GROUNDING IN INTERCULTURAL COMMUNICATION

by

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Abstract

The study of effective intercultural communication is relevant to the Canadian multicultural society. This experimental study explores the effect of intercultural (Chinese/Canadian) grounding strategies as a function of social role (doctor/patient) and communicative role (listener/speaker). Grounding activities (e.g., questioning) serve to construct a mutual frame for interactions once a misunderstanding is perceived in the communication. The process of grounding enhances mutual understanding through the reactivation and deactivation of information units. Data obtained from intercultural conversations were analyzed for the use of grounding and its relationship with the information transmitted and retrieved in the communication. Results showed increased use of grounding activities associated with more units of information presented and retrieved in the treatment groups. Cultural variability affected the interactional process but did not influence the information exchanged or the use of grounding in the conversations. This study illustrates that training in grounding is an efficient strategy to facilitate intercultural communication.

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Grounding in Intercultural Communication

Canada is a culturally diverse society; since 1867, Canada has received 15 million immigrants (Government of Canada, 2003). The demographic changes that Canada is currently experiencing undoubtedly have had significant effects on culture, as well as on identity and diversity. Statistics Canada ("Components of population growth", n.d.) reports that between 1991 and 2001, approximately 1.8 million people had immigrated to Canada. Of these, 49.38 % have come from countries in Southern and Eastern Asia (e.g., China, Korea and Taiwan; "Immigrant population," n.d.). Between 2002 and 2003, approximately 199,159 people immigrated to Canada, of whom 15.96 % became permanent residents in British Columbia (Statistics Canada, "Components of population growth", n.d.). The 2001 Census indicated that 18.4 % of the total Canadian population has been born in another country. In comparison, the number of British Columbians who fall into this category exceeds Canada's overall rate by 7.7% (26.1%; Statistics Canada, "Proportion of foreign-born population, provinces and territories," n.d.). Furthermore, population data from metropolitan Vancouver indicates that approximately 37.5% of the population was born in a foreign country ("Proportion of foreign-born population, census metropolitan areas," n.d.).

Commensurate with these statistics, the societal and cultural configuration of Canada is constantly evolving, creating unexpected challenges for individuals, communities and service providers. One such challenge for new immigrants and the communities in which they live is communication. It is necessary for individuals to communicate, to exchange information with others and to be understood in their quotidian experience. Intercultural communication occurs when people from different cultures come together to share ideas and information.

Intercultural interactions increase the probability that the participants have dissimilar conversational styles. Dissimilarities originate with the disparity between cultures and individuals, unfolding into differences in cognitions, languages, self-concepts, social norms and emotional expressions. The interactions between cultures reflect differences in the processing of information, such as the tendencies to focus on words and sentences favoring connotative (i.e., subjective or implied meaning) over denotative (i.e., literal or semantic) meanings, and vice versa (Grice, 1989). Selectivity of one form of communication over the other is traceable to encoding and decoding information processes (Kitayama & Ishii, 2002; Masuda & Nisbett, 2001). This selectivity has also been associated with a culture's emphasis on individual values over group values (i.e., individualism-collectivism; Hofstede, 2001). Given the many cultural, social and cognitive processing differences between intercultural communicative participants, it is not surprising that miscommunication and non-communication are very common events. However, the extent of the problems between intercultural communicators remains unclear.

Regardless of the cultural, social and cognitive processing differences, intercultural communicative problems diminish when the interactants establish a mutual platform for their communicative interactions. The interactive construction of a shared basis for communication allows insight into each other's cognitive processes and cultures. It is assumed that training designed to establish a shared basis for communication can serve to ameliorate intercultural communicative differences. Although differences in communicative styles arise due to cultural frames of reference, individuals are not enslaved by culture.

To meet the needs of an increasingly diverse population, community services must be aware of communicative strategies that can be used across cultures. These intercultural

communicative abilities are usually identified as one of the most needed and valuable skills that people require for functioning in a heterogeneous society, especially in workplaces (Scollon & Scollon, 1995; Ting-Toomey, 1999). The uniqueness of Canada's population requires individuals to be flexible, adaptable and open to this multicultural composition. Canadians of all cultural backgrounds need to increase their awareness of other cultural communicative expressions and learn the use of effective strategies that can be incorporated into their interactional repertoire. Effective communicative repertoires would promote understanding between individuals of different cultures by facilitating the social interactions within the shared communities (Gudykunst, Ting-Toomey, & Chua, 1988; Li, 1999a; Ting-Toomey, 1999; Triandis, 1989).

Given that the study of human communication is complex and multidimensional, when the element of culture is added, the complexities of any systematic study of the two are greatly compounded. Independent of the debates around the influence of culture over individual qualities for communication, such as educational level or social role versus language and listening abilities, studies that address miscommunicative events in intercultural encounters are necessary.

Intercultural Communication

People engage in countless dialogues every day. As discursive styles may vary between individuals, it is highly probable that those dialogues fail to achieve a major goal of communication: mutual understanding of the information exchanged. Those dialogues that succeed allow all the parties involved to gain insight into their own and other's frameworks (e.g., background, culture, language usage, interactive preference, affects). It seems that such insight helps the understanding of the messages exchanged between people and contributes to

the success in the interaction. The knowledge that interactants have of each other and each other's cultural communicative styles has been linked to the level of understanding achieved during the interactions between cultures (Gumperz & Tannen, 1979; Li, 1999b).

Intercultural communication has captured the interests of researchers from different disciplines: cognitive psychologists (e.g., Markus & Kitayama, 1991), cultural anthropologists (e.g., Hofstede, 2001), and linguists (e.g., Gumperz & Tannen, 1979; Wierzbicka, 1992). The different disciplinary approaches to the topic of intercultural communication have generated many debates regarding discourse between cultures. Some of the main issues or debates include: cultural variability in discourse, individualism-collectivism, information processing, transmission and retrieval of information, and information exchanged in health contexts.

Cultural variability in discourse. Several perspectives have been used to explain the differences in communication patterns across cultures. The anthropological point of view emphasizes the relevance that values, beliefs, attitudes and self-concept have in people's behaviours, feelings and thoughts, including communication and language (Gudykunst & Kim, 1997; Markus & Kitayama, 1991; Triandis, 1989). The anthropological perspective also recognizes the influence that culture has for understanding conceptualizations regarding time-space, race-ethnicity, religion-spirituality, roles, status, and other factors (Gudykunst & Kim, 1997; Wierzbicka, 1992). With respect to the similarities and differences in communicative strategies between cultures, the anthropological perspective highlights the importance of communicative styles (e.g., language, pace) and the interactants' self-awareness of such processes. The cultural dimensions of variability (e.g., uncertainty avoidance, individualism-collectivism), proposed by Hofstede (2001) have also been used to

identify the differences and similarities that affect a person's ability to communicate effectively across cultures. It has been proposed that increasing the level of awareness about one's own and others' patterns of communication can have a positive effect on intercultural communication (Gass & Varonis, 1991; Gumperz & Tannen, 1979; Li, 1999a).

The sociolinguistic perspective of intercultural communication posits that individuals from the same cultural group share a cultural context that helps them understand the verbal and nonverbal cues exchanged in the interactive process of communication. This approach stresses the influence of culture in the individual's communicative strategies (Gumperz, 1978). Gumperz and Tannen (1979) state that although contextual influences are less obvious in quotidian exchanges, they play a determining role in formal interactions where an evaluative assessment of abilities, attitudes, and personal characteristics is required (e.g., as in workplaces, in dealings with governmental departments and medical services). These kinds of formal interactions account for most recurrent incidences of misunderstandings between cultures (Gumperz, 1978).

Cultural variability has been incorporated in some communication models (e.g., Gudykunst et al., 1988; Triandis, 1994). The main idea expressed in these models is that culture interacts with language(s) to influence mediating processes such as social cognitions, affects, habits, and social rules. All of these mediating processes have an effect on communication. As such, cultural variability does not directly impact on communication per se, rather its influence works indirectly, through other social-cognitive processes including coding and decoding of information, discursive styles, means of persuasion, conflict resolution styles, personality, and social interactions, including self-perceptions, emotions and habits. Research efforts to identify the cultural dimensions of variability have found that

the bipolar construct of Individualism-Collectivism (I-C) captures many of the commonalities and divergences observed between cultures, including styles of communication (Gudykunst et al., 1988).

Individualism-collectivism and modes of communication. Individualism-collectivism (I-C) refers to the frameworks under which societies perceive individuals as autonomous or as embedded in their social groups. The I-C dimension explains the importance of individual values over group values in different cultures. Individualistic cultures encourage competition, value the needs of the individual and reward individual achievements. Collectivistic cultures promote interdependence, cooperation, loyalty, group values and concerns for the needs of others (Gudykunst et al., 1992; Hofstede, 2001; Markus & Kitayama, 1991).

Different communicative patterns amongst cultures have been shown to vary along the I-C dimension (Hofstede, 2001; Triandis, 1994). Individualistic cultures often use the low-context communicative expression while collectivistic cultures have preference for the high-context communication style (Hall, 1976; Ting-Toomey, 1999). In low-context communication the information is embedded mainly in the message transmitted through direct use of words, are often frankly and personally revealing, congruent with personal feelings, and carry explicit meanings. In the low-context communication situation the speaker is expected to openly state the focus and the intent of the conversation; the message's intent is transmitted via denotative meanings (Grice, 1975). In high-context communication the information is diffused with details, in harmony with the in-groups through use of indirect words, and carry implicit messages that reflect group values, but are self-reserved at the same time (Hall, 1976). In the high-context communication situation, the listener is expected to

infer the focus of the conversation, the relevance of the information delivered, and the intention of the message; the intended message is delivered via connotative meanings.

Interactions with others are influenced by the degree to which one's sociocultural group emphasizes individualistic or collectivistic values. Communications within individualistic cultures are action-oriented and opt for direct conflict-resolution style. Communications within collectivistic cultures are process-oriented and prefer to use conflict-avoidance styles (Hall, 1976; Ting-Toomey et al., 1991). Individualistic cultures prefer competition; collectivistic cultures emphasize interpersonal harmony and face maintenance (Ting-Toomey et al., 1991). Low-context communicators perceive the use of silence as an uncomfortable interruption of the communication, a space to be filled (Mare, 1990); for high-context groups, silence constitutes a communicative act that conveys truthfulness, disapproval, embarrassment, and disagreement (Gudykunst & Kim, 1997). The cultural differences in conversational styles reside in the nucleus of the interaction, on the preferred focus of attention, and in the selection of relational concerns (Ting-Toomey et al., 1991).

Information processing and cultural discourse. The inferences derived from the work on information processing in interpersonal situations are represented in the following cognitive phases involved in almost all communicative exchanges: 1) semantic encoding of the message; 2) mental representation of the ideas exchanged; 3) storage of information; 4) retrieval and inference (information relevance and implications); and 5) verbal/nonverbal communicative responses (Wyer & Gruenfield, 1995). Meaning constitutes the underlying element for the response in all those phases of the communicative process. Meaning is established by the levels (connotative/denotative) in which the information is presented and interpreted. As the informant communicates two simultaneous strata (content and

relationship), so the processor is using the same strata for interpretation. Thus, the combination of meanings and strata of communication used by each communicant serves to increase the number of possibilities for miscommunication. In this way, meaning affects both the messages generated and their interpretation.

According to Wyer and Gruenfield (1995), comprehension of the information conveyed in a social context is likely to occur in two stages: 1) the literal meaning of the information is automatically understood in terms of semantic concepts that are descriptively applicable and easily accessible in memory; 2) the communication is evaluated with reference to prior knowledge about the persons and events to which the information refers. In combination, these factors lead the recipient to generate inferences about the intended meaning of the message that are not necessarily reflected by the semantic referents.

Studies regarding the cognitive process that underlies the transmission and retrieval of information support the idea that the content and organization of spoken messages are influenced by the type of information (e.g., factual data) and source (e.g., scientific journal, newspaper) in conjunction to the expectations and goals of the communicator (e.g., accurate recall, motivational message; Wyer & Gruenfeld, 1995). Experimental subjects recalled more information and construed less unmentioned material into their recall protocol when the passage enclosed factual data and they were expected to have an accurate recall. Analogously, subjects who were given instructions to remember the interesting aspects of the passage tended to distort the implications of the material recalled to a greater extent. These authors found that the communicators' expectations could influence not only the attention that they gave to aspects of information, but also the type of information they conveyed to others.

In a second experiment, Wyer and Gruenfeld (1995) found that recipients' reactions to the message were influenced primarily by the congruency between the communicator's objective (accurate or emotional transmission of information) and the message's content (factual versus emotional). The findings revealed that the communicator's speech was affected by the communicative intent rather than the message's content. Moreover, incongruence between the communicator's goals and the message's content tended to produce halted and poor quality speeches. Wyer and Gruenfeld explained that subjects who perceived incongruence between their communicative objectives and the information in the message (emotional or factual) modified speeches and, thus, made their communication less effective (e.g., poor quality, discrepant, uncertain).

Extrapolating the findings from Wyer and Gruenfeld's (1995) research to the studies about intercultural communication, it is possible to explain some of the differences in the encoding and decoding processes in the communication between cultures. Evidence of cultural bias mediating the encoding and decoding processes supports the presence of culturally distinct discursive styles (Markus & Kitayama, 1991; Stroińska, 2001; Wierzbicka, 1992). For example, culturally based cognitive differences between members of individualistic and collectivistic cultures have been found in attention, recognition memory and narrative (Masuda & Nisbett, 2001). In particular, members of collectivistic cultures focus their narrative on contextual stimuli and generate more situational inferences (e.g., concentrate more on external factors); conversely, members of individualistic cultures focus their narrative on individual dispositional inferences (e.g., concentrate more on internal factors; Kitayama & Ishii, 2002; Miller, 1984). This evidence supports the interdependence between cultural practices, psychological structures and discourse processes. In brief, cultural

variability has a major effect on social norms, roles, self-construal, language usage, and above all, discursive styles (Gudykunst et al., 1992; Gudykunst et al., 1996, Ting-Toomey et al., 1991). The interconnections between situational factors, social cognitive processes, affect, and behaviours (e.g., habits) have an impact on the intentions and understanding of communications (Gudykunst et al., 1988). Thus, communicating across cultures is not an easy task.

To be able to recognize others' messages, one is obliged to have a reasonable level of cultural awareness. Recognizing that norms, cognitions and affect are circumstantial factors for communication enables the interactants to develop foundations or frameworks to aid in the interpretation of cues and the understanding of a message (Triandis, 1989). A person's understanding of a communicated message involves the interpretation of incoming stimuli and the receptor's ability to describe and predict the possible consequences of the perceived communicative cues. Furthermore, the interpretation of cues is biased by the individualities of the message receptor (e.g., abilities, personality). Thus, it is important to note that although the I-C dimension explains one predominant mode of communication between individuals who share the same culture, individual characteristics filter the expression of high or low-context communication style (Hofstede, 2001).

Intercultural linguistic studies have shown that differences in conversational styles and linguistic patterns (e.g., intonation, pausing) interfered more than expected in the communicative efficiency between different cultures (Gudykunst & Kim, 1997; Gumperz, 1978; Kitiyama & Ishii, 2002; Masuda & Nisbett, 2001; Scolon & Scollon, 1995; Tannen, 1981; Ting-Toomey et al., 1991). Some of the differences in communication have been attributed to culturally rooted differences, patterns of perception and interpretation (Markus

& Kitiyama, 1991; Tannen, 1981), relational concerns (Ting-Toomey et al, 1991), and conversational politeness (Brown & Levinson, 1987). Discursive differences between cultures have also been attributed to formulaic statements, indirectness in speech, discursive flow, and tone and intonation (Tannen, 1981). It appears that cultural use of language in discourse, and the associated cultural communicative practices are inseparable when studying the dynamics of intercultural communication.

Transmission and retrieval of information. Communication requires exchange of information between at least two people. This exchange initiates with the transmission of information on behalf of one of the interactants. The information is then processed and sometimes stored for later retrieval. There is a relationship between the information transmitted and the information retrieved by the interactants after the encounter. A productive and effective communicative encounter requires clarity and accuracy in the information exchanged. Clarity and precision in the information delivered provide the basis for accurate and accessible information retrieval. Studies on information transmission and recollection have shown that in intercultural exchanges listeners can typically retrieve only 50% of the information delivered by the speaker or 25% less than the information retrieved in intracultural exchanges (Li, 1999a).

Interpersonal communication has been defined as a process of information transmission between two or more people (Berger, 1987). Interactants transmit and receive information, interpret the meaning and construe the implications of the message before they emit a response to the information exchanged. The interaction is generally guided by circumstantial objectives (e.g., medical concerns, political discussion), which constrain the number of meanings that participants will consider.

Gudykunst and Kim (1997) suggest that communication goes through a number of filters as interactants try to predict and interpret each other's messages. Based on the notion of politeness facework (Brown & Levinson, 1987), Kim (1995) developed a model of conversational constraints. She suggested the presence of filters that influence the communicative strategies used when interacting with others. These constraints are the needs for clarity, to avoid imposition, and the concerns for the other's feelings. Kim suggests that such conversational constraints are the overarching goals that guide specific communication strategies. Examples of such goals include persuasion, argumentation, requests, and the gathering and retrieval of information exchanged in conversations. In terms of conversational constraints, a person guided by a concern for clarity or competence may seek information more directly, or search more for cues to confirm the precision of the message, than someone looking to preserve the other's feelings or to minimize imposition.

As stated earlier, it is important to know that some of the conversational constraints and associated behaviours appear to be culturally bound. Baldwin and Hunt (2002) described information seeking as the set of communicative strategies proactively used to understand, predict and control people's environments. They found that information seeking and reciprocity increases with uncertainty, particularly in initial social interactions. They also stated that cultural dissimilarities in core values could lead to differences in either the type of information sought, or in the ways that individuals gather such information. For example, people in high-context cultures are said to be more able to gather information from nonverbal cues and verbal subtleties than those from low-context cultures (Gudykunst & Kim, 1997).

Research regarding intercultural differences in information seeking strategies have shown that people in high-context cultures are more cautious in initial interactions, rely more

on nonverbal expressiveness, make more assumptions and ask more questions about the other's background (Baldwin & Hunt, 2002; Gudykunst et al., 1992; Gudykunst et al., 1996). Conversely, people from low-context cultures are more open and self-disclosed, rely more on verbal messages and are more likely to use direct interrogation in initial social interactions (Baldwin & Hunt, 2002; Gudykunst et al., 1988; Gudykunst et al., 1992; Gudykunst et al., 1996; Gudykunst & Nishida, 1984). It has also been found that cultural dissimilarity among conversational partners leads to increased interrogation (including background interrogation), self disclosure, and nonverbal affiliative expressiveness, produced perhaps by the novelty in the communication, higher ambiguity, and lower attributional confidence (Baldwin & Hunt, 2002; Gudykunst et al., 1992; Gudykunst & Nishida, 1984).

The uncertainty avoidance dimension constitutes one of the axes commonly used to explain distinctive strategies employed to collect and retrieve information between members of different cultures (Hofstede, 2001). Uncertainty avoidance, as a cultural preference for structure, helps to explain the choices of communicative tactics used by individuals in social interactions in order to reduce ambiguities in the communication. People from high uncertainty-avoiding cultures look for relationships, as an intent to make events clearly interpretable and predictable. Paradoxically, they are often prepared to engage in risky behaviours (e.g., initiate a confrontation or dispute) in order to reduce ambiguities, rather than waiting for the ambiguity to dissipate. Cultures with lower uncertainty avoidance tendencies demonstrate decreased sense of urgency (Hofstde, 2001). Gudykunst et al. (1996) mentioned a greater uncertainty in intergroup encounters. They indicated that uncertainty is associated negatively with positive expectations, communication satisfaction, and quality of communication.

The ways that individuals gather information to reduce uncertainty differ in individualistic and collectivistic cultures. Members of individualistic cultures seek out person-based information to reduce uncertainty about strangers (e.g., recreational interests, achievements); this search leads members of individualistic cultures to look for personal similarities when communicating with outgroup members. Conversely, members of collectivistic cultures seek outgroup-based information to reduce uncertainty (e.g., community affiliations, social status); this focus leads members of collectivistic cultures to look for group similarities when communicating with outgroup members (Gudykunst et al., 1992; Gudykunst et al., 1996; Gudykunst & Nishida, 1984). Therefore, communicative differences lead to miscommunication.

Information exchange in health contexts. In a typical medical interaction, physicians and patients are both continuously seeking and providing information. The inherent purpose of such interaction requires communicative exchange regarding health concerns (diagnostic data) for the purpose of acquiring treatment advice. To achieve these goals, the patient and physician are required to coordinate on the process and the content of their interaction. This exchange of information has several challenges. Most of the challenges are similar to those in other social interactions discussed previously. According to Roter and Frankell (1992), new challenges related to effective communication arise within the patient-physician context (i.e., physicians lead conversations by asking most of the questions, while patients provide most of the information). Data collected from medical interactions reveal that physicians initiate about 95% of the total questions, mainly in close-ended format (Roter & Frankell, 1992). As a result, over half of the patient's contribution to the interaction consists of information giving, thus limiting the patient's questioning behaviour (Ong, Deltaes, Hoos &

Lammes, 1995; Roter & Frankell, 1992). Interestingly, there is an interaction between physician-skill level and communication. It has been shown that medical students are better at information gathering than they are at communicating information (Ong et al., 1995).

Some of the disparities in the patient-physician communication seem to be based on knowledge and linguistic confidence (e.g., difficulties in expressing concerns or medical diagnosis). Other difficulties have been attributed to the physician's conversational control as the first and last speaker in each medical encounter (Brashers, Goldsmith & Hsieh, 2002). Another source of discrepancies according to Bishop (1994) is the socially prescribed roles and responsibilities that rule the conversation between patient and physician (e.g., physicians have responsibility for promoting and restoring health, and patients are responsible to do what is necessary to recover health). Waitzkin (1985) suggests that the physician's control over medical information, prescriptions and treatment options may inhibit the patient from participating in the conversation, thus amplify the gap and communicative asymmetry between physician and patient. Another barrier to attaining accurate information exchange in the physician-patient discourse is the minimal use of communicative activities addressing the patient's understanding or the amount of information retained (Ley, 1979; Ong et al., 1995).

The interpretation of the communicative strategies (i.e., indirect speech) used to express the request for information also presents a challenge for communication. It has been found that patients use indirect strategies (e.g., politeness and passiveness in some high-context cultures) to demonstrate deference to the physician (Brashers et al., 2002). These types of indirect strategies might disguise the patients' intent of active participation and cooperation in the medical care. Physicians' misperceptions can also generate disparities in the transmission of information. Studies have found that physicians provided lower levels of

information to their patients when the physicians perceive signs of passive communication styles, lack of understanding, uncertainty, disinterest, and low educational levels from their patients (Waitzkin, 1985).

Bain's (1979) study provides an example of the types of disparities in transmission of information within the health context. It was found that 40% of all verbal exchanges between physicians and patients consisted of physician questions, the discussion of medical findings and instructions to patients. During discussions of medical matters, 80% of the interview was instigated by the physician. The patient was more frequently concerned with how the physician's findings affected social and family matters, while the physician concentrated on diagnosis and prognosis of the ailments (Bain, 1979).

Intercultural medical interactions may further complicate the relational demands of information exchange. For example, in family-centered cultures (e.g., Chinese), the responsibilities of information control (i.e., information seeking, giving, and withholding) and decision making are often assumed by family members rather than individual patients (Baldwin & Hunt, 2002). In such cases medical interactions involve a complex coordination between health care providers, patients, patients' family, and interpreters (Roter & Frankell, 1992). It is evident that information seeking is a collaborative activity that requires coordination among participants. Exploring the contextual features for the medical interaction would help shape the activities addressing the information exchanged, including the cultural context and the environment for the interaction.

Additional semantic and pragmatic issues related to information exchange in medical encounters reveal that the retrieval of information in such interactions is affected by the sequence in which the information is presented; some sequences can produce higher amounts

and accuracy of information retained by patients (Ley, 1979). Generally, the retrieval of information in medical encounters is affected by similar linguistic and semantic issues common to other types of interactions, such as the suppression of undesired information and the enhancement of the desired information, the retrieval of meaningful expressions, and a focus on the context where the target expression occurs (Roter & Frankell, 1992).

Studies have also shown that patients can misinterpret or forget what they are told in the medical interview. Bishop (1994) found that patients recall only 44% of the medical instructions, and 52% of the treatment information, in an immediate recall task after the medical interview. He also found that the more information patients were given, the more they tended to forget.

In sum, information exchange in health contexts presents difficulties similar to those experienced in intercultural communication (e.g., conversational control, misperceptions of meaning, linguistic differences). There is a need to improve communication in medical encounters within the broad sociolinguistic context that is defined by the moment-by-moment organization of interaction in face-to-face encounters. Thus, it is important to determine how information seeking is modified by the use of specific sets of communicative skills (e.g., grounding) that intend to improve the information exchange between interactants.

Misunderstandings in medical interactions. Physician and patient interactions are subject to misunderstandings. Taylor (1986) found that communication difficulties occur in up to 25% of consultations in general practice. Problems of information transmission occurred in 80% of the cases studied, and 13.5% of the time these problems derived from disparities in persuasion and argumentation strategies. The use of medical jargon, sociocultural differences, misinterpretation of communicative cues, and forgetfulness have

been identified as specific sources of misunderstandings in medical encounters (Bishop, 1994).

One barrier is the use of medical terminology (Bishop, 1994; Taylor, 1986). During their medical training, physicians learn a new and complex vocabulary of approximately 13,000 new words (Keller & Carroll, 1994). Ong et al. (1995) argued that physicians are second-language speakers, who speak simultaneously both in their native language and in their medical specialty language. Although physicians try to communicate effectively with patients, it may be difficult for the physician to differentiate between the two languages when discussing medical information with the patient. Despite the fact that some patients are familiar with medical terminology, studies show disparities in the perceptions of patients and physicians regarding the use of technical language in the course of medical interaction (Ong et al., 1995).

For patients, communicating facts about a medical condition is a difficult task. Illnesses cause emotional upheaval and misconceptions, which can then lead to confusion, thus hindering the patient from communicating or understanding the physician clearly (Bishop, 1994). Patients may feel anxious or embarrassed about their symptoms, giving inaccurate verbal and nonverbal cues about their health (Taylor, 1986).

Withholding information, stress and medical concerns can alter the perceptions of the patient-physician interaction (e.g., disinterest, social distance; Mathews, 1983). One important miscommunication source resulting from medical training is the depersonalization of the patient. The unspoken emotional and intellectual distance between patient and physician plays an important role for diagnosis and also serves as emotional protection for the physician. It has been found that a discrepancy in conversational focus is also a cause of

misunderstandings. Taylor (1986) states that patients tend to emphasize pain and symptoms that may interfere with their activities, while physicians are generally concerned with the diagnosis. Sometimes the patient's concept of important symptoms may not correspond with the physician's knowledge, and significant signs may be overlooked by the patient. Thus, patients may pay little attention to the essential information or reject the physician's advice. This discrepancy in conversational focus and the little opportunity given to the physicians to receive feedback from their patients may also cause uncertainties in the conversation (Taylor, 1986). In fact, research has shown that patient's concerns and complaints are not addressed by the physicians in up to 54% of the cases (Simpson et al., 1991). To aggravate this problem, physicians do not typically use communication checks to ensure that the patient understands the information given; while the patient is seeking relief, the physician is aiming to optimize the use of time, increasing the opportunities for miscommunication between them (Ley, 1979; Ong et al., 1995).

As physicians are primarily concerned with diagnosis, they often avoid exploring background information such as cultural and family health practices, which at times produce uncertainties about the patient's medical concerns or knowledge. In such cases, the physician's medical training in interviewing provides the frame for the interaction; however, it does not seem to be the most effective (Roter & Frankell, 1992). Finally, the overuse of jargon, combined with the fact that the practitioner is often on a tight schedule, limits the patient's understanding of the medical explanation, allowing for potential sources of miscommunication and tension (Mathews, 1983). The additional factor of cultural differences only serves to further compound the issue of miscommunication within the patient-physician context. Thus, exploring communicative practices that reduce

misunderstandings in intercultural physician-patient contexts seems to be appropriate and relevant.

Reducing misunderstandings in the communication between cultures. Under circumstances where miscommunication is detected or perceived, the communicators' ability to return to their original statements allows them to re-state or correct what is needed to improve their communication. As such, intercultural communicators can initiate conversational exchanges attempting to resolve difficulties in their communication. A communicative exchange of this type consists of sequences of negotiations of meaning after detecting indicators of non-understanding. The result of such conversational exchange is unpredictable; however, the outcomes are generally positive given that the intended message is usually understood (Gudykunst et al., 1988; Schegloff, 1982).

Speakers are given the first opportunity to initiate a repair in conversation; however, even if the repair is initiated by another speaker, normally in the next conversational turn, it is the original speaker who brings the repair process to completion. In a successful repair, the speaker either supplies a replacement word or phrase, or accepts one offered by another speaker. This agreement in meaning between interactants is called intersubjectivity (Schegloff, 1987). Similar constructs have been used to explain the importance of resolving misunderstandings by concordance in meaning. One of those constructs is meaning equivalencies, which refers to the use of paraphrasing in the interaction. Meaning equivalences arise when the speaker realizes that a communicative goal can be accomplished through intentional substitution that still carries the meaning of the original utterance (Glenberg & Robertson, 2000). Glenberg (1997) suggests that the meaning of a particular communication for a particular individual is contextual rather than linguistic per se.

Glenberg has stated that meaning underlies social activities and culture; moreover, the transmission of meaning is the ultimate goal of communication.

Schegloff (1982, 1987, 1992) has studied the function of repair in discourse. He elaborates on the way that exogenous factors such as sociocultural and linguistic differences introduce drawbacks in the endogenous factors of the conversation interaction (i.e., understanding/misunderstanding, conveyed meanings, interpretations). Schegloff (1987) identifies two endogenous categories of misunderstanding common to the organization of conversation interaction: (1) problematic referencing and (2) problematic sequential implicativeness (i.e., serious/non-serious distinction, interpretation of one action for other, constructive versus composite understandings, and use of humor). Schegloff (1987) suggests that although the organization of repair is independent from the etiology of the misunderstanding, repair reconstructs the mutuality of a conversation interaction (i.e., intersubjectivity).

The practices of repair can vary by the type of problem being repaired (e.g., word usage, disarticulation, recipient-designed shifts). Nevertheless, to initiate the repairing sequences in intercultural encounters, the nonnative listener requires being quite aware of the possibilities of miscommunication in intercultural communication (Erickson, 1975; Gass & Varonis, 1991; Gumperz, 1978; Li, 1999a; Tannen, 1981). Studies of repairing conversational errors have found that native speakers usually take the role of repairing or correcting inaccuracies in the information. In situations when the non-native speaker functions as the listener in the conversation, the intercultural interaction becomes scarce (Day et al., 1984; Norrick, 1991). In this regard, the absence of shared background knowledge suggests a gap in the intercultural interactions (Chen, 1995). Such gap can be abridged with

the use of communicative strategies that construe a ground for communication (i.e., grounding).

Grounding strategies are verbal or nonverbal requests for clarification, repetition or confirmation of information units discussed in preceding segments of a conversation (Clark & Brennan, 1991). Such strategies can be used to achieve the underlying goal of intercultural communication: to manage content, process, relational and group membership identity issues appropriately, effectively and satisfactorily (Ting-Toomey, 1999). To achieve this goal, people need to develop abilities that permit them to cross over cultural boundaries flexibly and adaptively. Such abilities must cover several socioculturally construed domains such as cognitions (e.g., self-perception checking), sociocultural skills and knowledge (e.g., diverse ways to negotiate communication, conflict and relationship differences), and verbal and nonverbal cues (e.g., use of paraphrasing, headnod). Grounding strategies enhance communication by developing a common frame for communication. Such frames of reference include information about cognitions, sociocultural skills and knowledge, and verbal/nonverbal cues.

Conversational Grounding

As stated before, the theory of grounding assumes that human communication requires a common frame for communication. This common frame is constructed by the interactants for the exclusive purposes of each communicative contact. Communicants need to collaborate in the creation of such a conversational frame during the course of the interaction. This mutual conversational frame is continuously updated by the interactants as the mode of verifying that the intended message is understood by the other. The process of creating and updating the interactional frame is called grounding (Clark & Brennan, 1991;

Clark & Schaefer, 1989; Givón, 1987; Isaacs & Clark, 1987; Khalil, 2000; Schegloff, Jefferson, & Sacks, 1977). Conversational grounding has been found to facilitate human communication in intracultural settings (Clark & Brennan, 1991; Schegloff, 1982, 1992; Schober & Clark, 1989), as well as intercultural interactions (Li, 1999b).

Conceptualization and process of grounding. Conversations are expected to have a natural flow given by effortless exchanges of information. Generally speaking, understanding is anticipated. If any of the participants perceive a miscommunication signal, (e.g., gesture, uncorrelated answer) evidence of misunderstanding is sought and then challenged (Givón, 1987). In this case, a participant would initiate a series of interactions to address the miscommunication signal (Clark & Brennan, 1991). The interactive sequences will continue until interactants present positive evidence of understanding and the emerging message is sufficiently clear to continue with the original communication (Schegloff, 1992). These continuous transfers of information and exchanges of meaning constitute the process of grounding. Grounding is the collective process that interactants use to achieve the desired degree of mutual understanding of each other's communicative message (Clark & Brennan, 1991; Clark & Schaefer, 1989; Givón, 1987; Khalil, 2000).

Every conversation presents two elements that need to be coordinated by grounding: process and content. To coordinate on content, the interactants need to share information and construe a mutual referencing ground. To coordinate on process they need to update their common ground at every moment of the interaction (i.e., update the contextual frames; Clark & Brennan, 1991; Givón, 1987).

The process of grounding takes form in three phases: presentation, acceptance and confirmation (Roberts & Bavelas, 1996). When the dialogue progresses straightforwardly

throughout these phases, understanding is assumed. When any of these phases contains embedded contributions, which interfere with the conversational flow, the information exchanged requires to be re-stated, clarified or explained further (Givón, 1987). Lack of understanding might be found at the level of referent, sequencing (i.e., temporality, organization) or context (i.e., implicativeness; Clark & Brennan, 1991; Schegloff, 1987). Sometimes a side interactional sequence can be initiated (i.e., parallel sub-dialogue) until one of the communicators send out signals of understanding of each other's message (Schegloff, 1992); then they move into the confirmation phase. Positive evidences of understanding are acknowledgments (i.e., backchannel responses, evaluative assessments, and gestures), initiation of relevant next turn (i.e., a turn within a talk that marks the understanding of the previous turn); and continued attention (i.e., eye gazing). Grounding is a continuous vigorously active process (Clark & Brennan, 1991; Schegloff, 1992).

Conversational grounding seeks to understand the denotative and connotative meanings conveyed within a message. The abstract symbols of the language need to be grounded or mapped to convey meaning (Lakoff, 1987). The understanding gained through the use of grounding would also imply that listeners are capable of recognizing the organizational structure of the ideas expressed by the speaker, including the referent and the context (Clark & Brennan, 1991). In this way, the practice of grounding would facilitate the comprehension of direct and indirect requests, social variables, motivation and contextual cues presented in the interaction (Perez & Ruiz, 2000).

Grounding strategies and phases of grounding. Once a common frame for communication is built, interactants would exchange information to establish the referent, content and context of the discourse. If any of these elements is not clearly identifiable

within the exchange, including characteristics, relevance and interactions, listeners or speakers would exchange verbal or nonverbal cues to activate previous information units into the current communicative exchange with the intent of reformulating or restating the message and perhaps repairing some segments of the conversation. As such, they would simultaneously update the conversational frames as the discourse progresses (Givón, 1987).

According to Clark and Schaefer (1989) the contributions made by communicators take place in three steps: (a) Presentation of utterance by the speaker (presentation phase), (b) acceptance of the utterance by the listener (unilateral acceptance phase), and (c) the recognition of the speaker that the listener has accepted the statement (mutual acceptance phase). These phases have been recapitulated by Roberts and Bavelas (1996) as Utterance, Reaction, and Confirmation. Therefore, the process of grounding should include these three phases. One must keep in mind that the first two phases involve verbal utterances, but the last phase could be either verbal or nonverbal (e.g., a head nod; Li, 1999b).

Li (1999b) conducted studies regarding intercultural communication and the use of grounding in Chinese and Canadian interactants. She found that communication improved with the use of grounding in intercultural interactions. Her research showed that grounding and listener recall scores were highly correlated, especially when the Canadians served as listeners. She also found large quantities of uncorrelated grounding and listener recall in the Chinese dyads. These scores were associated to the relationship between the interactants and to a cultural preference of the Chinese to focus on the conversational process. Li (1999b) concluded that the Chinese engaged in the conversation solely for interest in the process (e.g., building rapport); meanwhile the Canadians interacted with the intention of transmitting information (e.g., content).

Additionally, Li's (1999b) study also showed that the listener's use of grounding made a difference in the information exchanged in the conversations, thus not all the intercultural groups experienced the same interactional problems. She found that grounding activities were mostly initiated by the listeners (Day, Chenoweth, Chun, and Luppescu, 1984; Norrick, 1991); then, listeners would usually carry the responsibility of grounding (Li, 1999b). She concluded that the interaction was better managed when the first-language user functioned as the listener and the second-language person served as the speaker. Regarding cultural differences in the use of grounding, Li (1999b) stated that cultural barriers and/or the nonnative speaker unawareness of a problem were the main reasons behind the minimal engagement of the Chinese in grounding activities, even when they experienced misunderstandings or non-understandings.

In summary, major literature in the field of culture and communication indicates that intercultural communication is fallible and grounding strategies might help to reduce miscommunication. Previous research shows that grounding activities correlated with listener recall (Li, 1999b), but no causal relationship can be established since grounding was not studied experimentally. The goal of this study was to examine whether a causal relationship exists between grounding strategies and listener recall in simulated intercultural physician-patient interviews. Specifically, this study tested the following four hypotheses: 1) Those trained in grounding activities (i.e., treatment groups) would engage in significantly more grounding activities than the control groups; 2) speakers in the treatment group would present significantly more information than speakers in the control groups; 3) listeners trained in grounding activities would recall significantly more information than listeners in the control groups; and 4) grounding activities would be positively correlated with listener

recall via increased speaker presentation (i.e., speaker presentation acts as a mediator variable from grounding to listener recall).

Method

Sample

Ninety-four university students participated in the present study. The participants formed 47 dyads, seven of which were eliminated from data analysis because they had incomplete data or did not fit the sample criteria. According to the sampling criteria, all Caucasian participants must have been born in Canada and spoke English as their first language. All Chinese participants must have been born in China or Taiwan and spoke Chinese as their first language. Chinese participants had not been in Canada for more than 8 years. Both Canadian and Chinese participants were under the age of 35 years (see Appendix A).

Among the remaining 80 participants, 40 were mainland Chinese and 40 were Caucasian Anglo-Canadians. Of the 80 students, 40 were men and 40 were women. The mean age for the Chinese group was 24.85 and that for the Canadian group was 23.81 years. These means were not significantly different from each other, $F(1, 78) = .980$, $MSE = 21.97$, $p > .05$. Students were recruited in classrooms and university cafeterias, and through postings on the university bulletin boards. To ensure that the Chinese participants had sufficient English-language ability to participate in the conversations, they were required to have achieved a university English proficiency level for reading and listening comprehension as demonstrated by their scores on the Test of English as a Foreign Language (TOEFL). All Chinese students had TOEFL scores of 550 or above. At the time of the experiment, the Chinese subjects had resided in Canada for an average of 4.01 years.

Students were informed of the nature of the study and that their conversations would be videotaped. Upon arrival at the laboratory and before starting the research session,

participants were reminded of these two aspects of the study (see Appendix B). Then each participant gave a written consent to be videotaped during their conversation and to use of the tapes for the research purposes (see Appendix C). The experimental session began when the participants received the instructions for the present study (Appendix B).

Experimental Design and Procedures

A between-subjects design was used for the four experimental conditions: Canadian physician/Chinese patient and Chinese physician/Canadian patient, each distributed in treatment and control groups (see Table 1). Participants were paired with a partner of the same gender; that is, men were paired with men, and women were paired with women. Allocation of the dyad to treatment or control groups was randomly determined at the time of the pairing. Treatment and control groups had the same ratio of male/female dyads (i.e., each group had 5 dyads of each sex). The role (physician/patient) of participants was also aleatory.

Table 1.

Set up of Groups by Condition

Experimental Condition	Groups
Treatment dyad	Canadian doctor/Chinese patient
	Chinese doctor/Canadian patient
Control dyad	Canadian doctor/Chinese patient
	Chinese doctor/Canadian patient

All dyads (10 in each of the four experimental conditions) engaged in the same communication task, which involved simulating a physician-patient interview. The patient was given a simple case history to memorize (see Appendix D). The case history was borrowed from Li (1994, 1999a, 1999b). The experimental session was divided into two parts: 1) the patient presented the case history to the physician; and 2) the physician prescribed a medication and gave instructions for the medication. The medical prescription was taken from the Compendium of Pharmaceuticals and Specialties (1982; Li, 1999a).

After the roles of either patients or physicians were randomly assigned in the research session, the participants were told that the conversations included two dialogues (see Appendix B). Then, the speakers (patients in dialogue one, and physicians in dialogue two) were given between four and eight minutes to study the case history or medical prescription information. A multiple-choice test (as a manipulation check) was then given to the speakers to ensure that they had mastered the dialogue content (Appendix F). Incorrect answers were reviewed with the speakers; the correct answers were located in the appropriate text. Then the speakers were asked to correct their answers. All speakers retained the case history (dialogue one) or medical prescription (dialogue two) information sheets (Appendix D) in case they needed to refer to them during the course of the dialogue.

Simultaneously, listeners (physicians in dialogue one, and patients in dialogue two) in the treatment condition received a five-to-eight-minute training session in grounding strategies and were given a list of information that they should get from the speakers during their interactions (see Appendix E). The list of information was relevant to a general physician-patient interview (e.g., an exact description of the problem, whether or not the patient had previously encountered the problem, side effects of the prescribed medication),

but was not specific to the content of the case history or the treatment. Listeners in the control condition did not receive any training on grounding but they were encouraged to ask questions during the conversation. The listeners (physicians in dialogue one, and patients in dialogue two) in the control condition were also given a set of instructions regarding the information they needed to get from the speakers (patients in dialogue one and physicians in dialogue two; see Appendix E).

The dyads were then instructed to engage in the conversation in a regular fashion, as they would when interacting with a health practitioner. To prevent pure memory errors, all speakers were allowed to refer to the information sheet while engaging in the conversation, but were not permitted to read it literally, word for word. After the role playing, all listeners completed an open-ended test designed to examine how much information was successfully communicated from the speakers to the listeners (see Appendix G). All conversations were videotaped with the informed consent of the participants. The average dyad completed their conversations in 620 s. The mean times were 662 s for the treatment group and 579 s for the control group. An analysis of variance (ANOVA) revealed that these times of conversations were not significantly different, $F(1,38) = 0.624$, $MSE = 112089.39$, $p > .05$, $\eta^2 = .016$.

Scoring and Inter-scorer Reliability

To assure consistency, two research assistants were specifically trained to conduct the study, and code and transcribe the conversations (Li, 1999a). Using procedures established in previous studies (Li, 1994, 1999a, 1999b), the research assistants also scored the data. For each dialogue, the scorers coded the units of information transmitted by the speakers, as well as the information units that the listeners could retrieve after each of the dialogues. The inter-scorer reliability (Pearson correlation) in the speaker presentation phase was between 0.93

and 0.98; for the listener recall phase, the reliability between the two scorers was between 0.95 and 0.99; and for the scoring of grounding, reliability was between 0.94 and 0.99.

Scoring of speaker presentation and listener recall. As in previous studies by Li (1999a, 1999b, 2001), the smallest meaningful string of words (i.e., utterance) was used as the unit of analysis. The speaker presentation and listener recall were scored in units of information following a key used in past research (Li, 1994, 1999a, 1999b). The speaker presentation scores were obtained using the verbatim transcripts of the conversations. The listener's recall scores were obtained using the participant's answers to the questionnaires administered after each dialogue (Li, 1994, 1999a). Each unit of information was worth four points. Some questions required answers containing one unit of information, whereas other questions contained several units of information. Thus, some questions were given a value of 4 points, and others were given a value as high as 16 points. For example, in the questionnaire for Dialogue one, the answer to Question 1, "Why did the patient come to see you?" contained one unit of information: chest pains. In contrast, answers to Question 3, "How did the patient sleep last night?" contained two units of information: "S/he slept okay. S/he woke up a few times from chest pains".

The key for Dialogue one consisted of 9 open-ended questions totaling 56 points. Questions 1, 2, 5, 6, 8 and 9 were assigned 4 points each; Questions 3 and 7 were assigned 8 points each; and Question 4 was assigned 16 points. The key for Dialogue two also contained 9 open-ended questions totaling 76 points. Questions 1, 3, 6, 7, 8 and 9 were assigned 4 points each; Question 4 was assigned 8 points; Question 5 was worth 16 points; and Question 2 was given 28 points.

Following the procedures used by Li (1994), the answer key for each question provided one or several correct answers. If the answer was essentially identical to the key, it was given a score of 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 in that the meaning could be inferred, it was scored as 1. Blank or wrong answers were scored 0. A scale of 0 to 4 allowed the scorer to assign appropriate scores to the range of answers given. For example, Question 5 in the test for Dialogue one was: "What was the main reason the patient went swimming?" If the answer was, "The reason the patient went swimming was to exercise his or her legs" or "to exercise his or her legs," it was scored as 4. If the answer was "swimming is good for his or her legs," it was scored as 3. If the answer was "to do exercise because the patient has difficulties walking," it was scored as 2. If the answer was "for exercise or to stay fit," it was scored as 1.

Scoring of grounding. Scorers followed a set of scoring guidelines based on the operational definition of grounding as used by Li (1994, 1999b). For this study, the operational definition of grounding was any verbal or nonverbal activity by the listener or the speaker that would cause a previously elicited unit of information to be repeated, partially repeated, paraphrased, explained, confirmed, or clarified by reformulating or repairing. These activities were required to be completed in at least three phases: utterance, reaction, and confirmation (Robert & Bavelas, 1996). The first two phases had to be verbal (utterances), but the last phase could be either verbal or nonverbal (e.g., headnod).

Scorers were instructed to assign one point of grounding for each turn sequence that included the three phases of utterance, reaction, and confirmation (Robert & Bavelas, 1996).

Furthermore, such turn sequences needed to meet the following criteria: a) content related, that is, the information in question must correspond to the content in the open-ended tests (see Appendix G), b) involving contributions from speaker and listener, c) initiated with a verbal activity that causes a previously elicited unit of information to be repeated, partially repeated, paraphrased, explained, confirmed, or clarified by reformulation or repairing, d) verbal, in the first two phases, utterance and reaction, but either verbal or nonverbal (e.g., a headnod) in the third phase, confirmation, e) in the first two phases, taking place within one speech turn or several turns. Only successful grounding was scored and unsuccessful grounding, such as a turn sequence addressing previously elicited units of information that was uncompleted or abandoned was excluded from the scoring (Li, 1999b; Schegloff, 1987).

Smiles, gazes, and hand gestures were not scored due to their frequent use and ambiguous role in the exchanges of meaning. Headnods and back-channel responses such as *uhs* were included only if synchronized with a specific verbal utterance, and appeared in the last phase of the grounding process – the confirmation phase. Table 2 shows samples of the types of grounding that were obtained from the videotaped conversations.

Table 2.

Types of Grounding (A refers to the speaker and B refers to the listener)

1. Listener seeks clarification

A: You may have agitation, like you can't sit still.

B: Ah sorry, what is agitation?

A: Ok, agitation is like you can't sit still... you are always like you want to get up, you want to move....

B: A:::h... just want to get up and move... I see…

A: Yes (headnods).

2. Self -or other- repair

A: Um, last week I went swimming and... ahh... I'm not a very good swimmer but...umm... I went swimming to exercise my legs and... umm... afterwards... ahh... I actually felt very bad chest pains.

B: And have you ever felt these chest pains before or was this the first time ever?

A: Umm, I've... I've tried it like three years ago before but...

B: (mumble)... the swimming?

A: No... umm... chest pains.

B: Oh, you ... you had it before…

A: Ya... but it wasn't that bad and...

(*Speaker moves to other subject, but returns to the same subject several turns later*)

A: A:::h... but then last night when I, the day I went swimming... umm... chest pain, it kept me up a few times it wasn't that bad but... ya…

B: Umm, how long have you been having the chest pains like are you still having them now and...?

A: Umm... like I said before I had them three years ago and now…

B: But like this... this time that you went swimming, was it the other week?

A: Ah, it was just the day before yesterday.

B: The day before yesterday and you've been having them since then, ok?

A: Ya

3. Recapitulation

B: Sorry, can you repeat it again?

A: Sure, sure, so basically this is the drugs, um, right now the dosage is for you is, you should take one or two tablets per time.

B: Ok, so one to two each time.

A: Right, exactly.

B: And how many times a day?

A: Three to four times a day.

B: Three to four times a day. Take one to two pills three to four times, so maximum eight, eight pills a day.

A: Yeah, exactly.

4. Confirmation

B: So what's... ah... codeine actually for? What is it going to do, to help me get rid of my chest pains, or...

A: Ah, yah... it is going to reduce pain.

B: So it is a pain killer?

A: Pretty much (headnods), yes, something like that.

Note: A = speaker; B = Listener

Results

The participants were randomly paired interculturally in four same-gender groups (see Table 1). Men and women were evenly distributed in all conditions. The dyads were divided evenly in four groups (two treatment and two control groups). In all groups, $n = 10$, where n represents the number of dyads. Scores for grounding, listener recall, and speaker presentation were calculated for each group (see Tables 3 and 4).

The group mean scores for listener recall and speaker presentation were obtained using the same scoring standards. The speaker presentation scores were relative to the units of information contained in the script; the listener recall scores were relative to the information presented by the speaker. All listeners answered the same set of questions (open-ended test). Only information presented by the partner was scored for each specific listener.

Table 3.

Mean Scores of Grounding, Speaker Presentation and Listener Recall by Condition and Role in Dialogue One

		Patient Presentation		*Physician Recall*		*Grounding*	
Condition and Role	*N*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Treatment Chin Dr/Can Patient	10	45.20	5.22	26.30	6.87	5.50	2.51
Treatment Can Dr/Chin Patient	10	41.30	8.10	29.50	6.21	4.60	2.01
Control Chin Dr/Can Patient	10	38.00	11.53	20.50	4.09	3.40	2.76
Control Can Dr/Chin Patient	10	32.50	11.08	21.30	5.81	2.60	2.27

Note. n represents the number of dyads. All dyads were same gender.

Table 4.

Mean Scores of Grounding, Speaker Presentation and Listener Recall by Condition and Role in Dialogue Two

		Physician Presentation		*Patient Recall*		*Grounding*	
Condition and Role	*N*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Treatment Chin Dr/Can Patient	10	57.90	10.03	41.50	9.71	6.60	3.13
Treatment Can Dr/Chin Patient	10	60.60	10.55	41.10	10.87	4.90	1.85
Control Chin Dr/Can Patient	10	45.50	21.23	33.00	14.56	2.40	1.84
Control Can Dr/Chin Patient	10	47.20	10.71	26.20	4.98	2.50	1.43

Note. n represents the number of dyads. All dyads were same gender.

Analyses of grounding activities, speaker presentation, and listener recall for dialogue one. The following analyses were restricted to the first dialogue (i.e., trained physician listener and untrained patient speaker). The following three analyses provide results regarding the effect of training only one dyadic partner, the listener.

A 2 (condition: treatment or control) by 2 (cultural background: Canadian or Chinese) between subjects Analysis of Variance (ANOVA) was conducted to determine if the subjects in the treatment groups engaged in significantly more grounding activities than the subjects in the control groups. There was a main effect of condition, $F(1,36) = 7.28$, $MSE = 5.77$, $p = .011$, $\eta^2 = .168$, but no effect of cultural background, $F(1,36) = 1.25$, $MSE = 5.77$, $p = .271$,

$\eta^2 = .034$. There was no interaction between condition and cultural background, $F(1,36) = 0.004$, $MSE = 5.77$, $p = .948$, $\eta^2 = .000$.

A 2 (condition: treatment or control) by 2 (cultural background: Canadian or Chinese) between subjects ANOVA was conducted to determine if the speakers in the treatment groups delivered significantly more information units than the subjects in the control groups. There was a main effect of condition, $F(1,36) = 7.17$, $MSE = 87.11$, $p = .011$, $\eta^2 = .166$, but no main effect of cultural background, $F(1,36) = 2.43$, $MSE = 87.11$, $p = .128$, $\eta^2 = .063$. There was no interaction between condition and cultural background, $F(1,36) = 0.056$, $MSE = 87.11$, $p = .814$, $\eta^2 = .002$.

Another 2 (condition: treatment or control) by 2 (cultural background: Canadian or Chinese) between subjects ANOVA was conducted to determine if the subjects in the treatment groups retrieved significantly more information units than the subjects in the control groups. There was a main effect of condition, $F(1,36) = 14.40$, $MSE = 34.03$, $p = .001$, $\eta^2 = .286$, but no main effect of cultural background, $F(1,36) = 1.18$, $MSE = 34.03$, $p = .286$, $\eta^2 = .032$. There was no interaction between condition and cultural background, $F(1,36) = 0.423$, $MSE = 34.03$, $p = .520$, $\eta^2 = .012$.

Analyses of grounding activities, speaker presentation, and listener recall for dialogue two. For dialogue two, the dyadic partners switched roles. The new listener was then trained in grounding communication. As such, both the speaker and the listener had training in grounding at this stage in the experiment. The following analyses were restricted to the second dialogue (i.e., trained physician listener and trained patient speaker). The following three analyses provide results regarding the effect of training both communication partners (i.e., training both the speaker and the listener).

A 2 (condition: treatment or control) by 2 (cultural background: Canadian or Chinese) between subjects Analysis of Variance (ANOVA) was conducted to determine if the subjects in the treatment groups engaged in significantly more grounding activities than the subjects in the control groups. There was a main effect of condition, $F(1,36) = 23.31$, $MSE = 4.67$, $p = .000$, $\eta^2 = .393$, but no effect of cultural background, $F(1,36) = 1.37$, $MSE = 4.67$, $p = .250$, $\eta^2 = .037$. There was no interaction between condition and cultural background, $F(1,36) = 1.73$, $MSE = 4.67$, $p = .196$, $\eta^2 = .046$.

A 2 (condition: treatment or control) by 2 (cultural background: Canadian or Chinese) between subjects ANOVA was conducted to determine if the speakers in the treatment groups delivered significantly more information units than the subjects in the control groups. There was a main effect of condition, $F(1,36) = 8.56$, $MSE = 194.32$, $p = .006$, $\eta^2 = .192$, but no main effect of cultural background, $F(1,36) = 48.40$, $MSE = 194.32$, $p = .621$, $\eta^2 = .007$. There was no interaction between condition and cultural background, $F(1,36) = 0.013$, $MSE = 194.32$, $p = .910$, $\eta^2 = .000$.

Another 2 (condition: treatment or control) by 2 (cultural background: Canadian or Chinese) between subjects ANOVA was conducted to determine if the subjects in the treatment groups retrieved significantly more information units than the subjects in the control groups. There was a main effect of condition, $F(1,36) = 12.21$, $MSE = 112.08$, $p = .001$, $\eta^2 = .253$, but no main effect of cultural background, $F(1,36) = 1.16$, $MSE = 112.08$, $p = .289$, $\eta^2 = .031$. There was no interaction between condition and cultural background, $F(1,36) = 0.914$, $MSE = 112.08$, $p = .346$, $\eta^2 = .025$.

Correlations between grounding, speaker presentation and listener recall in all dyads. It was of interest to determine the correlation between grounding scores and listener

recall via speaker presentation in the treatment and control conditions. To test this assumption, the relationship between grounding, listener recall and speaker presentation scores for the 20 treatment dyads and the 20 control dyads was analyzed. Pearson correlations were calculated for the treatment and the control groups. In the treatment groups, significant correlations were found between speaker presentation and listener recall (r (20) = 0.493, $p < .05$) and between speaker presentation and grounding (r (18) = 0.565, $p <$ .01). However, no significant correlation was found between listener recall and grounding scores in the treatment groups (r (18) = 0.115, $p > .05$). In the control groups, significant correlation was found between speaker presentation and listener recall (r (18) = 0.587, $p <$ .01) but no significant correlation was found between speaker presentation and grounding scores (r (18) = 0.290, $p > .05$), nor from listener recall and grounding (r (18) = 0.340, $p >$ .05). No significant correlations were found between listener recall and grounding scores in neither of the treatment or the control groups. The simple correlations did not provide support for a mediation model; therefore, a regression analysis to test for mediation variables was not conducted.

Data Related to the Intercultural Experience

To learn how conversation partners perceived their conversational experience, a questionnaire containing 13 questions pertaining to their intercultural encounter was administered. All Chinese and Canadian participants completed the questionnaires immediately after their conversations. To facilitate the analysis of the data, the questions were divided into ordinal and categorical variables. Both sets are analyzed and compared by culture (Chinese or Canadian). Data from ordinal variables were analyzed using ANOVAs (see Table 5). Data from categorical variables were analyzed using Chi-Square statistic (χ^2;

see Table 6). As one question (what did you do to help overcome the communication difficulties?) contained choices related to the grounding activities that participants could have used in their conversations, it was included in a different table and analyzed separately (see Table 7). Since there was no a priori hypotheses related to the questionnaire data, the following statistics are considered to be post-hoc analyses. The questionnaire data were analyzed using eight ANOVAs and four chi-square tests. Thus, given the risk of making a Type I error, the alpha levels were set to .0063 for each ANOVA and .0125 for each χ^2 test. Despite using the very conservative Bonferroni-correction approach to post-hoc analyses, the results were consistent with the uncorrected data analyses.

Participants were asked to rate the English-language fluency of the Chinese. The results showed a statistically significant difference between the mean ratings by the Chinese and Canadian groups, $F(1,78) = 22.10$, $MSE = 1.41$, $p < .001$, $\eta^2 = .221$. According to the Canadians, their Chinese partners had a fluency above average ($M = 5.45$, $SD = 1.06$), while the Chinese rated their own fluency as being average ($M = 4.20$, $SD = 1.31$).

Each participant rated the perceived knowledge that his/her partner had about the opposite culture. The differences between the ratings of Chinese and Canadian groups were significantly different, $F(1,78) = 12.11$, $MSE = 2.18$, $p < .001$, $\eta^2 = .134$. The Chinese were rated more knowledgeable about the Canadian culture than were the Canadians about the Chinese culture. The Chinese group rated the Canadians' knowledge of the Chinese culture as being average ($M = 4.13$, $SD = 1.60$); the Canadian group regarded the Chinese to have an above average knowledge about Canadian culture ($M = 5.28$, $SD = 1.34$).

Table 5.

Mean Scores of Conversational Questionnaire for Chinese and Canadians

Items	Chinese (n = 40)		Canadians (n = 40)	
	M	*SD*	*M*	*SD*
Evaluation of partners				
How is your (your partner's) English language fluency?	4.20**	1.31	5.45**	1.06
How knowledgeable is your partner about your culture?	4.13*	1.60	5.28*	1.34
Did your partner have difficulty communicating?	1.81**	0.91	2.85**	1.24
How relaxed was your partner during the conversation?	5.83*	1.47	4.70*	1.33
Self-evaluation				
Did you have difficulties communicating?	2.33	1.39	2.26	1.25
How relaxed were you during the conversation	5.43	1.34	5.49	1.24
How did you like your partner?	5.89	1.10	6.18	0.84
Overall, how much did you enjoy the conversation?	5.83	1.36	5.56	1.14

Note: (**) Means in the same row differ significantly at $p < .0001$. (*) Means in the same row differ significantly at $p < .001$.

Similarly, Chinese and Canadian groups differed significantly when rating each other's communication difficulties in the intercultural conversation, $F(1,78) = 18.36$, $MSE = 1.17$, $p < .0001$, $\eta^2 = .191$. The Chinese group perceived the Canadian group as having almost no difficulties when communicating ($M = 1.81$, $SD = 0.91$). Canadian participants, on the other hand, perceived the Chinese as having some difficulties in their communication ($M = 2.85$, $SD = 1.24$).

The relaxation level experienced by the conversational partner in the interaction was also rated. The perceptions of Chinese and Canadian groups in such item were significantly different, $F(1,78) = 12.93$, $MSE = 1.96$, $p < .001$, $\eta^2 = .001$. Canadians perceived that the relaxation level of the Chinese participants in the conversation was just above average ($M = 4.70$, $SD = 1.32$). Chinese, on the other hand, perceived the Canadians as being relaxed during the conversation ($M = 5.83$, $SD = 1.46$).

No significant differences were found between the means of the Chinese and Canadian groups in the remaining questions shown in Table 5. Relating to the difficulties communicating with their partners, both groups, Chinese ($M = 2.33$, $SD = 1.39$), and Canadian ($M = 2.26$, $SD = 1.25$) reported little difficulty in communicating with each other, $F(1,78) = 0.05$, $MSE = 1.73$, $p = .832$, $\eta^2 = .001$. Ratings of the personal relaxation level experienced in the interactions were also similar in Chinese ($M = 5.43$, $SD = 1.34$) and Canadian groups ($M = 5.49$, $SD = 1.24$); both groups reported being somewhat relaxed during the conversation, $F(1,78) = 0.05$, $MSE = 1.66$, $p = .829$, $\eta^2 = .001$. Similarly, Chinese ($M = 5.89$, $SD = 1.10$) and Canadians ($M = 6.18$, $SD = 0.84$) reported that they liked their conversational partners at the same level, $F(1,78) = 1.73$, $MSE = .955$, $p = .192$, $\eta^2 = .022$.

Finally, both groups, Chinese (M = 5.83, SD = 1.36) and Canadian (M = 5.56, SD = 1.14) enjoyed the conversation very much, $F(1,78) = 0.88$, $MSE = 1.57$, $p = .352$, $\eta^2 = .011$.

There were five categorical items rated by the participants in the intercultural questionnaire (see Tables 5 and 6). As the data were categorical in nature, the most appropriate statistical test is the chi-square (χ^2) test of independence. Chi-square tests are non-parametrical statistical tests that evaluate whether the observed values (actual recorded frequencies) deviate from some pattern of expected values (anticipated proportion of the sample based on the assumption that the two variables were completely independent). In particular, the chi-square test of independence was used to determine if the frequency of the responses provided by the participants for each of the five categorical items were dependent on culture and/or role, or if the values were independent of such factors. A significant χ^2 would indicate that the expected and the observed values do significantly differ, that is, the obtained frequencies of responses were dependent upon culture or role. A non-significant χ^2 would indicate that the expected and the observed values do not significantly differ, that is, the obtained frequencies of responses were independent of culture or role.

The first item required that the participants identify the sources of the communication difficulties experienced during the conversation. All the subgroups reported the same unimodal response. Chinese and Canadian groups identified language as the main source of difficulties. The main difficulty reported by the Chinese physician subgroup was language, *Mode* = 10, as it was reported for the Chinese patient subgroup, *Mode* = 13. Language, as a modal response for difficulties encountered in the conversation, was reported by the Canadian physician subgroup, *Mode* = 9, as well as for the Canadian patient subgroup, *Mode*

= 10. No significant association was found between the variables across cultures, $\chi^2(3) = 1.33, p = .721, \eta^2 = .129$.

Table 6.

Frequency of Observations for the Categorical Variables Included in the Questionnaire

Question	Categories	Chinese ($n = 40$)		Canadian ($n = 40$)		χ^2	η^2
		Dr	Pat	Dr	Pat		
		F	*f*	*f*	*f*		
Where do the communication difficulties come from?	*No difficulties*	1	5	4	4	1.33	.129
	Culture = 1	2	0	2	2		
	Language = 2	**10**	**13**	**9**	**10**		
	Both = 3	7	2	5	4		
Did you feel that the flow of the conversation was controlled by?	*Your partner = 1*	3	**9**	0	2	20.4*	.505
	Both equally = 2	**12**	4	4	**7**		
	Nobody = 3	4	7	6	**7**		
	You = 4	1	0	**10**	4		
Who is more advantaged socially (e.g., social status)?	*Your partner = 1*	4	8	1	1	11.8*	.384
	Equally = 2	**14**	**11**	**12**	**15**		
	You = 3	2	1	7	4		
Who is more advantaged linguistically	*Your partner = 1*	**13**	**17**	4	2	32.9*	.641
	Equally = 2	6	2	7	6		
	You = 3	1	1	**9**	**12**		

Note: The modal response is highlighted in bold-face font; χ^2 was calculated by culture disregarding the conversational role; (*) indicates significant χ^2 at the $p < .05$ level.

The second item required the participants' ratings of the control over the conversational flow. The Chinese physician subgroup reported that the intercultural partners had equal control (*Mode* = 12); however the Chinese patients reported that the Canadian partners had the control over the conversational flow (*Mode* = 9). The Canadian physician subgroup reported that they held the conversational control (*Mode* = 10), while the Canadian patient subgroup reported a bimodal rating (*Mode* = 7) for equal control of the intercultural partners in the conversation and for the choice that nobody controlled the conversation. These results showed a significant association between the ratings of both cultural groups, $\chi^2(4) = 20.38, p < .0001, \eta^2 = .505$.

In the third categorical item, participants were asked to rate the social advantage (e.g., social status) of their conversational partners. The ratings of the Chinese and Canadian groups produced one consistent unimodal response. The Chinese physician subgroup reported that both intercultural partners had equal social status, *Mode* = 14, just as the Chinese physician subgroup ratings, *Mode* = 11. The Canadian physician subgroup also reported that both intercultural partners had equal social status, *Mode* = 12, just as the Canadian patient subgroup, *Mode* = 15. These results showed a significant association between the ratings of the two intercultural groups in regards to this item, $\chi^2(2) = 11.79, p < .005, \eta^2 = .384$.

The fourth categorical item required the participant's ratings for the linguistic advantage of each other. Both Chinese subgroups reported that their Canadian partners had more linguistic advantage. Both Canadian partners reported that Canadians were more advantaged linguistically. The Chinese physician subgroup reported a modal response of 13 for the linguistic advantage of the Canadian; similarly, the Chinese patient subgroup reported

a modal response of 17 for the linguistic advantage of the Canadian. The Canadian physician subgroup reported a modal response of 9, which corresponds to the linguistic advantage of the Canadian; similarly, the Canadian patient subgroup reported a modal response of 12, which also corresponds to the linguistic advantage of the Canadian. These results show that there is a significant association between the ratings given by Chinese and Canadian groups regarding this item, $\chi^2(2) = 32.89, p < .0001, \eta^2 = .641$.

Table 7 singles out one of the categorical questions that was asked. This item pertained to a list of grounding activities that could have been used by the participants to resolve the communication difficulties encountered in their conversations. Given the significance of this item with respect to the research questions, the data were reported in a separate table (see Table 7). The item contains six options relating to the use of grounding activities in the conversations, and two more choices associated with passive communicative styles and possibly with miscommunications.

The Chinese and Canadian subgroups reported different communicative strategies to overcome the difficulties encountered in their conversations. Because participants could endorse more than one response category (e.g., questioning and repetition), which violates the critical assumption of independent observations required for chi-square analyses, only the modal responses to this question are discussed. The Chinese physician subgroup reported the use of repetition as the predominant response to the communication difficulties (*Mode* = 14), while the Chinese patient subgroup reported the use of questioning as their strategy to deal with the difficulties in the communication with their partners (*Mode* = 13). Both Canadian subgroups reported the same unimodal response to the communication difficulties. The Canadian physician subgroup reported the use of elaboration (*Mode* = 15) as the predominant

strategy to overcome the difficulties experienced in their conversations, which was also reported by the Canadian patients (*Mode* = 10).

Table 7.

Frequency of Observations and Percentages of the Grounding Activities Reported by the Participants in the Intercultural Questionnaire

Question	Categories	Chinese (n = 40)		Canadian (n = 40)	
		Dr *F*	Pat *f*	Dr *f*	Pat *f*
What did you do to help overcome these difficulties?	*Nothing = 0*	0	3	1	1
	Pace = 1	12	5	8	8
	Repetition = 2	**14**	9	13	9
	Questioning = 3	12	**13**	10	9
	Elaboration = 4	9	8	**15**	**10**
	Simplification = 5	12	7	10	5
	Ignored = 6	6	3	1	6
	Other = 7	0	0	3	5

Note: The modal response is highlighted in bold-face font.

Discussion

Data from this study showed that participants who received training in grounding displayed more grounding activities in their conversations than the control groups (Hypothesis 1). The results also indicated that participants in the treatment groups transmitted greater amounts of information and also retrieved more units of information (Hypothesis 2 and 3). Data indicated positive correlations between speaker presentation and listener recall in treatment and control groups, and a positive correlation between grounding and speaker presentation in the treatment group; there was no correlation between listener recall and grounding activities for either the treatment of control groups (Hypothesis 4). Data regarding the intercultural process identified language, more than culture, as the most frequent source of communication difficulties between the dyads. In the conversations, Chinese participants were perceived as having some difficulties in their communication. Cultural differences were found when the partners were required to evaluate each other's interactive experiences. Also the grounding activities used to overcome the communication difficulties varied with culture. Chinese preferred the use of questioning and repetition; Canadians reported using the strategy of elaboration.

Based upon the results of this study, it is clear that the training session increased the use of grounding activities in intercultural conversations, as well as the information units transmitted and retrieved between the intercultural dyads. There was no evidence of effects of culture, nor any interaction between culture and training in the use of grounding, the amount of information delivered, or the amount of information retrieved. These results were consistent across dialogue one, when only the listener was trained in grounding, and dialogue

two, when both partners were trained. Each of these findings will be discussed in more detail.

Based upon theories of grounding (Clark & Brennan, 1991) and repair (Schegloff, 1992), it was predicted that the participants in the treatment condition would engage in significantly more grounding activities than would subjects in the control condition. Indeed, the results showed that training in grounding produced higher rates of grounding activities in the treatment groups than in the control groups. The display of grounding activities in the interactions (i.e., requests for clarification, repetition, explanation, confirmation and/or expansion) supports the idea that the dyadic conversations were participatory and interactive.

As theorized by Clark and Brennan (1991), and Schegloff (1992), the conversational grounding recorded from the dyadic conversations revealed continuous interactive sequences, where the content and context of the conversation were reviewed and presented again to the partner in similar and/or parallel ways (refer to Table 2 for examples). Such restatements reinforced the information being conveyed by the speaker and restored intersubjectivity (i.e., the agreement in meaning between interactants; Schegloff, 1987). Furthermore, the results suggest that re-organizing of the discourse assisted in the recognition of verbal and nonverbal cues signaling different levels of understanding and further guided the display of grounding activities to ensure that the messages were understood as the interactants intended. The re-organization of the conversations resembled Schegloff's (1992) studies on repair. The pattern observed in the treatment groups (refer to Table 2 for an example) is consistent with the position of Clark and Brennan (1991), who proposed that by coordinating the process and the content of the interaction, participants build a common ground as the conversation evolves.

It was also predicted that speakers in the treatment groups would present significantly more information than speakers in the control groups. This prediction was based upon the studies by Gudykunst and Nishida (1984) indicating that interrogation is common in first time conversations, as well as the research done by Waitzkin (1984) that speakers tend to adjust their speech based upon perceived listener understanding. It appears that the increased information seeking behaviours of the listeners in the treatment groups stimulated the presentation of information units by the speakers. Similar findings have been reported by Li (1999b) and Baldwin and Hunt (2002).

It is reasonable to speculate that the increase in information units presented by the speakers could also be associated with a narrowing in topic in response to the listener's request for clarification as reported by Wyer and Grunfeld (1995). For example, if a physician is discussing a treatment regime and the patient asks for clarification, the physician will narrow his/her topic focus to coincide with the patient's question. Thus, the speakers have looked for clarity and completeness when transmitting the information. Given the physician-patient scenarios used in this study, it is also possible that the communicants anticipated that the information they were to give needed to be accurate. Therefore, the speakers could have paid more attention to specific aspects of the information they wanted to convey to others. Comparable to Wyer and Gruenfeld's (1995) findings, this focus of attention resulted in larger numbers of units of information transmitted by the speakers.

A further prediction was that the listeners from the treatment group would recall significantly more information than would the listeners in the control group. This prediction was based upon research by Ley (1979) and Ong et al. (1995). The data were consistent with this assumption. For the trained listeners, the increased listener recall scores can be

reasonably associated with the listener's mental organization of the presented information. Consistent with Khalil (2000), it is likely that the use of grounding assisted with the organization of the conversation within a meaningful context in the intercultural interactions studied. Congruent with the proposals by Clark and Brennan (1991), Khalil (2000) and Ley (1979), an increase in comprehension and understanding of the information exchanged during the intercultural communication reinforced the meaning of the message received by the listener and facilitated the retrieval of information after the interaction. Another influence that might have permeated the recall of information is the reduction in pivotal information errors; this reduction in errors may account for a larger amount of accurate and meaningful information available for retrieval in subjects from the treatment groups (see also, Berger, 1987; Roter & Frankel, 1992).

Within the medical interaction as a context, one possible explanation to the higher information retrieval in the study might be related to an increased accuracy of information and the consistency between the verbal and non-verbal messages exchanged in the simulated medical interaction (refer to Bishop, 1994; Taylor, 1986). By applying grounding to the conversations, the physicians in the study would check the messages more frequently in order to ensure that the patients understand the medical information given. These communicative exchanges would reduce the use of jargon and increase the recall of medical instructions and treatment information; in this way, the communicative exchanges would address some of the main problems of information retrieval identified in medical interaction studies by Bishop (1994), Ong et al. (1995) and Taylor (1986).

The grounding activities displayed in the conversations were found to be positively correlated with the presentation of the speakers in the treatment groups. Also positive

correlations were observed between speaker presentation and listener recall in treatment and control groups. These correlations draw attention to the relevance of the speaker's role for the availability of information that would be retrieved after the interaction, and the speaker's involvement in the use of grounding activities in the conversation. One way to model the correlation data would be to assume that grounding activities influence speaker presentation, and that speaker presentation influences listener recall. Past research has shown communicative differences in physician-patient scenarios (e.g., Bishop, 1994; Ong et al., 1995; Roter & Frankell, 1992; Waitzkin, 1985); however, it seems that the overall pattern of correlations between the amounts of information presented, the information retrieved and the use of grounding is not necessarily unidirectional. An alternative model would be to assume that speaker presentation influences "both" grounding activities and listener recall. Therefore, it would be arguable that the speaker, as much as the listener, decides to proceed and complete the grounding process or to ignore the grounding cues. The relevance of the speaker's engagement in repairing (or not) conversational misunderstandings has been observed in parallel studies by Gass and Varonis (1991), and Schegloff (1987). This second model would also account for the lack of correlation between listener recall and grounding.

Interesting findings regarding the absence of main effects of culture in the results as well as the absence of interactions between culture and treatment need to be addressed. As stated in the literature (e.g., Gumperz, 1978; Hall, 1976; Hofstede, 2001; Triandis, 1994), the concept of culture is broad and intricate for quantification. Culture in a general sense includes norms, believes, values, attitudes, perceptions, behaviours and feelings (e.g., Gumperz, 1978; Hall, 1976; Hofstede, 2001). In the context of communication, all these elements act as filters (e.g., strategies) for transmitting, interpreting and retrieving individual

messages (Gudykunst & Kim, 1997). The dimensions of such a complex construct have been shown to be difficult to assess even in controlled conditions like the present one. Although it is debatable whether training in grounding or culture, or the combination of both, have the potential to be masking their effects in the communication, the presence of some bias in either the context studied or in the sampling process is also arguable. Factors such as education, the acculturation level of the Chinese, the background experience of the interactants, and the individual communicative abilities might have also masked the effects of culture in the analyses of the data. Based upon the results of this study, it is only possible to say that culture does not seem to have interfered in the amounts of information transmitted and retrieved or in the use of grounding, at least in the restricted setting of a simulated physician-patient interview. It is important to encourage further systematic and creative research to explore how the specific elements of a culture would emerge in the amounts of information presented and retrieved and the use of grounding.

The results compiled from the participants' perceptions regarding the intercultural interaction provided an interesting insight into the cultural process and the data of this study. All the questions corresponding to evaluating their partners' experiences showed significant differences. On the other hand, the questions regarding the participants' personal experiences in the interaction showed no significant differences. As such, questions about their partners' knowledge about the opposite culture, their partners' communicative difficulties, their partners' relaxation level and their partners' English fluency showed significant differences in ratings between the two cultural groups. Conversely when the participants evaluated their individual difficulties in the communication, their own relaxation level, their likeability towards their partners, and their personal enjoyment during the conversation, the results

showed no significant differences between the two cultural groups. These observations seem to point out towards the subtleties of cultural expression through the differences in the perceptions of the two groups studied. It seems reasonable to argue that because culture is such a complex construct, it can only be seen through the implicit interactional processes of communication (e.g., Gudykunst & Kim, 1997; Gumperz, 1978; Hall, 1976; Hofstede, 2001; Triandis, 1994; Wierzbicka, 1992).

Some of the ratings on the questionnaire of intercultural process that reflect the most significant differences in the perceptions between Chinese and Canadians were: the Chinese rated their language fluency lower than the Canadians rated the Chinese language fluency; the Chinese were rated more knowledgeable about the Canadian culture than were the Canadians about the Chinese culture; the Chinese were perceived as having some difficulties in their communication; and Chinese participants were not perceived as relaxed as the Canadians during their conversations.

Points of cultural convergence between Chinese and Canadian were that both groups identified language as the source of their communication difficulties; members of both groups coincide in that the Canadians were linguistically more advantaged than the Chinese; and that both groups had the same social status. However, some significant associations between culture (Chinese or Canadian) and role (physician or patient) were found in three aspects of the interaction: social status, conversational control and linguistic advantage. Overall, these results suggest that culture and role, in general, affect the interactants' perceptions regarding social status, the linguistic advantage and the control of the interaction in intercultural encounters.

Regarding the use of grounding in the conversations, Canadians and Chinese reported diverse approaches to overcome the communication difficulties they encountered in the interactions. Canadians used the strategy of elaboration consistently across roles (physician or patient). Conversely, the Chinese used different strategies associated with changes in role; while Chinese physicians used the strategy of repetition, the Chinese patients used the strategy of questioning more often. As a cultural group, Chinese used two strategies, questioning and repetition. Canadians, as a group, used elaboration. As a group, Chinese tend to ignore and do not address the communication difficulties. Canadians, on the other hand, tend to use alternative methods to overcome the difficulties experienced in the intercultural conversations. However, it is very encouraging to find that despite the differences in perceptions regarding intercultural communication partners, these perceptual differences do not seem to affect the communication of information.

Summary of Findings

The findings of this study are: 1) a brief training session in grounding activities improves the amounts of information exchanged in intercultural conversations; 2) the effects of cultural diversity are detectable through perceptions and evaluative assessments but they are not identifiable in the units of information transmitted, retrieved or in the use of grounding in an interaction; 3) grounding is a time efficient strategy applicable to different disciplines; and 4) communication can be improved with the use of grounding. In addition, analyses of the intercultural experience revealed that both cultural groups identified language as the most frequent source of communication difficulties in the interactions. There was a cultural difference in the strategies used to approach communication problems: Chinese used questioning and repetition, while Canadians used elaboration.

Finally, knowledge of techniques such as grounding may ease the difficulties inherent to intercultural communication. Language abilities permit one to communicate verbal messages; however, proficiency in communicative strategies such as grounding ensures that the meaning of the messages reaches the listener as intended, thus the message is satisfactorily understood by the listener. As such, effective intercultural communication is attained.

Limitations of the study

As with most research, there are limitations on the types of conclusions one can assert based upon this study. However, by identifying the methodological limitations, it is hoped that future research ideas will be developed. Four issues that may have impacted the results of this study include: 1) that the research assistants were not blind to which dyads were in the treatment and control groups; 2) that the actual time spent in each training session differed from the treatment and control groups; 3) the absence of a "control" group exposed to a placebo session to compare the effects of training in grounding versus other types of interaction or time interacting with the experimenters; and 4) the filtration of memory errors or forgetfulness of information in the speakers, thus increasing the possibilities that the differences in the data are due to an initial significant difference in the information retained by participants in treatment versus the control groups. Since each one of these issues could impact the validity and generalization of the results of the study, it is important to consider the following points.

First, the research assistants undertook a special training to collect and score the data before each of these stages in the study. This training ensured impartiality in the assistants' overt behaviours towards the participants as well as reducing the chances of communication

bias and nonverbal behaviour during the study (Li, 1994, 1999b). Furthermore, the assistants were aleatorily assigned to be with the speakers or the listeners in the control or treatment dyads at the beginning of each session. The assignment to perform alternate roles by the trained research assistants while conducting the experiment would also endorse balance in their attitudes, behaviours and verbal communication towards both participants in the study, thus reducing any experimental bias.

Second, there is no record of the actual time spent with each participant in each treatment or control condition but only an estimated range of the length of the "listeners training" session (2 - 4 minutes for the control group, and 5 – 8 minutes for the treatment group). However, the length of time that the assistants spent with each of the listeners in the treatment and control groups was modulated by the time that the speaker of such groups took to learn the script. The additional time spent engaged in training may have resulted in the better communication that we observed.

Third, the absence of a "control" group exposed to a placebo session in order to compare the effects of training in grounding versus other type of interaction or perhaps other types of training might have covered or confounded the effects of the training in grounding. Nevertheless, the modulating effects of the communicative task (i.e., speakers "learned" the scripts) and the availability of a second assistant, indirectly functioned as a "placebo effect" (i.e., serendipitously). While the speakers were reviewing the script, the participant had an opportunity to ask questions about the role and questions, sometimes engaging in a conversation related to cultural health practices. Thus, the differences between the activity in the treatment and control groups in regards of training were considered ameliorated to some extent.

To address the second and third points, researchers in cross-cultural communication studies need to include a placebo group that receives the same amount of time and attention during a training phase as the grounding treatment condition. For example, educational psychologists often use math control tests as a placebo treatment when studying the effectiveness of new reading programs. In this case, it would be appropriate to include one more research assistant who could deliver the training to the participants without knowing the objectives of the study.

Fourth, the multiple-choice test for mastery of conversational content was used to reduce memory errors or forgetfulness of information in the speakers. This test was not scored given that its only function was to ensure that the speakers had mastered the content for the dialogue (see Appendices D & E). A reduction of memory errors was accomplished by the joint review of the incorrect answers by the assistant and the speakers together, opening the opportunity for the speaker to locate the correct information within the script. The speakers corrected their own answers next. All speakers retained the case history (dialogue one) or the indications for the prescription of codeine (dialogue two) to refer to if needed during the suitable part of the conversation. In this way, the process reduced the possibilities that the differences in the data are due to an initial significant difference in the information retained by participants in treatment versus the control groups.

Overall, it is important to be cautious about generalizing the results from this study. At least one should acknowledge that the conclusions derived from this study can only be applicable to groups and circumstances similar to those studied in this research. However, by replicating and extending this study one could extend the findings to a broader population. Although the effects of the previously addressed confounding variables have been

acknowledged, this study does make important contributions to the extent literature.

Recommendations for Future Studies

The findings of this study suggest many opportunities for future research. Recommendations for further studies include: determining whether the findings of this study generalize to: 1) other intercultural communication participants (e.g., aboriginals and non-aboriginal Canadians), 2) other contextual settings (e.g., classroom interactions), and/or 3) other age groups and education levels. Another set of important questions that were not addressed in the current research include whether: 1) training in grounding activities for speakers only is less beneficial than training the listeners, and 2) training in grounding activities for one conversation can impact future conversational interactions.

In addition, the findings of this study can be applicable to other disciplines, such as physician training, teachers and educational staff, or perhaps social worker training. Since the use of grounding activities does not affect the length of conversations, it has the potential to facilitate efficiency in the professional-client interaction. In this way, grounding would make conversations more focused and less prone to misunderstanding.

Conclusion

Training in the use of grounding facilitates the engagement of interactants in the communication process, increases the number of units of information exchanged in conversations and provides meaning to the interaction. The more that communicators engage in the conversational processes, the better they are able to convey and retrieve the content of the exchanged messages in the interaction. With a collaboration built through grounding, the possibilities for misinterpretation and miscommunication are reduced. Thus, this study has clearly demonstrated that more effective intercultural communication is possible.

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APPENDIX A

PARTICIPANTS' INFORMATION SHEET

Dear Prospective Participant:

Hello, my name is _____. We are conducting a study about cultural communication, that is, how people from different cultures talk to each other. I would like you to help us by participating in this study.

The study requires between 20 to 40 minutes of your time. During this time a five-minute conversation between two people from different cultural extraction takes place. This conversation is videotaped. After it is finished, the participants fill out a short questionnaire about their experience in the conversation. Our participants receive a $10 stipend for their participation. The participation in this study is ***completely voluntary and confidential*** and there are no foreseeable risks or benefits to individuals who participate in this research.

We are recruiting university students, that are EITHER Caucasian/Canadian born and speak English as a first language OR ESL students that were born in China or Taiwan and who speak Chinese as their first language. You must be under the age of 35 years and you must not be a psychology major. Also, if you are a Chinese speaking person, you should not have been in Canada more than 8 years.

We are currently scheduling people for the weeks of _____and we will be meeting at the university's psychology lab. However, we can only book a few conversations at a time since we have to match the times of conversation partners. Therefore we are asking to reply to this invitation by filling one of the sheets that we have circulating around the room or by e-mail at with your availability and a phone number we can reach you at so we can schedule you at your most convenient time. You can also call any of the team members at to book a time. In your reply you must include the place you were born, your first language or mother tongue, the language you mostly use in your day to day social interactions, and the length of time you have lived in Canada. For the Caucasian/Canadian students you would like to include if you also speak a second language (other than English).

This is a research project conducted by Dr. Han Li and her research team at UNBC. If you have further questions about this study, please feel free to contact Dr. Han Li in the UNBC Psychology Program at

Thank you very much for your assistance with our research! We look forward to hearing from you shortly.

Laura Aguilera

APPENDIX B

INSTRUCTIONS TO PARTICIPANTS

Thank you 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 person will play the role of a patient. While you talk to each other, we will be videotaping so that we can have a record of everything. You can see yourself afterwards and decide whether we can keep the videotape.

The first dialogue will be like a medical interview. You, the Doctor, will interview you, the Patient, about the patient's case history. I will give you (the Patient) your case history to read as many times as you like until you know the material well. And I will give you (the Doctor) some guidelines for the interview.

In the second part, you (the Doctor) 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, so please relax.

First Dialogue: A Case History

To the Patient: 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 would 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. After the test, I will give you back the Case History. In case you get stuck, you may refer to it, but you cannot read from it word-for-word or show it to the Physician.

To the Physician: While the patient is studying the case history, you (the Doctor) can look at these guidelines for the interview. (Hand the Guidelines for the Interview to the Doctor).

Control Group:

- **Give Doctor Instruction Sheet to review (see Appendix E).**
- **Make sure that they understand their role and encourage them to ask questions**
- **Let them keep Instruction Sheet during dialogue**

Treatment Group:

- **Give Doctor Instruction Sheet to review (see Appendix E)**
- **Practice questions with them**
- **Let them keep Instruction Sheet during dialogue**

Once the patient finishes reviewing the case history:

- **Administer the multiple choice test** (mastery of conversational content; see Appendix F) to ensure that the majority of details are remembered
- **Review incorrect answers** with the patients and show them where to find the information in the case history sheet
- **Let the patients correct their answers**
- **Remind the patients that they will retain the case history sheet** and that they can refer to the sheet in their conversations, but that they are to refrain from reading directly from the script

After the Patient passes the quiz:

- **Bring the physician back into the room**
- **Start Dialogue**: Ok, now you are ready to begin the interview. I will leave the room and come back when you are done.
- **Start Video Camera recording.**

Once dialogue is completed:

- **Turn off Video Camera**
- **Tell the participants:** Now I would like you (the Doctor) to take a quiz on what you learned from the Patient. (Once this is completed, you may say "that's great" or other encouraging phrase).

Second Dialogue: Instructions for the Use of Codeine

To the Doctor: 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 would 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 will give you back the sheet. In case you get stuck, you may refer to it, but you cannot read from it word-for-word or show it to the patient.

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

Control Group:

- **Give Patient Instruction Sheet to review (see Appendix E)**
- **Make sure that they understand their role and encourage them to ask questions**
- **Let them keep Instruction Sheet during dialogue**

Treatment Group:

- **Give Patient Instruction Sheet to review (see Appendix E)**
- **Practice questions with them**
- **Let them keep Instruction Sheet during dialogue**

Once the physician finishes reviewing the case history:

- **Administer the multiple choice test** (mastery of conversational content; see Appendix F) to ensure that the majority of details are remembered
- **Review incorrect answers** with the physicians and show them where to find the information in the indications for the prescription of the codeine
- **Let the physicians correct their answers**
- **Remind the physicians that they will retain the indications for the prescription of the codeine sheet** and that they can refer to the sheet in their conversations, but that they are to refrain from reading directly from the script

After the physician passes the quiz:

- **Bring the patient back into the room**
- **Start Dialogue**: Ok, now you are ready to begin the dialogue. I will leave the room and come back when you are done.
- **Start Video Camera recording.**

Once dialogue is completed:

- **Turn off Video Camera**
- **Tell the participants:** Now I would like you (the patient) to take a quiz on what you learned from the physician. (Once this is completed, you may say "that's great" or other encouraging phrase).

To both participants: Before we conclude our session, I would like each one of you to answer a short questionnaire about your experience in this conversation. Once you complete it you may leave the room. Thank you very much for participating in our study. (Give them Questionnaires for First and Second Language Speakers).

APPENDIX C

CONSENT FORM FOR PARTICIPANTS

Dear Prospective Participant:

Hello, my name is … We are conducting a study about cultural communication, that is, how people from different cultures talk to each other.

I would like you to help us by participating in this study. You don't ***have to*** participate if you don't want to. In other words, your participation in this study is ***completely voluntary***.

If you agree to participate in this study, I will video tape your conversation with your partner. Your conversation partner is randomly chosen. He or she is also a UNBC student who is also enthusiastic about this study. I would like to assure you that the video taped conversations will only be heard by the research team and Dr. Han Li and will be stored in Dr. Han Li's lab at UNBC. If you have further questions about this study, please feel free to contact Dr. Han Li in the Psychology Program at

When you finish the conversation, I would like you to fill out a short questionnaire about your experience in the conversation. Your name will not be attached to the questionnaire. That is to say, your answers will be **anonymous**.

Thank you for your time.

I have read and understood the above, and I agree to take part in this study

_____ _____

Signature Date

I confirm that the above information sheet has been read and understood

_____ _____

Witness's Signature (the researcher) Date

Participant Number_____

APPENDIX D

CASE HISTORY

Patient's age: 65 years old.
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.

INDICATIONS FOR THE PRESCRIPTION OF CODEINE

Name of the 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.
Frequent Side Effects: Drowsiness, nausea, vomiting, and constipation.
Infrequent Side Effects: Increase in heart rate, agitation, and respiratory problems.
Caution: 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.
Over dosage: 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.

APPENDIX E

TREATMENT CONDITION: PHYSICIAN'S ROLE

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). We strongly encourage you to ask questions so the patient can clarify or explain his/her symptoms well. We also encourage you to ask questions during the conversation because you may not remember the questions at the end.

Now, let's practice a few questions:

1. Could you slow down please? I cannot follow you.
2. I beg your pardon, could you repeat that please?
3. Could you explain this in other words please?
4. I am afraid I still don't get it. Could you say it again please?
5. Could you summarize what you have said please? I forgot some details.

As to the format of your questions, 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.

CONTROL CONDITION: PHYSICIAN'S ROLE

So now you will play the role of a physician. In the following dialogue, your patient will tell you his or her case history. Try to get information about the problem, your patient's general health, if s/he has experienced this problem before, his or her family medical history and so on, just as the general physician normally would. If you have any questions, please feel free to ask your patient either during or after the conversation. 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.

TREATMENT CONDITION: PATIENT'S ROLE

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. Make sure that the information you get from your physician covers the following aspects:

1) What is codeine for;
2) When to take it;
3) How much each time;
4) Consequences when you take too much;
5) Side effects;
6) What you should and should not do when you take it.

Please read the above outline a few times and try to remember it (I suggest that you read it at least three times). We strongly encourage you to ask questions so the physician can clarify or explain his/her prescription well. We also encourage you to ask questions during the conversation because you may not remember the questions at the end.

Now, let's practice a few questions:

1. Could you slow down please? I cannot follow you.
2. I beg your pardon, could you repeat that please?
3. Could you explain this in other words please?
4. I am afraid I still don't get it. Could you say it again please?
5. Could you summarize what you have said please? I forgot some details.

As to the format of your questions, you may ask your doctor any questions you wish and you may phrase your questions anyway you like. You may choose to ask your physician questions during or at the end of the conversation. 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.

CONTROL CONDITION: PATIENT'S ROLE

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. Try to get information about the amount of medication, your possible reactions, its effects in your daily life, and so on, just as a regular patient normally would. If you have any questions, please feel free to ask your physician either during the conversation or at the end. 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.

APPENDIX F

MASTERY OF CONVERSATIONAL CONTENT (PATIENT'S ROLE)

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

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 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

MASTERY OF CONVERSATIONAL CONTENT (PHYSICIAN'S ROLE)

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

1. What is codeine used for?

A. help insomnia
B. reduce pain
B. stop nausea and vomiting
D. help to improve appetite

2. What are the reasons that a patient should not use codeine?

A. hypersensitivity to codeine
C. respiratory problems
D. severe weight loss
B. hepatitis
D. pregnancy

3. What are the frequently seen side effects after a person takes codeine?

A. dizziness
C. nausea and vomiting
E. headache
B. drowsiness
D. constipation

4. What are infrequently seen side effects after a person takes codeine?

A. agitation
B. insomnia
E. stomachache
B. respiratory problems
D. increase of heart rate

5. What are the consequences of overdosage of codeine?

A. Coma
C. visual disturbances
B. bleeding
D. death

6. What should the patient not do if feeling drowsy or showing impaired mental or physical abilities while taking codeine?

A. drive
C. watch T.V.
B. take a walk
D. operate machinery

7. How many tablets should the patient take at a time?

A. 1 to 2
C. 3 to 4
B. 2 to 3
D. as many as needed

8. What is the maximum number of tablets the patient should take at a time?

A. 1
C. 3
E. 5
B. 2
D. 4
F. as many as needed

9. What is the maximum number of times in a day the patient should take the medicine?

A. three times
B. five times
B. six times
D. four times

APPENDIX G

RECALL QUESTIONNAIRE (PHYSICIAN'S ROLE)

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 has similar symptoms before, what was done?
8. According to the patient, what did his/her mother die of?
9. Please write down anything else you want to add.

RECALL QUESTIONNAIRE (PATIENT'S ROLE)

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 these 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 tables you should take at a time?
8. What is the maximum number of times per day that you take the medicine?
9. Please write down anything you want to add.

APPENDIX H

INTERCULTURAL PROCESS QUESTIONNAIRE

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

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

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

   ------/------/------/------/------/------/------
   Not knowledgeable Very knowledgeable

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

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

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

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

5. Where do the communication difficulties com from (if any)? **You may mark more than one.**

   _____ 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

6. What did you do to help overcome these difficulties (if any)? **You may mark more than one.**

   _____ a) slowed down
   _____ b) repeated the word or sentence
   _____ c) asked questions for my partner to explain
   _____ d) went over the important points more than once
   _____ e) simplified the content
   _____ f) ignored and went on
   _____ g) other: _____

7. How relaxed were you during the conversation?

------/------/------/------/------/------/------

Not relaxed Very relaxed

8. In your opinion, how relaxed was your partner during the conversation?

------/------/------/------/------/------/------

Not relaxed Very relaxed

9. How did you like your partner?

------/------/------/------/------/------/------

Not at all Very much

10. In your conversation just now, did you feel that... **(Mark one of the following)**

_____ Your partner was more in control of the flow of the conversation
_____ Your partner and you were equally in control
_____ It just flowed; Nobody controlled it
_____ You were more in control

11. Between you and your partner, who is more advantaged socially (e.g., your perceived social status of each other)? **(Mark one of the following please)**

_____ Your partner is more advantaged socially
_____ You are just about the same
_____ You are more advantaged socially

12. Between you and your partner, who is more advantaged linguistically (e.g., do you feel that lack of language fluency puts a person at disadvantage? **(Mark only one)**

_____ Your partner is more advantaged linguistically
_____ You are just about the same
_____ You are more advantaged linguistically

13. Overall, how much did you enjoy the conversation?

------/------/------/------/------/------/------

Not at all Very much

14. Please provide us with your demographics:
Age _____ First language _____ Gender _____
How many years have you been in Canada? _____

Thank you very much for your participation!

APPENDIX I

SCORING STANDARDS

Speaker's presentation and Listener's Recall Scoring

Both presentation and recall are measured by the amount of information units presented in the conversation and by the responses to the recall questionnaires. Each unit of information (smallest meaningful string of words) will be assigned 4 points. Depending on the number of information units required for answering each question, the number of points assigned would range. For example, in the questionnaire for Dialogue one, the answer to Question 1, "Why did the patient come to see you?" contains one unit of information: chest pains, thus the score for that question is 4. In contrast, answers to Question 3, "How did the patient sleep last night?" contain two units of information: "S/he slept okay. S/he woke up a few times from chest pains", thus the possible score for that question is 8.

Following the procedures used by Li (1994), the answer key for each question provided one or several correct answers. If the answer was essentially identical to the key, it was given a score of 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 in that the meaning could be inferred, it was scored as 1. Blank or wrong answers were scored 0. For example, Question 5 in the test for Dialogue one was: "What was the main reason the patient went swimming?" If the answer is, "The reason the patient went swimming was to exercise his or her legs" or "to exercise his or her legs," it is scored as 4. If the answer is "swimming is good for his or her legs," it is scored as 3. If the answer is "to do exercise because the patient has difficulties walking," it is scored as 2. If the answer is "for exercise or to stay fit," it is scored as 1. According with the scoring standards, the maximum score that can be attained in the questionnaire for dialogue one is 56, while the maximum score for dialogue two is 76 (please refer to Li, 1994 for further information).

Grounding criterion

The grounding criterion, of each dyad will be determined by the scoring standards of grounding. The study will measure three basic variables: Grounding activities, Nonverbal signs (i.e. smiles, gazes and hand gestures), and Back-channel responses (i.e. head nods, "uhs", etc.).

a) Grounding Activities. One point in grounding will be assigned each time that any given dyad makes a complete contribution that contains at least the three basis phases of communication (Utterance, Reaction and Confirmation; Roberts & Bavelas, 1996, p 142). In addition, it will also meet the following criterion:
b) Related Content. The information in question must correspond to content of the open-ended questionnaire (see Appendix G).
c) Interactants participation. Both participants should be involved.
d) Preceding verbal utterance. A verbal activity should originate the repetition, partial repetition, paraphrasing, explanation, confirmation, or clarification (by reformulation or repairing) of the previously elicited unit of information.

e) Verbal component in Utterance and Reaction phases. The first two phases of the turn sequence must be verbal, but the third phase, Confirmation, can be either verbal or nonverbal (e.g., head nod).
f) Turns are not relevant. The contribution may take place within one speech turn or several turns.
g) Successful grounding. Only successful grounding is to be scored. Unsuccessful grounding (i.e., initiated but not completed or abandoned) should be excluded.

Smiles, gazes and hand gestures. Smiles, gazes and hand gestures will be scored and included in the analysis only if they are present in the Confirmation phase and appear simultaneously to a verbal utterance. One scoring point will be given to each one of these cues if they are concomitant with a verbal utterance.

Back-channel responses. Head nods and back-channel responses such as "uhs", will be included only when they emerge concurrently to a particular verbal utterance in the last phase, Confirmation. Back-channel responses will not be scored if they come out randomly in the exchanges.