

CULTURE AND GAZE DIRECTION IN CONVERSATION

By
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This study examined whether culture plays a role in gaze and mutual gaze behaviours in simulated doctor/patient conversations. Participants were 40 Canadians and 40 Chinese who formed 40 dyads in four experimental conditions: Canadian speaker/Canadian listener, Chinese speaker/Chinese listener, Chinese speaker/Canadian listener, and Canadian speaker/Chinese listener. All conversations were video-taped and micro-analysed. The data generated three intriguing findings. First, a strong cultural difference in gaze frequency and duration was found between Chinese/Chinese and Canadian/Canadian dyads when the two most likely confounders, gender and conversation topic, were controlled for. This finding provides further illustration to Patterson's cultural explanation for gaze behaviours. Second, the gaze pattern convergence of the Chinese when interacting with Canadians has provided strong support for Communication Accommodation theory (CAT). This finding extends the usefulness of CAT in explaining human gaze behaviours in inter-cultural interactions. Third, the difference in gaze patterns between participants in the doctor and the patient roles, while speaking, has important implications for health communication, especially when health providers and patients are of different cultural backgrounds. Nonverbal mismatches may well be one of the contributing factors in provider-patient miscommunication reported in the literature.

1. Introduction

Past research indicates that eye contact serves an important communicative function, and that cultural upbringing dictates the way we gaze and mutual gaze (Argyle, Ingham, Alkema and McCallin 1972; Kendon 1967; Kleinke 1986). For example, Pierson and Bond (1982) found that Chinese conversational partners, representing an Asian culture, don't usually look directly at each other's eyes, whereas Whites, representing a western culture, tend to look each other in the eye during conversation (LaFrance and Mayo 1978). This difference in the way persons from Eastern and Western cultures exhibit eye contact poses interesting questions as to the nature and effectiveness of conversations when the two cultures are juxtaposed. Yet, research on

this topic has been nonexistent in the past decades (Bavelas, Coates and Johnson 2002).

The focus of this study was to examine the frequency and duration of gaze and mutual gaze in four partner combinations: Chinese speaker/Chinese listener, Chinese speaker/Canadian listener, Canadian speaker/Canadian listener, and Canadian speaker/Chinese listener. The nature of the conversation was simulated doctor-patient consultation, the speaker playing the role of a patient, the listener that of the doctor.

In the next section, major research on conversational gaze patterns in various cultural groups, as well as on gaze activities in doctor-patient conversations will be reviewed. Following that, the four main themes to be examined in this paper will be presented.

2. *On Gaze*

2.1. Conversational Gaze Directions in Various Cultural Groups

LaFrance and Mayo (1978) found that black and white Americans differed in their listening behaviour. During a conversation, Whites gazed steadily at the speaker while Blacks avoided looking into the eyes of the speaker, although Blacks and Whites did not differ in the overall amount of looking. In another study, LaFrance and Mayo (1976) reported that Blacks looked at each other less while listening than Whites did. Similar observations were made by Hall (1974). In a laboratory setting, white Americans noticed that their black communicants seldom looked into their eyes when spoken to. In a follow-up study, Hall (1974) reported that in natural settings, no differences were observed between Blacks and Whites in their gaze behaviours. When looking, Blacks used peripheral vision and Whites used foveal (direct) vision. In interview settings, Blacks looked down or away from an interviewer while Whites gazed at the interviewer (Fujita, Wexley and Hillery 1974; Hall 1974). Exline (1963) and Fehr and Exline (1978) found that Blacks looked at each other less than Whites did during a laboratory discussion and both Blacks and Whites looked more while listening than speaking. In a court setting, Dorch and Fontaine (1978)

observed that the two White judges looked at witnesses more than did the two Black judges.

Ickes (1984) examined the nonverbal aspects of initial, unstructured interactions of Black-White dyads. He found significant racial differences in mutual gaze patterns between white and black subjects. White subjects looked at their Black partners more often and for longer periods of time than vice versa.

Elzinga (1978) compared gaze behaviour between native English speakers (Australians of British descent) and native Japanese speakers. It was found that the Japanese participants had more frequent other-directed gazes than Australians had; in contrast, the Australians' gazes were of longer duration. The Australians tended to look up at the end of utterances, yet no pattern of looking up was found among the Japanese participants. Iizuka (1995) reported that Japanese who scored high on shyness tended to look less at their partners than those who scored low on shyness. Bond and Komai (1976) found that Japanese students felt uneasy when being directly gazed at.

Watson (1970) studied gaze behaviours in dyadic discourse of 110 male foreign students at the University of Colorado. In comparison with participants from the 'contact cultures', those from the 'non-contact cultures' touched less, looked less, and faced each other less directly. Ingham (1972) compared gaze behaviours of twenty-two pairs of Swedes and twenty-two English pairs during laboratory conversations. In both conditions, there were eleven male/male and eleven female/female dyads. He found high percentages of mutual gaze (gaze time/total talking time) in both populations. Length of glances was higher for the Swedes than for the English. Frequency of glances was higher for the English than for the Swedes.

2.2. Rules for, and Meanings of, Gaze across Cultures

In many cultures, there are explicit rules for the use of gaze. Reviewing twelve studies on gaze activities between Blacks and Whites in America, Halberstadt (1985) concluded that eye gaze of Blacks is minimal when interacting with a superior, as a means of showing respect. Evidently black children learned to lower their eyes when an

older person or a teacher is talking to them, or when they are being scolded. E. T. Hall (1976) reported that a black colleague said that a parent's looking into the eye of his child could be an indication of anger. In this situation, a black child learns to avoid eye contact with the parent.

In contrast, white parents demand that their children, when addressed, look into the eye of the parents (Exline 1971; Mehrabian 1968). As a result, white children learn to look into the eyes of their interlocutors.

Among the Navaho Indians, direct gaze at one's conversational partner is a taboo (Hall 1974). Among the Wituto and Bororo Indians in South America, the speaker and listener both look at outside objects during a conversation (Whiffen 1905).

In Japan, people look at the neck level, not at the eye level and the Japanese way of gazing seems to be learned early in life (Elzinga 1978). In Nigeria, it is not socially acceptable to look directly into the eye of an older or high status person during a conversation (Watson 1970). Evans-Pritchard (1950) reported that among the Luo of Kenya, a man and his mother-in-law must turn their backs to each other while speaking. In some (viz., contact) cultures, there seems to be a rule specifying that interlocutors should look at each other, while in other (i.e., non-contact) cultures, the rules are not specific. This point is illustrated by an interesting anecdote concerning an encounter between a Chinese and two Americans.

On the second day of my arrival in the U.S., I went to see the Department Chairman, accompanied by my American friend Judith. To show my respect for the Chairman, I sat straight, my hands on my knee. Most of the time I looked down; sometimes I looked at Judith, who was sitting on my right hand side. Then I heard Judith saying 'Xiao Li, you are supposed to look at the speaker, not me'. They both smiled, and I smiled too, but for a very different reason: I smiled to hide my awkwardness. (Li 1994:26)

Li (1994) goes on to explain that in the Chinese culture, there are no clear rules regarding where one should look in a conversation, except for when one is speaking with a superior or a parent. In this case, one

should look down to show respect. Looking into the eye of your mother while she is criticizing you would make her angry because looking into the eye is tantamount to 'talking back'. Looking down would be interpreted as being modest and accepting her criticism.

Similar findings were reported by Watson (1970). Interviewing participants from various cultures, Watson found that Asians, Indians and Africans relate constant gaze with being superior, disrespectful, threatening or insulting. Southern Europeans, Arabs and Latin Americans, on the other hand, interpret lack of gaze as insincere, dishonest or shy.

2.3. Gaze Activities in Doctor-Patient Conversations

Although a number of studies have examined doctor/patient non-verbal communication, few investigated gaze behaviour per se, in spite of its important function in doctor-patient consultation (Friedman 1979; Friedman and DiMatteo 1979; Hall, Harrigan and Rosenthal 1995; Robinson 1998; Roter and Hall 1992; Thompson 1994). Heath (1984) found that in some situations, patients would not continue their descriptions of symptoms until they received the doctor's gaze. Patients interpreted a doctor's gaze as attending to the patient's concerns. Hooper, Comstock, Goodwin and Goodwin (1982) reported that doctors gazed more at patients who were better-dressed, regardless of patient's age and ethnicity. Doctor gaze was associated with attention offered to the patient. Several researchers found that the more a physician initiated and maintained nonverbal behaviours such as gaze, the more likely the patient would be satisfied with the physician (Bensing 1991; Bensing, Kerssens and van der Pasch 1995; Street and Buller 1987, 1988; Street and Wiemann 1988). Harrigan, Oxman and Rothenthal (1985) reported that the frequency of eye contact was positively correlated with therapeutic quality. The more eye contact a doctor established with the patient, the more likely the doctor was rated as empathic, interested and warm.

The above literature review shows that empirical research on conversational gaze behaviour is still at a preliminary stage. In spite of the importance of gaze behaviour to human verbal communication,

empirical research has been scant thus far. This line of research should and must be continued if we are to gain a clear understanding of the complex process of human face-to-face communication. Due to the lack of recent empirical research on conversational gaze behaviour, especially on intercultural gaze behaviour, the present research can only be an exploratory study.

Four themes were examined: (1) whether there were cultural differences in gaze behaviour; (2) whether there were role differences in gaze behaviour; (3) whether there were differences in gaze patterns for speaking and listening; and (4) whether there were cultural differences in mutual gaze patterns.

3. Method

3.1. Participants

Eighty-four subjects volunteered to participate in this study, of which 44 were males, 40 females. The subjects formed 42 same gender dyads, two of which were dropped from data analysis because they did not follow the instructions. The subjects were third year, fourth year, and graduate students from the University of Victoria, B.C., Canada. The majority of the subjects were in their twenties or earlier thirties, with an average age of 29.1. The mean ages for the Chinese and the Canadian subjects were 30.0 and 28.2 respectively, with no significant difference ($t(78) = -1.90, p > .05$). Subjects were recruited in classrooms, the university cafeterias, and graduate students' offices in various departments at the University of Victoria.

Of the 80 subjects, 40 were Chinese (20 males and 20 females; first language Mandarin Chinese), and 40 were Caucasian Canadians (20 males and 20 females; first language English). All Chinese subjects grew up in Mainland China and were studying at the University of Victoria; at the time of the experiment, the Chinese subjects had been in Canada for an average of 27 months, the range being .5 to 60 months. Care was taken to ensure that the Chinese subjects had sufficient English language ability (as measured by peer evaluation, self-evaluation, and referenced by scores on the Test of English as a Foreign Language

(TOEFL)) to participate in the conversations. All Chinese participants had a TOEFL score of 575 or above (for details, see Li 1999a).

3.2. Experimental Design and Procedures

A between-subjects design was used for the four experimental conditions: Canadian speaker/Canadian listener, Chinese speaker/Chinese listener, Canadian speaker/Chinese listener, and Chinese speaker/Canadian listener. According to the time of their availability, subjects were either paired with a partner from their own culture (Canadian speaker/Canadian listener or Chinese speaker/Chinese listener) or one from a different culture (Chinese speaker/Canadian listener or Canadian speaker/Chinese listener). All dyads were same-gender; that is, males were paired with males and females with females.

All dyads (10 in each of the four experimental conditions) engaged in the same communication task, which involved simulating a doctor-patient interview. The patient (speaker) was given a simple case history to study; then, during the experimental session, he/she presented the case history to the doctor (listener). The case history was developed in Chinese, translated into English, and then translated back into Chinese to check for accuracy. The Chinese speaker/Chinese listener experimental condition used the Chinese version, while the other three conditions used the English version.

Upon arrival at the laboratory, the roles of patient (speaker) or doctor (listener) were randomly assigned by a draw, and the speakers were given sufficient time to study the case history. A multiple-choice test (as manipulation check) was then given to the speaker to ensure that he/she had mastered the content. Meanwhile, the listener was given a list of items on which he/she should obtain information from the speaker during the conversation (for more details, see Li 1999b). The information was relevant to the doctor-patient interview in general (e.g., what the exact problem was; whether the patient had a previous occurrence of the problem), and not specific to the content of the case history. The listener was also instructed to feel free to ask the speaker questions during the conversation. The dyads were then instructed to engage in the conversation in a 'talking manner'. To prevent pure

memory errors, the speaker was allowed to refer to the information sheet while engaging in the conversation, but was not permitted to read from it verbatim. After this role-play, the listener completed an open-ended test designed to examine how much information was successfully communicated from the speaker to the listener. All conversations were video-taped with the informed consent of the subjects. The average time across conditions for subjects to finish the conversation was 5 minutes and 29 seconds. The mean time was 4 minutes and 48 seconds for the Canadian speaker/Canadian listener condition (288.0 seconds); 5 minutes and 16 seconds for the Chinese speaker/Chinese listener condition (316.0 seconds), 5 minutes and 22 seconds for the Chinese speaker/Canadian listener condition (322.0 seconds), and 6 minutes and 32 seconds for the Canadian speaker/Chinese listener condition (392.0 seconds). Univariate F -tests showed that no two groups were significantly different from each other ($F(3, 36) = .85$, $p > .05$; $MSe = 2304.9$ seconds).

3.3. The Measurement of Gaze

Frequency and duration of gaze were recorded for the doctor and patient roles respectively. Frequency of gaze was defined as the number of glances made by one person at the other during the entire conversation. Duration was defined as the mean length of time (in seconds) one person glanced at the other. The time one looked at the script was also recorded. Gaze was defined as looking into the eyes or at the eye level of the partner (Argyle and Cook 1976). Following Goodwin (1980b), mutual gaze was defined as two people simultaneously looking at each other's eyes or at the eye level. Decisions for each category were made on the basis of both eye movements as well as head positions. For example, when a person looks above the eye level of the partner, his/her chin is usually up. When a person looks away, his/her head may be tilted towards the left or right.

The video-tapes were made using three high-resolution cameras, two in zoom and the third in normal mode. The two zoom-mode cameras filmed a split screen close-up of images of both participants

side by side; the normal-mode camera filmed a full screen of the two participants facing each other. All three screens were synchronized into one picture on the TV screen, with the split screen on top of the full screen. A high-resolution TV/VCR was used to score gaze activities.

Two trained research assistants, one English-speaking and one bilingual, made verbatim transcripts of the videotaped conversations. Although gaze activities were scored directly from the videotapes, recordings of frequencies and durations of each category were made on the transcripts, which were adequately spaced for the purpose.

Prior to scoring the data, scorers participated in a training session with the following instructions: (1) read criteria at least twice; (2) watch the tape while reflecting on scoring criteria; (3) score for the first time by watching the tape and listening to the dialogue; (4) score for the second time by focusing on visual activities.

Following the training session, four scorers worked in pairs performing preliminary scoring on the 30 English-speaking dyads in order to find an efficient way of recording gaze activities on the basis of the scoring schema described above.

Final scoring was performed by two bilingual scorers who scored the entire 40 dyads. Inter-scorer reliability (Pearson correlation) between the two final scorers was from .86 to .89. In scoring the data, scorers were required to write down all identifiable details of gaze activities, including the provider and the exact time (minutes and seconds) gaze occurred. Although transcripts were available, scorers were required to score gaze activities from the videotape, using the transcripts as references.

4. Results

4.1. Treatment of Data

Due to the differences in talking time for each individual, frequencies and durations do not make meaningful comparisons. Following standard practices in treating this type of data (e.g. Beaumont and Cheyne 1998; Li 2001), all frequencies and durations were converted into rates, which are derivations of frequencies and durations divided

by talking time. Owing to the small numerators and large denominators (talking time was in seconds), the rates were very small. Following Beaumont and Cheyne (1998) and Li (2001), the rates were multiplied by the grand mean of talking time.

Mean rates of looking at partner and mutual gaze were calculated across the four experimental conditions; the rates are presented in Table 1 and Table 2. There was no significant difference among the four experimental groups in terms of frequency and duration. A logarithmic transformation was performed for both frequency and duration since the distribution of the data was positively skewed.

4.2. Frequency and Duration of Gaze

Means of rates of gaze at partner, frequency, and duration while speaking and while listening (four variables) are presented in Table 1. To test for role (doctor versus patient) main effects, for culture main effects (the four experimental conditions), and for role by culture interaction, a 2 by 4 MANOVA was conducted. The analysis was positive for role main effect and culture main effect, but not for role by culture interaction.

4.2.1. Role main effect

MANOVA showed significant role main effect, $F(4, 69) = 4.62$, $p < .0001$, Wilks Lambda = .79, $\eta^2 = .21$. Within-condition comparisons, using ANOVA, indicated statistically significant differences between doctors and patients for one of the four variables, i.e., duration of gaze while speaking, and in two conditions. In the Canadian doctor/Chinese patient condition, the doctors had a longer duration of gaze while speaking than did the patients $F(1, 9) = 7.68$, $p < .05$. In the Chinese doctor/Chinese patient condition, the doctors also had a longer duration of gaze while speaking than the patients did, $F(1, 9) = 11.71$, $p < .01$.

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Table 1. Means for rates of frequency and duration of gaze by role

<u>Role</u>	<u>Condition</u>	<u>n</u>	<u>While Speaking</u>				<u>While Listening</u>			
			<u>Frequency</u>		<u>Duration</u>		<u>Frequency</u>		<u>Duration</u>	
			<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
Canadian doctor	Intracultural	10	9.49	1.92	10.32	3.42	8.73	2.99	14.39	4.32
Canadian patient	Intracultural	10	10.90	2.00	7.94	2.99	8.06	3.90	14.87	4.97
Chinese doctor	Intracultural	10	3.50	3.54	8.52	2.90	5.55	3.45	11.55	3.89
Chinese patient	Intracultural	10	2.07	2.82	5.93	3.45	5.54	3.66	11.59	2.86
Canadian doctor	Intercultural	10	7.47	2.89	12.27	2.79	8.22	5.76	14.94	6.55
Chinese patient	Intercultural	10	9.32	1.51	9.22	1.75	7.39	3.84	16.67	2.42
Chinese doctor	Intercultural	10	7.36	2.58	10.83	3.16	6.61	3.32	15.88	6.01
Canadian patient	Intercultural	10	9.00	1.93	8.46	1.51	7.48	1.38	15.26	1.35

Note: All dyads were same-gender; males and females were evenly distributed in all conditions

4.2.2. Culture main effect

MANOVA showed a significant culture main effect $F(12, 182) = 8.89$, $p < .0001$, Wilks Lambda = .30, $\eta^2 = .33$. Exploratory Post Hoc multiple comparisons, at an α level of .05, using LSD (Least Squares Distance), were performed. Results indicated statistically significant group differences for all four variables:

- (1) For frequency of looking at partner while speaking, the Chinese/Chinese condition had a significantly smaller frequency than did the other three groups ($p < .0001$). Participants in the Canadian/Canadian condition looked significantly more at partners in comparison with the other

three conditions: Canadian doctor/Chinese patient ($p < .05$), Chinese doctor/Canadian patient ($p < .05$), and the Chinese doctor/Chinese patient ($p < .0001$).

- (2) As to duration of looking at partner while speaking, participants in the Chinese/Chinese condition showed a significantly shorter duration in comparison with the other three conditions: the Canadian doctor/Canadian patient ($p < .05$), the Canadian doctor/Chinese patient ($p < .0001$), and the Chinese doctor/Canadian patient conditions ($p < .01$).
- (3) For frequency of looking while listening, the only group difference was between the Chinese/Chinese and Canadian/Canadian conditions ($p < .05$), the former having a lower frequency than the latter.
- (4) For duration of looking while listening, participants in the Chinese/Chinese condition showed a shorter duration in comparison with the other three groups: the Canadian/Canadian ($p < .05$), the Canadian doctor/Chinese patient ($p < .01$), and the Chinese doctor/Canadian patient conditions ($p < .01$).

4.3. Comparing Gaze Frequency and Duration While Speaking and While Listening

Gaze frequency and duration while speaking and while listening were compared for doctors and patients in each of the four experimental conditions respectively. Only comparisons showing significant statistical differences are reported below.

In the Canadian/Canadian condition, ANOVA showed that the doctors looked longer in duration when listening than when speaking, $F(1,9) = 5.98, p < .05$. Patients looked more frequently when speaking than when listening, $F(1,9) = 6.02, p < .05$, but looked longer in duration when listening than when speaking, $F(1,9) = 30.50, p < .0001$.

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In the Chinese/Chinese condition, doctors looked more frequently when listening than when speaking, $F(1,9) = 8.23, p < .05$. Patients looked longer in duration when listening than when speaking, $F(1,9) = 27.97, p < .001$.

In the Canadian doctor/Chinese patient condition, the patients looked longer in duration when listening than when speaking, $F(1,9) = 76.56, p < .0001$. In the Chinese doctor/Canadian patient condition, the patients looked longer in duration when listening than when speaking, $F(1,9) = 152.20, p < .0001$.

4.4. Mutual Gaze

Means of rates of mutual gaze, frequency, and duration for the four experimental groups are presented in table 2. MANOVA showed statistically significant differences for frequency, $F(3, 36) = 12.83, p < .0001, \eta^2 = .52$, and for duration, $F(3, 36) = 29.12, p < .0001, \eta^2 = .71$. Exploratory Post Hoc multiple comparisons, at an α level of .05, using LSD, were performed. Results showed that the Chinese/Chinese group had a significantly lower frequency than the other three groups ($p < .0001$) and a shorter duration than the other three groups ($p < .0001$). No statistically significant difference was found among the other three groups.

Table 2. Means for rates of mutual gaze as a function of condition

<u>Condition</u>	<u>Dyad</u>	<u>Frequency</u>		<u>Duration</u>	
		<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
Speaker/Listener	<u>n</u>				
Canadian/Canadian	10	13.75	2.14	9.69	2.54
Chinese/Chinese	10	5.96	3.60	4.01	2.11
Chinese/Canadian	10	13.73	1.10	9.19	1.48
Canadian/Chinese	10	13.45	1.22	8.25	2.78

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

5. Discussion

The data generated four interesting findings. Each of them will be discussed below.

5.1. Cultural Differences

It was found that in both gaze and mutual gaze behaviour, the Chinese/Chinese looked less frequently and in shorter durations than was the case in the Canadian/Canadian condition, thus documenting a distinct cultural difference. This finding has significant practical value in today's multicultural world. Suppose a Canadian ESL teacher finds her Chinese student not looking at her when he is spoken to. She may interpret the student as inattentive or disrespectful and discipline the student unnecessarily. Or, imagine a Canadian businessman finding that his Chinese negotiator is not engaging in eye contact. He may infer that the Chinese is insincere or disinterested. Similarly, a Canadian doctor, finding that his Chinese immigrant patient looks away when spoken to, may surmise that the Chinese was not telling him all of the symptoms.

If inter-cultural interlocutors are aware of such findings – differences in eye contact behaviour between Chinese and Canadians – they may be less likely to make misleading judgements, which are the first step toward miscommunication (Gudykunst 1991). It can be argued that this finding could contribute to reducing miscommunication between Chinese and Anglo-Canadians.

The cultural differences found in this study are consistent with results from previous research. Watson (1970) distinguished Asian cultures as non-contact cultures and western cultures as contact cultures. People from Asian cultural backgrounds usually gazed less than people from western cultures. Similar findings about Whites and Blacks were reported by a number of researchers and in a number of settings, including casual discussions and job interviews (Fujita et al. 1974; Hall 1974), and laboratory discussions (Exline 1963; Fehr & Exline 1978).

Patterson (1990) argued that culture exerts great influence on how nonverbal behaviours are initiated, developed and maintained in conversations. For a Chinese, a pair of observant eyes should see 'six roads' and take in all directions at once. Looking only at the eyes of one's conversation partner is considered an inefficient use of one's eyes. By looking in other directions, one can study and evaluate the other's physical and social status, and gain an accurate evaluation of the other to form a conversational strategy, thus laying the foundation of interactional success.

The mismatch in gaze frequencies between Chinese and Canadians represents an *interactional arhythmia* (Erickson and Shultz 1982:180), which may be a source of miscommunication. Although the present study does not directly measure the relationship between gaze and miscommunication, this finding may help to explain why there was more miscommunication in inter-cultural than in intra-cultural conversations (Li 1999a, 1999b).

5.2. Communication convergence

The finding that gaze patterns in the two inter-cultural conditions were similar to that of the Canadian/Canadian condition clearly indicates a gaze pattern convergence on the part of the Chinese participants. In the two inter-cultural conditions, the Canadians maintained their frequent gaze pattern, while the Chinese shifted from their less frequent gaze to the more frequent gaze pattern of their Canadian partners. This finding provides strong support for the Communication Accommodation Theory (Giles, Bourhis and Taylor 1977; Giles and Johnson 1987; Giles and Smith 1979; Larsen, Martin and Giles 1977; Giles, Mulac, Bradac and Johnson 1987).

Communication Accommodation Theory (CAT) states that interlocutors have a tendency to let their linguistic codes converge or diverge, either for power and/or a desire for social approval. Giles, Taylor and Bourhis (1973) demonstrated that speech convergence promoted mutual liking between English and French Canadian students. English Canadians perceived French Canadians more favourably if the latter switched to English and vice versa. In two

studies, Genesee and Bourhis (1982, 1988) also found that English Canadians rated French Canadians more favourably if the latter switched to English when conversing with an English Canadian. Conversely, the French Canadians rated English Canadians more favourably if the latter switched to French when conversing with a French Canadian. Li (2001) found that in their interactions, Chinese participants adjusted their usual co-operative interruption style to the more intrusive interruption style of the Canadians.

The tendency for one speaker to match the amount of gaze exhibited by the other has also been observed by previous researchers (e.g., Argyle and Cook 1976; Mulac, Studley, Wiemann and Bradac 1987; Pierson and Bond 1982). Erickson (1979) reported that Blacks switched their listening style to that of Whites when conversing with Whites. It should be noted that there is a larger difference in frequency than in duration of gaze between the Chinese/Chinese and the other three conditions. This indicates that the Chinese look less frequently, but when they look, their duration of gaze may be as long or almost as long as the Canadians'.

5.3. Gaze When Listening and When Speaking

It was found that both doctors and patients looked more when listening than when speaking. In two conditions, doctors looked more while listening than when speaking. In all four conditions, patients looked longer when listening than when speaking.

This finding is consistent with previous reports. Several studies on White adults found greater frequency and mean length of other-directed gaze during listening than speaking (e.g., Argyle and Ingham 1972; Exline 1971; Kendon 1967). Fehr and Exline (1978) found that both Blacks and Whites looked more while listening than speaking. LaFrance and Mayo (1976), however, found the opposite in Blacks: Blacks looked more while speaking than listening.

5.4. Role Differences

Significant role differences were found in the duration of gaze while speaking in the two conditions when the Chinese served as patients, but not in the other two conditions, where the Canadians served as patients. When Chinese served as patients, doctors gazed significantly longer in duration than patients. When Canadians served as patients, doctors and patients were similar in gaze duration while speaking. A possible explanation for this phenomenon is that Canadians, influenced by their culture, gaze at their listeners continuously while speaking, whether they are in the doctor or patient roles. The Chinese patients, on the other hand, shaped by their culture, which has no specific rules regarding where the eyes should be placed while speaking, look at their listeners only periodically.

This finding has important implications for medical communication when the provider is a Canadian and the patient a Chinese immigrant. Quill (1989) pointed out that miscommunication occurs when doctor and patient have nonverbal mismatches. For example, in western culture, listeners associated speaker eye contact with credibility (Beebe 1974; Burgoon, Manusov, Mineo and Hale 1985). When a patient does not look at the doctor continuously while presenting a case history, the doctor may wonder if the patient is telling the whole truth (Fisher 1991; Stiles and Putnam 1989). Consequently, lack of continuous gaze on the part of the immigrant patient may lead to difficulties in doctor-patient relationship.

Furthermore, several researchers (Argyle and Cook 1976; Beattie 1978; Goodwin 1980a; Kendon 1967; Rutter and Stephenson 1977, 1979) point out that visual communication plays an important role in synchronizing conversation, maintaining interaction, and preventing communication breakdown. In situations when the second-language speaker has language difficulties expressing him- or herself, visual communication can help towards mutual understanding of the problem; this, in turn, may enable the first-language speaker to help the second-language speaker. Visual communication can help interlocutors establish a common ground of what is being exchanged (Clark 1992; Gumperz 1978, 1982; Gass and Varonis 1991). Verde (1999) reported that lack of common ground between natives of Nass Valley

and mainstream Canadian health professionals resulted in the natives' infrequent utilization of the health facilities in question.

It is, therefore, argued that second-language speakers should engage in more, rather than less, visual communication in order to maximize their communication capacity and competence (Carroll 1988; Gudykunst 1991; Kim 1991), when conversing with a first-language speaker.

6. Conclusion

This study contributes to the field in at least three ways. First, a strong cultural difference in gaze frequency and duration was found between Chinese and Canadians, when the two most likely confounders, gender and conversation topic, were controlled for. This finding carries important implications for intercultural training. When conversing with a Canadian, a Chinese needs to remember to engage in frequent eye contact. Canadians, on the other hand, need not take offense if a Chinese person looks up, down, and around, but not into his or her conversational partner's eyes. This mutual awareness of the differences in eye contact habit could greatly reduce intercultural misunderstanding. Second, the gaze pattern convergence of the Chinese when interacting with Canadians has provided strong support for CAT (Giles et al. 1977; Giles and Johnson 1987); this finding extends the usefulness of CAT in explaining human gaze behaviours in Chinese speaker/Canadian listener and Canadian speaker/Chinese listener situations. Finally, the difference in gaze patterns, while speaking, between participants in the doctor and the patient roles, has significant implications for health communication, especially when health providers and patients are of different cultural backgrounds. Nonverbal mismatches may well be one of the contributing factors in the provider-patient miscommunication reported in the literature.

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Author's Note

The author would like to thank Dr. Janet B. Bavelas, for consultation in designing and conducting the experiment; Dr. Michael H. Bond, for enlightening suggestions on the design of the experiment; Dr. Ron Hoppe, for support in finishing this research; the two scorers, for scoring the data, and all the participants, for their time and efforts in making this study possible. I also thank Editor Jacob Mey and the two anonymous reviewers for insightful comments on an earlier version of the manuscript.

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