interactant in regard to anything about that conversation. The knowledge of cultural and conversation rules allows one to feel at ease in the conversation process. Language ability, on the other hand, permits one to communicate the verbal messages. Proficiency of cultural rules and language ability together enables one to engage in a successful communication; either one alone is not sufficient.

It is inferred from the findings of the study that to facilitate inter-cultural communication, it is essential for inter-cultural communicants to learn each other's culture which includes conversational rules. As Gudykunst (1991, p.2) pointed out: "If we understand others' languages, but not their cultures, we can make fluent fools of ourselves."

Besides the above two implications, this research has raised several questions. First, what are the possible consequences of poor inter-cultural communication in health care settings? One such consequence would be inaccurate or poor diagnosis at the best, and wrong diagnosis at the worst. Fear of mistreatment may prevent immigrants from using the English-speaking medical care system (Stephenson, 1991). As a result, many immigrants rely solely on the limited number of physicians who speak their native language, which lead to poor services and further cultural isolation (Li, 1992; Lin-Fu, 1988; Waxler-Morrison, Anderson, & Richardson, 1990, Woon, 1986).

Second, how exactly did the loss of information occur in inter-cultural conversations? Was there any difference in the conversation styles between inter- and intra-cultural dyads which facilitated or inhibited the information-transmission? For instance, do intra-cultural dyads repeat more by asking questions

(redundancy), thus facilitating the information-transmission? To examine this question, I hypothesize:

(1) Intra-cultural dyads would achieve higher redundancy scores than inter-cultural dyads.

(2) Redundancy scores would be correlated with the open-ended test scores. These two post hoc hypotheses will be tested in the next chapter.

The third question raised by this study is: how do inter-cultural communicants perceive their inter-cultural experiences? Do they perceive any communication difficulties? Although they experienced communication difficulties (they achieved significantly lower scores in the open-ended tests than intra-cultural dyads), they may, nevertheless, not perceive any communication difficulties. This issue will be examined in the next chapter.

Chapter 5.

Additional Results 1: Redundancy Scores

Hypothesis 1: Intra-cultural dyads would achieve higher redundancy scores than inter-cultural dyads.

Hypothesis 2: Redundancy scores would be correlated with the open-ended test scores.

Operational definition of redundancy: A question which leads either the speaker or the listener to repeat a piece of information and a repeating statement elicited either by the speaker or the listener.

Scoring

The data were scored by the same three independent scorers and the agreement was between 90.6% and 94.6%. The reasons for such a high reliability were the same as stated in previous chapters. Scorers were asked to write down the redundancy information, the provider of the redundancy information (speaker or listener), and the time (minute and second) when the redundancy information occurred. It was unlikely for the scorer to manufacture a piece of redundancy information which was not there. It was, however, likely for the scorer to miss a piece of redundancy information. The 7.4% of the disagreement came from missing a piece of redundancy information by one of the scorers, not from

disagreement in opinions of decisions. It was easy to miss a piece of redundancy information because what we were doing was contrary to what we do in daily life (i.e., in daily life, we have been trained to concentrate on new information and ignore the redundant parts). During the scoring, the repeated part of the conversation became the focus.

Therefore training scorers to pay attention to redundancy information became crucial. The following instructions were followed in the training sessions.

Procedures:

1. Read criteria at least twice.
2. Watch tape and digest scoring criteria.
3. Score for the first time by watching the tape and listening to the dialogue.
4. Score for the second time without watching the tape; just concentrate on the words.

Possible difficulties to be aware:

1. Rush to the task without understanding the scoring criteria thoroughly.
2. When scoring, we are tempted to be curious about what was said in the front channel (e.g., content; humour; facial expressions). Therefore, the back channel information (e.g., clarifying questions or repeating what was said) tends to be ignored.
3. Task oriented; unwilling to go back and listen for another time when we were not sure.

Scoring Criteria

Write down items or information which falls into any of the following categories. (The information should be content-related. Content-related information is defined as that appears on the scoring standard for

the open-ended tests.)

1. Any question intending to clarify a word or a piece of information which had already occurred (not questions that elicit new information).

For example:

A: I beg your pardon?

B: 1982. My mother died in 1982.

A: Could you say the side effects again?

B: Nausea, vomiting, etc..

or

A: Codi...?

B: Codeine.

or

A: I don't quite know how to pronounce the word "arth..rai..tists"?

B: Arthritis.

2. Repeating in meaning (the words may or may not be exactly the same) of what the other person has said.

For example:

A: Chest pain.

B: Chest pain.

or

A: You did not have a good appetite yesterday evening. You only had a bowl of soup?

B: In general, I have a good appetite. Yesterday evening I only had a bowl of soup.

A: A bowl of soup. OK.

or

A: You said that you had chest pains three years ago, and you took some codeine?

B: Yes. I took some codeine and it worked.

3. Self-repeating in exactly the same words or in slightly different phrases.

For example:

Pt.: I have strong chest pain.

Dr.: Chest pain?

Pt.: Yes, chest pain.

or

Dr.: Overdose will cause visual disturbances.

Dr.: Visual disturbances, like blurry eyes.

Pt.: Yes. blurry eyes.

or

Dr.: 1-2 tablets at a time, 3-4 times a day.

Dr.: 1-2 pills per time and take 3 or 4 times a day. OK?

Pt.: OK.

Results

The mean redundancy scores for both tasks across the four conditions were presented in Table 5. As seen in Table 5, the Chinese/Chinese condition had the highest mean redundancy scores (4.3) and the Chinese physician /Canadian patient condition had the lowest mean redundancy scores (1.5).

Table 5

Mean Redundancy Scores from Video-tape by Condition

Condition	<u>n</u>	Task 1		Task 2		Total	
		<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
Ca/Ca	10	2.9	1.9	1.1	1.3	2.0	1.3
Ch/Ch	10	3.8	1.8	4.8	2.5	4.3	1.8
CaDr	10	3.6	2.7	1.2	1.1	2.4	1.4
ChDr	10	1.8	1.0	1.1	1.0	1.5	.83

Note. 1. n represents the number of dyads.

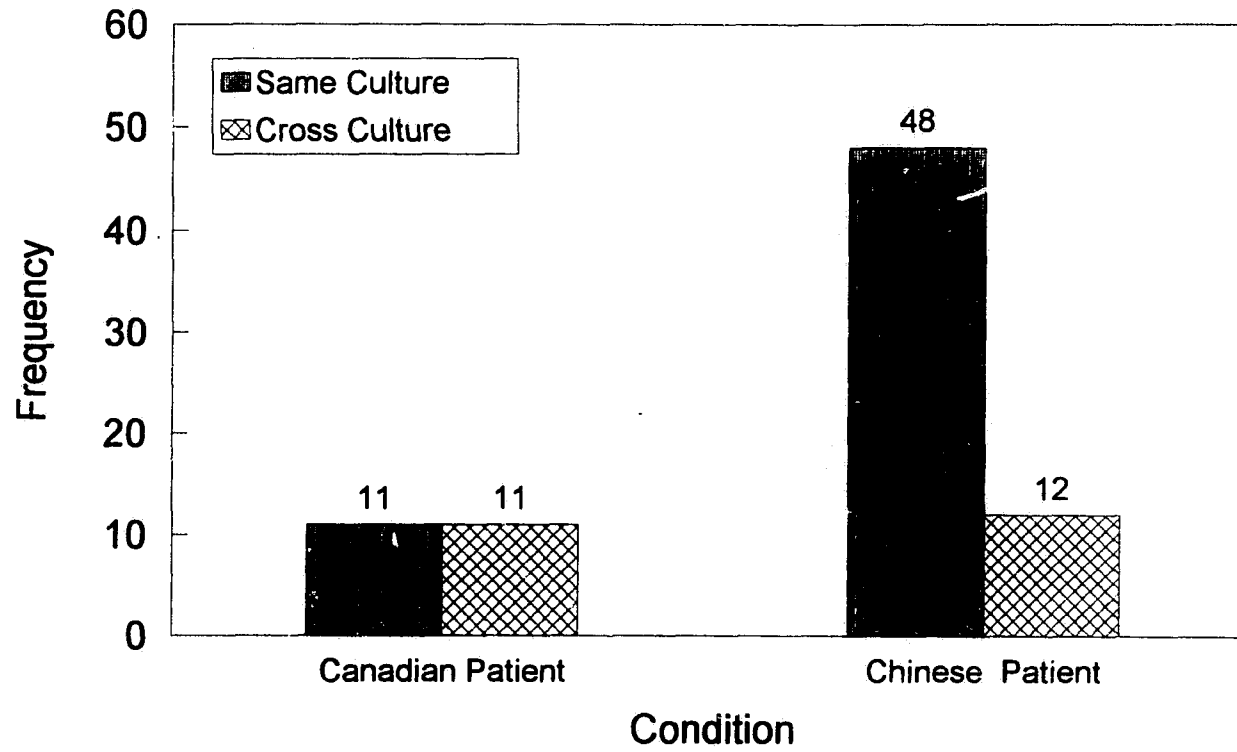
2. All dyads were same-gender; males and females were evenly distributed in all conditions.

To test post hoc hypothesis 1 that intra-cultural dyads would achieve higher redundancy scores than inter-cultural dyads, a Multivariate Analysis of Variance was conducted. The total redundancy scores for the intra-cultural conditions (Canadian/Canadian

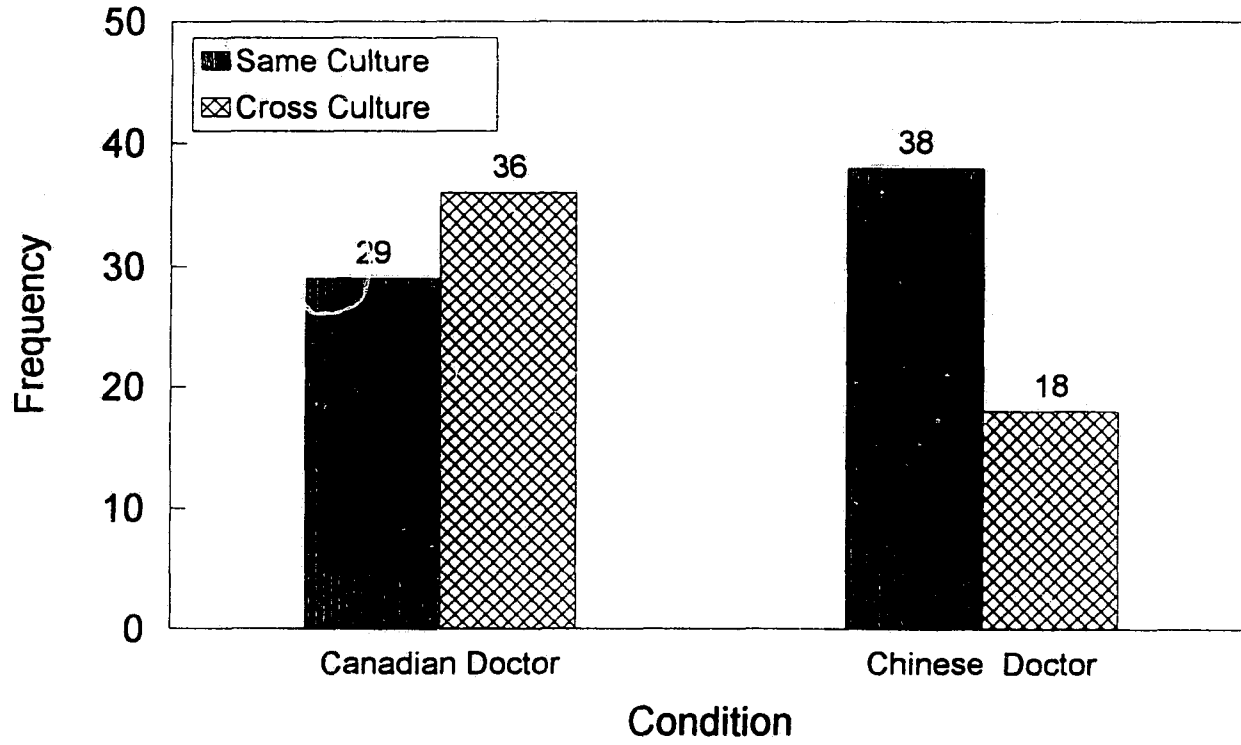
and Chinese/Chinese) were significantly higher than the inter-cultural conditions (Canadian physician/Chinese patient and Chinese physician/Canadian patient; $F(2, 35) = 6.26, p < .01$). Thus the hypothesis that intra-cultural dyads would achieve higher redundancy scores than inter-cultural dyads was supported by the data.

In addition, the mean distributions of the four conditions manifested an interesting pattern. The redundancy scores had a big drop when the Chinese were put in charge of the conversation, that was, when they played the role of a physician (see Table 5). In contrast, there was virtually no change in redundancy scores between the Canadian/Canadian and Canadian physician/Chinese patient conditions. The interesting pattern in redundancy scores for the four conditions were displayed in Figure 1 and 2.

Redundancy Scores



Redundancy Scores



A Pearson correlation revealed that redundancy scores were correlated with achievement scores in the open-ended tests. Dyads who had higher redundancy scores tended to achieve higher scores in their open-ended tests. The correlations between redundancy scores and test scores for Task 1 was: $r(40) = .45$, $p < .005$; for Task 2 was: $r(40) = .32$, $p < .05$.

Discussion

Contrary to the common belief that inter-cultural communicants would repeat more in their conversations, the results of the present study found that intra-cultural dyads repeated significantly more than inter-cultural dyads in the dialogues. Besides the fact that one participant spoke a second language, operated in a foreign culture, inter-cultural dyads did not repeat the information in any form as much as intra-cultural dyads! It is not surprising that they transmitted significantly less information than intra-cultural dyads.

Let's recall that the operational definition for redundancy was that a question which leads either the speaker or the listener to repeat a piece of information, or a repeating statement elicited either by the speaker or the listener. The finding of the present research indicates that inter-cultural dyads

did not ask as many questions which lead to repeating the information nor did they do as many repeating statement as much as intra-cultural dyads. Clark (1985) found that in intra-cultural conversations, people do grounding (asking recapitulating questions or self-repeating) in order to make conversations work. Clark called the process of grounding common ground building (1985). The findings of the present research support his notion that in intra-cultural conversations, people do grounding. The findings of the present study also enriches our understanding of human communication: when people from different cultures meet, they do significantly less grounding as they would in intra-cultural conversations. The dramatic change in redundancy scores for the Chinese subjects is interesting. Pierson and Bond (1982) found that Chinese subjects manifested very different behaviours when they interacted with a Caucasian person and spoke a second language. The findings of the present study seem to be in line with those of Pierson and Bond (1982).

A second hypothesis that redundancy scores would be correlated with testing scores was supported by the data. Dyads who had higher redundancy scores tended to achieve higher testing scores regardless of experimental conditions. The implication of this

finding seems that asking each other more questions or repeating the information in the same words or in slightly different terms can facilitate information transmission.

Additional results 2: Perceptions of Inter-cultural Communicants

Introduction and Method

The purpose of this questionnaire was to find out how inter-cultural interactants perceive their experiences, therefore, only the inter-cultural subjects were given the questionnaires. Of the 40 inter-cultural subjects, one dyad did not fill out the questionnaire (the experimenter forgot to distribute the questionnaire). Therefore, the actual sample size was 38.

A questionnaire was made up of 11 questions, of which, 8 questions had a Likert scale of 0-6 and the other 3 had an open-ended format (see Appendix C). For the question "what did you do to help overcome these difficulties (if any)", the scores represent the number of measures taken to overcome the cultural and language barriers. A person was scored 1 if he/she answered "slowed down" and scored 2 if he/she answered "slowed down" and "repeated the word or sentence".

Results

When asked "other than today's conversation, have you ever talked more than 5 to 10 minutes with a person from a different culture", the mean score for the

Canadian group was 4.68 (SD=1.45) and that for the Chinese group was 4.84 (SD=1.16). In a scale from 0 "never" to 6 "daily", these mean scores amounted to "almost daily".

When subjects were asked if they experienced any difficulties when conversing with an inter-cultural communicant, the answer was virtually "no". In a scale from 0 "not at all" to 6 "very difficult", the mean score for the Canadian subjects was 1.32 (SD=1.29) and the mean score for the Chinese subjects was 1.42 (SD=1.50). The mean scores for the Canadians and Chinese were not significantly different ($t_{(36)} = .23$, $p > .05$).

Next, subjects were asked "do you think your partner had difficulty communicating with you?" The mean score for the Canadian subjects was 1.89 (SD=1.20) and that for the Chinese subjects was 1.16 (SD=1.30). The results of a t-test for independent samples showed no significant difference in the two means ($t_{(36)} = -1.28$, $p > .05$). Levene's test for equality of variances demonstrated that the variances of the scores for the two groups were not significantly different from each other ($F = .213$, $p > .05$). It seemed that Canadian subjects perceived some communication difficulties on the part of their Chinese partners. Nevertheless, 1.89 on a scale from 0 to 6 was still

very low.

When subjects were asked "how different was this from a conversation with someone of your own culture?" The mean score for the Canadian group was 2.37 (SD=1.53) and the mean score for the Chinese group was 2.21 (SD=1.93). On a scale from 0 to 6, 2.37 and 2.21 could be interpreted as "somewhat different". Subjects in both groups perceived their inter-cultural experience "somewhat different" from an intra-cultural experience, but not "very different".

In general, Canadians rated their Chinese partners fairly high on English fluency ($\underline{M} = 4.0$, $\underline{SD} = .66$), and Chinese rated their own English fluency also fairly high ($\underline{M} = 3.32$, $\underline{SD} = 1.75$). Interestingly, neither Canadians nor Chinese thought that they experienced any cultural difficulties. The mean score for the Canadian group was .63 (SD=1.01) and that for the Chinese group was .32 (SD=.48).

Nevertheless, Canadians perceived more language difficulties in their conversations than Chinese subjects. The mean score for the Canadian group was 1.84 (SD=1.21) and that for the Chinese group was 1.16 (SD=.76). The mean difference for the two groups was statistically significant ($\underline{t} (36) = -2.08$, $\underline{p} > .05$).

It appeared that Canadians took more measures to overcome the cultural and language barriers in their

conversations than their Chinese partners. The mean score for the Canadian group was 2.26 (SD=1.01) and that for the Chinese group was 1.37 (SD=.90). The mean difference was statistically significant ($t(36) = -2.75, p > .005$). Levene's test for equality of variances demonstrated that the variances of the scores for the two groups were not significantly different from each other ($F = 1.58, p > .05$).

Interestingly, Canadian subjects thought their Chinese partners knowledgeable about the Canadian culture ($M=4.36, SD=.95$). Chinese subjects also perceived their Canadian partners as somewhat knowledgeable about the Chinese culture ($M=2.95, SD=1.72$). Nevertheless, Canadians rated Chinese higher on the scale than Chinese rated Canadians ($t(36) = -3.16, p < .005$).

The last two questions asked were: "how much do you enjoy the conversation", and "if you run into this person again in future, would you be willing to talk to him/her?" The mean scores for the former question were 5.00 (SD=.66) for the Canadian group and 4.84 (SD=1.39) for the Chinese group. The mean scores for the latter question were 5.26 (SD=1.44) for the Canadian group and 5.53 (SD=.77) for the Chinese group. It seemed that everybody had a good time and were willing to talk to each other again in future although they only got a 50%

of the information through!

Discussion

The findings from the questionnaire study were enlightening. First, Canadians rated their Chinese partners fairly high on English fluency, and Chinese rated their own English fluency also fairly high. Second, neither Canadian nor Chinese subjects perceived their inter-cultural conversations very much different from intra-cultural conversations. Third, neither Canadian nor Chinese subjects perceived any cultural difficulties. Fourth, both Canadian and Chinese subjects perceived little language difficulties. Therefore, neither Canadians nor Chinese "experienced" much difficulties in the conversations. Since little communication difficulties were perceived, it was only natural that they did little to overcome the difficulties.

These findings contradict the results of their open-ended tests. In the open-ended tests, inter-cultural dyads transmitted significantly less information than intra-cultural dyads. In the questionnaire study, they did not perceive the difference between inter- and intra-cultural conversations. They did not perceive much communication difficulties either.

The findings in the questionnaire study reinforce two points made in earlier chapters. The first point is that inter-cultural communicants need to be aware of the difficulties in their communication. Without this awareness, no effort (e.g., asking clarifying questions) will be made to improve mutual understanding. The second point is that language knowledge alone is not enough to carry out an inter-cultural conversation. A lack of knowledge and understanding of the conversation rules and the culture of the partner may create a global uneasiness, which may hinder the second language speaker from asking clarifying questions which was found to facilitate information transmission.

Finally, the discrepancy between perceived and actual behaviours in inter-cultural conversations in this study has provided strong support for the point I emphasized repeatedly in earlier chapters: to study inter-cultural communication, we must study face-to-face interaction, not perceptions of face-to-face interaction. To study perceptions alone in inter-cultural communication is misleading.

Chapter 6.

Summary and Conclusion

Limitations

The first limitation of the study was that we were unable to study real physician-patient interaction due to the two following reasons. First, to video-tape real physician-patient interaction, we must inform them and ask for their participation. The knowledge of being video-taped may make them behave differently from otherwise. Thus, the video-taped medical conversation may be different from a normal medical conversation. Second, in real physician-patient interaction, it is impossible to use exactly the same conversation topic, thus making measurement of information transmission difficult. With these barriers in mind, we chose the alternative: studying simulated medical conversations.

Secondly, in the video-taped conversations, the mean scores for the Chinese physician/ Canadian patient condition for Task 2 was significantly lower than that of other conditions. I have no explanations for this phenomenon except one speculation. Task 2 is an instruction for a medication. The medical words may be difficult for the Chinese physician to communicate to the patient. The implication of this issue is that as task difficulty increases, the second-language speaker may not be able to present as much information as the

first-language speaker in conversations.

Thirdly, the sample size was too small (38 subjects in all) for the questionnaire study. Furthermore, subjects only had an inter-cultural experience in the experiment (although they had intra-cultural experience in daily life). It would be a better way to compare their perceptions between inter- and intra-cultural experiences if subjects answered questions following both an inter- and intra-cultural conversation.

Lastly, participants of the study were sampled from university students. Generalization of results to the general population should be cautious.

Future Research

The findings of the present study have sent a strong message for future research in the field of inter-cultural communication: to study inter-cultural communication, we must study face-to-face interaction, not perceived interaction. Past research in the field of inter-cultural communication has focused on studying attitudes, perceptions, values, norms and inter-personal relationship rules among people from different cultures, it is time for a change in both the theory and methodology in future research. Instead of drawing heavily on theories and methodology from cross-cultural

social psychology, it may be enlightening to borrow theories and methodology from the field called psycholinguistics.

A follow-up study to the present research would look at how non-verbal cues such as nodding facilitates or inhibits information transmission. I would hypothesize that Chinese subjects nod as frequently, if not more, when interacting with Canadian subjects than with Chinese subjects. When nodding to a interlocutor, a Chinese participant would mean to indicate "I am paying attention" or "I understand". When interpreting a nodding of their Chinese interlocutors, Canadian subjects would mean "OK, you understand me. So I can go on". The mis-interpretation of a nod from their Chinese interlocutors could be one of the reasons why neither interlocutors perceived any communication difficulty yet, only half of the information presented was successfully transmitted.

Summary and Conclusion

Past research indicated that lack of communication with mainstream culture was identified as a major health problem among Chinese immigrants in Canada. To investigate the magnitude of the communication problems in inter-cultural interactions, this study compared the amount of information transmitted between inter- and

intra-cultural communicants in simulated health care settings. Inter-cultural communication was defined as a Canadian who played the role of a physician conversing with a Chinese who played the role of a patient or a Chinese who played the role of a physician conversing with a Canadian who played the role of a patient. Intra-cultural communication was defined as two Canadians (one played the role of a physician and the other played the role of a patient) engaging in a conversation or two Chinese (one played the role of a physician and the other played the role of a patient) engaging in a conversation.

The major hypothesis tested was that inter-cultural interactants would transmit significantly less information than intra-cultural interactants. To test this hypothesis, 40 Canadian and 40 Chinese university students were recruited to participate in an experiment where each dyad engaged in two conversations: one was an analogue of taking a personal case history, and the other required communicating instructions about the use of a common medicine.

The findings of this research have provided evident support for the major hypothesis: inter-cultural communicants transmitted significantly less information than intra-cultural communicants, thus documenting that inter-cultural communication

significantly differs from intra-cultural communication in the amount of information transmitted.

Additional findings of the research include: (1) Intra-cultural dyads achieved significantly higher redundancy scores than inter-cultural dyads. (2) Redundancy scores were correlated with achievement scores in the open-ended tests. Dyads who had higher redundancy scores tended to achieve higher scores in their open-ended tests. (3) Neither Canadian nor Chinese subjects perceived their inter-cultural conversations very much different from intra-cultural conversations. They perceived little language and cultural difficulties in their conversations.

Findings of the study had methodological and practical implications for inter-cultural communication. Methodologically, the discrepancy between perceived and actual behaviours in inter-cultural conversations found in this study has provided strong support for the point emphasized repeatedly in earlier chapters: to study inter-cultural communication, we must study face-to-face interaction, not perceptions of face-to-face interaction. To study perceptions alone in inter-cultural communication is misleading.

Practically, to achieve a good inter-cultural communication, we need to develop an awareness. We

need to be aware that inter- and intra-cultural communication differ greatly in the amount of information transmitted even in situations where the second language speaker has sufficient language ability to participate in the conversation. Without this awareness, inter-cultural communicants are highly unlikely to take any measure to facilitate communication in the conversation process.

In conclusion, the research has contributed to the field of inter-cultural communication in two ways. Methodologically, the findings suggested that it is misleading to study perceived inter-cultural interaction alone. To study inter-cultural communication, we must study actual interaction. Practically, the findings documented that there are substantial differences between inter- and intra-cultural communication in the amount of information transmitted. To obtain effective inter-cultural communication, we must, first of all, realize this difference. Without this awareness, it is highly unlikely for inter-cultural interactants to take measures to improve inter-cultural communication. One such a measure was suggested by the findings: asking more clarifying questions and repeating the information in various terms.

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Appendix A: Instructions and Testing Materials

1. Experimental instructions
2. Instruction sheet for Dr. (Dialogue 1)
3. A case history
4. Multiple-choice test (for Pt., dialogue 1)
5. Open-ended test (for Dr., dialogue 1)
6. Instructions for the use of codeine (for Dr., dialogue 2)
7. Instruction sheet for Pt. (dialogue 2)
8. Multiple-choice test (for Dr., dialogue 2)
9. Open-ended test (for Pt., dialogue 2)

1. Experimental instructions

Thanks for coming. What you are going to do today is to have two short dialogues. In both dialogues, one person is going to play the role of a physician, and the other will play the role of a patient. While you talk to each other, we'll be videotaping so that we can have a record of everything. You can see yourself afterwards and decide whether we can keep the tape. First we'll decide who is going to be the physician and who is the patient by a draw (omitted in inter-cultural dyads).

The first dialogue will be like a medical interview: you (the Dr.) will interview you (the Pt.) about your case history. I will give you (Pt.) your case history to read as many times as you like until you know the material well. And I will give you (the Dr.) some guideline for the interview.

In the second part, you (the Dr.) will prescribe a medicine, which you will explain to the patient. Again, I will give you the details and give you a chance to study the material.

A couple of times I will ask each of you to take some quizzes on the information, just so I know that you know it well and that you understood what the other person was telling you. It is not a memory test, please relax.

(Start first dialogue: A Case History)

(To the Pt.) So now you will play the role of a 65-year old patient. Your task is to give your physician your case history. Please give as many details as possible. You may read the following case history as many times as you like until you know the major points by heart. Then, I will like you to take a short quiz on them. The purpose of the quiz is to help you remember the major points of the case history.

(Give time to study, then quiz).

After the test, I'll give you back the case history. In case you get stuck, you may refer to it, but you can't read from it word-for-word or show it to the physician.

While the Pt. is studying the case history, you (the Dr.) can look at these guidelines for the interview. (Hand the Guidelines for the Interview to the Dr.)

(After Pt. passes quiz:) OK, now you are ready to begin the interview. I'll leave the room and come back when you are done.

(Afterwards:) Now I'd like you to take a quiz on what you learned from the Pt. [Do; that's great, etc.]

(Start second dialogue: Instructions for the Use of Codeine)

(To the Dr.) In the second dialogue, you will

still play the role of a physician. Based on the case history, you are going to prescribe codeine for the patient. Now your task is to instruct your patient about the use of codeine, a pain reliever. Please give your patient as many details as possible. You may read the following instructions as many times as you like until you can remember the major points. Then, I will like you to take a short test on them. The purpose of the test is to help you remember the major points of the instructions.

After the test, I'll give you back the case history. In case you get stuck, you may refer to it, but you can't read from it word-for-word or show it to the patient.

While the Dr. is studying the Instructions for the Use of Codeine, you (the Pt.) can look at this Instruction sheet for the following dialogue. (Hand the Instructions to Pt.)

(After Dr. passes the quiz:) OK, now you are ready to begin the dialogue. I'll leave the room and come back when you are done.

(Afterwards:) Now I'd like you to take a quiz on what you learned from the Dr. [Do; that's great, etc.]

Thanks again. Would you like to see yourselves on TV? (proceed with standard consent procedure).

2. Instruction sheet for Dr. (Dialogue 1)

So now you will play the role of a physician. In the following dialogue, your patient will tell you his or her case history. Make sure that the information you get from your patient covers the following aspects:

- (1) What the exact problem is;
- (2) When the problem started, and in what circumstances the problem occurred;
- (3) What the general health condition of the patient is (e.g., appetite, sleep, and exercise);
- (4) What other diseases the patient has and details of the diseases;
- (5) Whether the patient had a previous occurrence of the problem, and when it occurred and what was done about it;
- (6) What the family history is (e.g., whether any of family members have similar complaints, and what was the outcome);

Please read the above outline a few times and try to remember it (I suggest that you read it at least three times). You may ask your patient any questions you wish and you may phrase your questions anyway you like. You could start the conversation by saying "So, what seems to be the problem?"

I'll let you keep the Guideline. In case you get stuck, you may refer to it, but you can't read from it word-for-word.

3. A case history (for Pt. age: 65, dialogue 1)

Reason for Visiting the Physician: chest pains.

Starting Time: yesterday afternoon.

Description: Last week I went swimming and I felt fine. Actually I can't swim very well. I just go there and sit in the hot tub most of the time. When I got back from swimming yesterday I felt strong chest pains. Last night, I slept OK. I woke up a few times from my chest pain. I usually sleep very well, even a thunderstorm can't wake me up. Yesterday evening, I didn't feel like eating very much. I only had a bowl of soup. I am scared to death. I remember that a friend of mine had a daughter who died of chest pains after swimming. The cause of her death was unknown.

Other Disease: Besides chest pains, I have arthritis. I can't walk very far. Last time I took a walk to the park, which is close to my house, I had to sit down to take a rest before I could walk back. I was very tired when I got back. I can't walk up the stairs in my house either. In fact, the reason I went swimming was to exercise my legs.

Previous Complaints: Three years ago, I had chest pains. I took some codeine and it worked. After a while, I was fine. I did not go to see a doctor; I didn't have the time. I was working from 7:30 in the morning till 4:30 in the evening in a Chinese food

store.

Family History: My mother also suffered from chest pains. She died in 1982. But I don't think she died of chest pain. She died of old age.

4. Test (for Pt., dialogue 1)
1. You went to see the physician because you were suffering from
 - A. arthritis
 - B. chest pain
 - C. cough
 - D. rash after swimming
 2. When did the symptoms start?
 - A. the morning before
 - B. three days ago
 - C. two days ago
 - D. the day before
 3. How was your sleep last night?
 - A. not bad, only woke up a few times
 - B. couldn't sleep at all
 - C. slept soundly
 - D. information not provided
 4. What other disease do you have besides chest pain?
 - A. chest pain
 - B. headache
 - C. insomnia
 - D. arthritis
 5. How is your arthritis?
 - A. have difficulties walking a short distance
 - B. can't walk the stairs in the house
 - C. both A and B
 - D. can't stand up
 6. What is the main reason for you to go swimming?
 - A. to exercise your legs
 - B. to exercise your arms
 - C. to have fun
 - D. to help your insomnia
 7. When did you have chest pain before?
 - A. two years ago
 - B. a year ago
 - C. four years ago
 - D. three years ago
 8. When you had chest pains before, what did you do with it?
 - A. went to see a doctor
 - B. took some codeine
 - C. rested at home
 - D. took some aspirin
 9. What did your mother die of?
 - A. arthritis
 - B. chest pain
 - C. breast cancer
 - D. old age

5. Test (for Dr., dialogue 1)

When answering the following questions, please provide as many details as you can. That is, write down anything relevant to the questions.

1. Why did the patient come to see you?
2. When did the patient's symptoms start?
3. How did the patient sleep last night?
4. What other disease does the patient have, and how does it affect the patient's daily life?
5. What was the main reason the patient went swimming?
6. When (how many years ago) did the patient have similar symptoms before?
7. When the patient had similar symptoms before, what was done?
8. According to the patient, what did his/her mother die of?

---Please write down anything else you want to add.

6. Instructions for the use of codeine

(for Dr., dialogue 2)

Name of Medicine: Codeine

Indications: Reduces mild to moderate pain of various causes.

Don't prescribe codeine: if patient is hypersensitive to codeine, has respiratory problems, or is pregnant.

Side Effects: Frequent side effects include drowsiness, nausea, vomiting, and constipation.

Infrequent side effects include an increase in heart rate, agitation, and respiratory problems.

Warn your patient not to drive or operate machinery if he or she becomes drowsy or shows impaired mental or physical abilities while taking codeine.

Overdosage: May result in visual disturbances, lowered blood pressure, coma, or death.

Dosage: Orally, one to two tablets at a time, three to four times per day. May increase frequency if pain persists.

Maximum: No more than two tablets at a time, six times per day.

7. Instruction sheet for Pt. (dialogue 2)

In the second dialogue, you will continue to play the role of a patient who had chest pains. The physician is going to prescribe codeine for you. In the following dialogue, the physician is going to give you some instructions about the use of codeine. If you have any questions, please feel free to ask your physician either during the conversation or at the end.

8. Test (for Dr., dialogue 2)

For each question, please check all of the correct items, i.e., you may check more than one.

1. What is codeine used for?
 - help insomnia stop nausea and vomiting
 - reduce pain help to improve appetite
2. What are the reasons that a patient should not use codeine?
 - hypersensitivity to codeine hepatitis
 - respiratory problems pregnancy
 - severe weight loss
3. What are the frequently seen side effects after a person takes codeine?
 - dizziness drowsiness
 - nausea and vomiting constipation
 - headache
4. What are infrequently seen side effects after a person takes codeine?
 - agitation respiratory problems
 - insomnia increase of heart rate
 - stomachache
5. What are the consequences of overdosage of codeine?
 - coma bleeding
 - visual disturbances death
6. What should the patient not do if feeling drowsy or showing impaired mental or physical abilities while taking codeine?
 - drive take a walk
 - watch T.V. operate machinery
7. How many tablets should the patient take at a time?
 - 1 to 2 2 to 3
 - 3 to 4 as many as needed
8. What is the maximum number of tablets the patient should take at a time?
 - 1 2
 - 3 4
 - 5 as many as needed
9. What is the maximum number of times in a day the patient should take the medicine?
 - three times six times
 - five times four times

9. Test (for Pt., dialogue 2)

When answering the following questions, please provide as many details as you can. That is, write down anything relevant to the questions.

1. Why did the physician prescribe codeine for you?
2. What are the possible side effects after you take codeine?
3. Is constipation one of the side effects?
4. What should you not do if you become drowsy or show impaired mental or physical abilities while taking codeine?
5. What are the possible consequences of an overdose of codeine?
6. According to the physician, how many tablets should you take at a time?
7. What is the maximum number of tablets should you take at a time?
8. What is the maximum number of times per day that you take the medicine?

---Please write down anything you want to add.

Appendix B: Scoring Standards

1. Scoring standard for Test 1 (for Dr., dialogue 1)
2. Scoring standard for test 2

1. Scoring standard for Test 1 (open-ended)

1. Why did the patient come to see you? (4 points)
suffering from chest pain(s); or because of chest
pain(s); or chest pain(s).

2. When did the patient's symptoms start? (4 points)
yesterday afternoon after I came back from swimming; or
yesterday after swimming; or yesterday

3. How did the patient sleep last night? (4 points)
slept O.K.; or O.K.; or not bad; or so so; or woke up a
few times because of chest pain.

4. How was the patient's appetite last evening? (4
points)
didn't feel like eating very much; or only had a bowl
of soup; or not very good; or O.K.; or so so; or not
great because of chest pains.

5. According to the patient, what happened to a
friend's daughter? (4 points)
died of chest pain after swimming, and the cause of her
death was unknown; or died of chest pain; or suffered
from chest pain and died.

6. What other disease does the patient have, and how
does it affect the patient's daily life? (12 points)
arthritis (4 points);

I can't walk very far (with or without the example of
walking to the park, 4 points);

I can't walk up the stairs in my house either (4 points);

7. What was the main reason the patient went swimming? (4 points)

The reason the patient went swimming was to exercise his/her legs; or to exercise his/her legs;

8. When (how many years ago) did the patient have similar symptoms before? (4 points)

3 years ago

9. When the patient had similar symptoms before, what was done? (8 points)

took codeine (4 points); didn't see a doctor, too busy working in a food store (4 points);

10. According to the patient, what did his/her mother die of? (8 points)

old age (4 points); she suffered from chest pains, but that was not perceived as the cause of her death (4 points).

2. Scoring standard for test 2 (open-ended)

1. Why did the physician prescribe codeine for you? (4 points)

for my chest pains; or to treat or ease my chest pains

2. What are the possible side effects after you take codeine? (28 points, each is worth 4 points)

drowsiness, nausea, vomiting, constipation, an increase in heart rate, agitation, and respiratory problems.

3. What should you not do if you become drowsy or show impaired mental or physical abilities while taking codeine? (8 points)

not to drive (4 points) or operate machinery (4 points)

4. What are the possible consequences of an overdose of codeine? (16 points; each is worth 4 points)

visual disturbances, lowered blood pressure, coma, or death

5. According to the physician, how many tablets should you take at a time? (4 points)

one-two

6. What is the maximum number of tablets should you take at a time? (4 points)

two

7. What is the maximum number of times per day that you take the medicine? (4 points)

six

Appendix C: Questionnaires

1. Questionnaire for Chinese Subjects
2. Questionnaire for Canadian Subjects

1. Questionnaire for Chinese Subjects

1. How would you rate your English language fluency ?

-----/-----/-----/-----/-----/-----/-----/
 Not Very
 fluent fluent

2. In your opinion, how knowledgeable is your partner about your culture, especially, conversation rules?

-----/-----/-----/-----/-----/-----/-----/
 Not Very
 knowledgable knowledgable

3. Did you have difficulties communicating with him/her?

-----/-----/-----/-----/-----/-----/-----/
 Not Very
 at all difficult

4. Do you think your partner had difficulty communicating with you?

-----/-----/-----/-----/-----/-----/-----/
 Not Very
 at all difficult

5. Where do the communication difficulties come from?

___(a) cultural barriers;
 ___lack of knowledge of conversation rules;
 ___lack of general knowledge of each other's cultures

___(b) language barriers;
 ___ability to comprehend what was said;
 ___ability to speak English___;
 ___other___, please specify___.

___(c) both. If so, which is more, please specify_____.

___(d) other, please specify_____.

6. What did you do to help overcome these difficulties (if any)?

- ___(a) slowed down
 ___(b) repeated the word or sentence
 ___(c) asked clarifying questions
 ___(d) went over the important points more than once
 ___(e) ignored and went on
 ___(f) other: _____
 ___(g) please give reasons for what you did if possible_____.

7. Over all, how much did you enjoy the conversation?

-----/-----/-----/-----/-----/-----/-----/
 Not at all Very much

8. How different was this from a conversation with someone of your own culture?

-----/-----/-----/-----/-----/-----/-----/
 Not different Very different
 different

9. If you run into this person again in future, would you be willing to talk to him/her?

-----/-----/-----/-----/-----/-----/-----/
 Not at all Very much

10. Other than today's conversation, have you ever talked more than 5 or 10 minutes with a person from a different culture?

-----/-----/-----/-----/-----/-----/-----/
 Never Daily

2. Questionnaire for Canadian Subjects

1. In your opinion, what is the English language fluency of your partner?

-----/-----/-----/-----/-----/-----/-----/
 Not Very
 fluent fluent

2. In your opinion, how knowledgeable is your partner about your culture, especially, conversation rules?

-----/-----/-----/-----/-----/-----/-----/
 Not Very
 knowledgable knowledgable

3. Did you have difficulties communicating with him/her?

-----/-----/-----/-----/-----/-----/-----/
 Not Very
 at all difficult

4. Do you think your partner had difficulty communicating with you?

-----/-----/-----/-----/-----/-----/-----/
 Not Very
 at all difficult

5. Where do the communication difficulties come from?

___(a) cultural barriers;
 ___lack of knowledge of conversation rules;
 ___lack of general knowledge of each other's cultures

___(b) language barriers;
 ___ability to comprehend what was said;
 ___ability to speak English___;
 ___other___, please specify___.

___(c) both. If so, which is more, please specify_____.

___(d) other, please specify_____.

6. What did you do to help overcome these difficulties (if any)?

- (a) slowed down
 (b) repeated the word or sentence
 (c) asked clarifying questions
 (d) went over the important points more than once
 (e) ignored and went on
 (f) other: _____
 (g) please give reasons for what you did if possible_____.

7. Over all, how much did you enjoy the conversation?

-----/-----/-----/-----/-----/-----/-----/
 Not Very
 at all much

8. How different was this from a conversation with someone of your own culture?

-----/-----/-----/-----/-----/-----/-----/
 Not Very
 different different

9. If you run into this person again in future, would you be willing to talk to him/her?

-----/-----/-----/-----/-----/-----/-----/
 Not Very
 at all much

10. Other than today's conversation, have you ever talked more than 5 or 10 minutes with a person from a different culture?

-----/-----/-----/-----/-----/-----/-----/
 Never Daily

Appendix D: Consent Sheet

Consent Sheet

Please indicate below the way(s) in which we may use the videotape made during this experiment. You may select some and not others--or none at all. Your experimenter will answer any questions you may have about these options.

Your tape would be identified only by subject number. The sheet that connects your name with this subject number will be kept in a secure place. Obviously, however, videotapes are not anonymous to anyone who know you.

- analysis by the research team.
- viewing by other subjects who rate various verbal and nonverbal aspects.
- playing as an example for professional audiences (e.g., at a professional presentation at another university).
- playing as an example for classes at U-Vic.
- still photographs in journal articles or books.
- none of the above; please erase the tape.

Signature_____

Date_____

Project_____

Experiment Number_____

Subject or Group Number_____

Thank you for your participation!

By the way, could you please provide the following additional information?

Your gender: male___, female___.

Your age: 20-29___, 30-39___, 40-49___, 50 and over___.

For Chinese subjects: number of months in Canada___.

VITA

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H. Li & L. Rosenblood (1994). Exploring Factors Explaining Alcohol Consumption Patterns among Chinese and Caucasians, 55, 427-433. Journal of Studies on Alcohol.

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Title of Dissertation: INTER- AND INTRA-CULTURAL
INFORMATION TRANSMISSION

Author _____
(Signature)

Han Zao Li
(Name)

Sept 28, 1994
(Date)