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A Pilot Study on Chinese Gestural Feedback

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Abstract

How to interpret and use gestural feedback in a more effective and friendly way in human-human and human-computer interactions has become an issue for both language and technology researchers. In this study, functional analyses of Chinese gestural feedback (mainly head movement, facial expression, hand movement, shoulder movement, and posture) and its relation to vocal-verbal feedback in Interactive Communication Management has been carried out comparing Chinese-Chinese and Chinese-Swedish informal dyadic dialogues. Three research questions have been studied. First, what are features of Chinese gestural feedback? Second, are there any gender differences? Third, do Chinese people use different gestural feedback in mono-cultural and intercultural interactions? It has been found that Chinese feedback was mostly expressed simultaneously by gestural and vocal-verbal means, and gestural feedback conveyed various emotions and attitudes. Chinese females were more expressive in terms of using feedback gestures, and they showed relatively higher communicative intelligibility in accomplishing CUPE/A. More feedback gestures were used in intercultural interactions. The results can be exploitable in practice, such as business consulting, personal marketing, video-conferencing, and animated agents' synthesis.

Key Words:

Chinese, gestural/ vocal-verbal feedback, mono-cultural/ intercultural communication, gender/ context variation, CPUE/A

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1. Introduction

Although definitions of feedback vary to some extent in the formulation, most researchers seem to agree that feedback mainly comprises vocal-verbal and gestural means, i.e. vocal and bodily expressions, which are used to give and elicit information in receiving, perceiving, understanding, and reacting to messages. Because gestural feedback is unobtrusive and is of lower awareness, this 'interactive subsystem' of human communication (cf. Allwood, Ahlsén & Nivre, 1992) attracts increasing interest. There are a number of previous studies made of gestural feedback in Interactive Communication Management (ICM), with different purposes of analyzing the types or functions of gestural feedback, or its relation to vocal-verbal feedback, such as describing various ways of producing it (Clark & Schaefer, 1989), analyzing affective aspects of it (Navarretta, Paggio & Jokinen, 2008; Poggi & Merola, 2003), and exploring the complementary information it provides to vocal-verbal feedback means in either human-human or human-computer interaction (Allwood et al., 1992; Cerrato & Skhiri, 2003).

A framework for analyzing gestural feedback in multimodal corpora, primarily including analyses of types, functions of gestural feedback and its relation to vocal-verbal feedback means (Allwood & Cerrato, 2003; Grammer, Allwood, Ahlsén & Kopp, 2008), has been adopted in this study. The Gothenburg Transcription Standard (GTS) version 6.2[i] (Nivre, 1999) and the MUMIN multimodal coding scheme for feedback[ii] (Allwood, Cerrato, Dybjær, Jokinen, Navaretta & Paggio, 2005) have been adopted to analyze the video-recorded data for this study, with transcribing and reliability checking being carried out sequentially. Three research questions, what are features of Chinese gestural feedback, are there any gender differences, do Chinese people use different gestural feedback in mono-cultural (see definition in section 2.1) and intercultural interactions, have been investigated. Features of Chinese gestural feedback with gender and context variations were studied in this paper. As a result, better insights of how to interpret and even use Chinese gestural feedback were obtained.

1.1 Types of gestural feedback

According to Allwood & Cerrato (2003) and the MUMIN multimodal coding scheme for feedback (Allwood et al., 2005), gestural feedback movements mainly include head movements, facial expressions, and other gestures (postures, shoulder and hand movements). In the present study, head movements, facial expressions, postures, shoulder and hand movements were taken into account. (i) Feedback head movement mainly includes nods, shakes, and jerks. (ii) Feedback facial expressions primarily include eyebrow movements (frowning, raising), gaze (gaze up, gaze down, gaze sideways i.e. gaze left or right, gaze towards interlocutors), general face (smile, laughter, scowl), and shapes of mouth (open in a circle and corners down). (iii) Feedback postures mainly refer to the 'marked postures', i.e. trunk movements or posture changes, in this study. (iv) Feedback shoulder movements mainly refer to shoulder shrugs. (v) Feedback hand movements are not deeply subcategorized in this study, but just refer to any movement of hand(s) that is connected to feedback.

Because gestural feedback occurs very often accompanying vocal-verbal feedback (Allwood et al., 2003; Grammer et al., 2008), vocal-verbal feedback is a helper to distinguish feedback gestures from other gestures; therefore, types of vocal-verbal feedback are presented here at the same time. Vocal-verbal feedback primarily consists of small words feedback, mainly referring to the simple words feedback, as 'mm', 'aha', 'yeah', 'ok' for instance, and repetition feedback, mainly referring to the repeated feedback (more than once), which includes self-repetition feedback (by repeating one's own words) and other-repetition feedback (by repeating other interlocutors' words). For instance, 'yeah yeah yeah', 'ja ja ja ja ja' are self-repetition feedback, and 'it is raining' is other-repetition feedback to the preceding utterance of 'it is raining, isn't it?'

It should be noted that before the project was carried out, it was foreseen that there might be more feedback gestures in communication management which would still necessitate further development of the coding categories. While this study was being

conducted, one new coding category of gaze movement, gaze around, was found in the target data, which extends the MUMIN multimodal coding scheme.

1.2 Functions of feedback gestures in ICM

According to Allwood et al. (2003) and Grammer et al. (2008), feedback gestures can not only occur independently, but also occur very often accompanying vocal-verbal feedback expressions to accomplish **contact, perception, understanding, and emotional and attitudinal reactions (CPUE/A)** in ICM. Contact (C) means that the interlocutor is willing and able to continue interaction. Perception (P) means that the interlocutor perceives messages with discernment or awareness. Understanding (U) means that the interlocutor has understood the message. Emotional and attitudinal reactions (E/A) refer to the interlocutor's responsive or evocative reactions associated with expressive emotions or attitudes. Most often one feedback sign can be characterized by CPU at the same time, as Allwood, Cerrato, Dybjær, Jokinen, Navaretta, and Paggio identified (2005). The expressive attitudes and emotions of the functional gestural feedback can be more varied.

1.2.1 Emotional and attitudinal (E/A) functions of feedback gestures

Referring to Ekman's list of six basic emotions (1972), Ekman's expanded list of emotions (1999), and Allwood et al.'s (2005) MUMIN multimodal coding scheme, expressive emotions and attitudes that are associated with gestural feedback in the present study consist of agreement, amusement, appreciation, casualness, certainty, confidence, curiosity, disagreement, eagerness, embarrassment, friendliness, happiness, hesitation, interest, nervousness, patience, satisfaction, self-pity, shyness, surprise, sympathy, trust, uncertainty, in-confidence, and unease[1]. These attitudes and emotions associated with specific feedback gestures were investigated in detail. The equally important question, whether the attitudes and emotions are compatible or exclusive, was also discussed.

[1] All the emotions and attitudes are presented in alphabetic order.

1.2.2 Relation between feedback gestures and vocal-verbal feedback expressions

Based on previous studies (Allwood, 2002; Allwood et al., 2003; Grammer et al., 2008; Kopp, Allwood, Ahlsén & Stocksmeier, 2008), feedback gestures sometimes modify the meaning of the vocal-verbal expression by means of **reinforcement (R), other additions (O)** as well as **reinforcement with other additions (R+O)**. Reinforcement (R) means that the interlocutor's feedback gestures reinforce what is or has been said by vocal-verbal means. Other additions (O) refer to gestures that have some added meanings and functions to modify the vocal-verbal messages, such as affirmation or negation for instance The relation of other additions (O) was not sub-categorized in this project, because it still needs further categorizing. When feedback gestures modify the vocal-verbal feedback messages, functioning as reinforcement and other additions at the same time, they are identified as reinforcement with other additions (R+O).

2. Purpose

The main purpose of this study is to investigate the Chinese features of gestural feedback, mainly its functions and its relationship to vocal-verbal means, with gender and context variations in Chinese interactions. That is, a comparative study of which type and function of gestural feedback is more commonly used with gender variation and how it is manipulated in accompanying vocal-verbal feedback is carried out in Chinese-Chinese interactions; meanwhile, general differences of the use of Chinese gestural feedback are also studied between the Chinese-Chinese and the Chinese-Swedish interactions.

2.1 Research questions

Three research questions, what are features of Chinese gestural feedback, are there any gender differences, do Chinese people use different gestural feedback in mono-cultural and intercultural interactions, have been investigated. As a result, better insights of features of Chinese gestural feedback in terms of gender and context

differences[2] between the Chinese-Chinese mono-cultural and Chinese-Swedish intercultural interactions can be obtained.

2.2 Why study gestural feedback in mono-cultural vs intercultural interactions?

According to Bennett (1998) and Victor (1994), mono-cultural communication mainly refers to communication that takes place between people who share the same national or ethnic cultural characteristics, such as the dominant language, thoughts (primarily beliefs, values and social norms) and behaviors; meanwhile, intercultural communication occurs mainly between people who have different national or ethnic cultural characteristics (see above) (Allwood, 1985; Lustig & Koester, 2003; Samovar & Richard, 2001). The target Chinese-Chinese and Chinese-Swedish interactions were studied as mono-cultural and intercultural communication in this paper.

Dwivedi and Dwivedi (2009) shed light on the importance of building up Indian tourism professionals' awareness of using gestural feedback with international tourists, which implies there are differences with respect to mono-cultural and intercultural communication in terms of the use of gestural feedback. One interview project the author has recently conducted with 20 international students coming from 15 countries shows that most of the informants believe there are great differences in using gestural feedback when they communicate mono-culturally and inter-culturally. In order to find whether this is true and how large the differences are, Chinese gestural feedback in mono-cultural and intercultural interactions, as in the Chinese-Chinese and Chinese-Swedish informal dialogues, was investigated in this study.

2.3 Why study Chinese-Swedish interactions?

According to Allwood (1982, 2001) and Allwood, Cerrato, Dybjær, Jokinen, Navaretta & Paggio (2005), gestural feedback is multifunctional in use and there are 'systematic variations' of it between cultures and individuals. Since Chinese is

[2] Context differences in this study mainly refer to the macro and meso context variations, such as the national or ethnic cultural differences, rather than other micro context variations.

regarded as a culture of high-context, high power distance, high masculinity and collectivism, but Swedish is just the opposite (Hofstede, 2001; Hall, 1977), what will Chinese exhibit with respect to the 'systematic variation' of gestural feedback features when they are in a high-context (Chinese-Chinese) interaction and when they are in a high-context and low-context mixed (Chinese-Swedish) interaction? Chinese features of feedback gestures were compared between Chinese-Chinese and Chinese-Swedish informal dyadic dialogues in this study.

2.4 Why study gender variation?

According to Nicoladis, Pika, Yin, and Marentette (2007), women use more gestural means than men in story-telling without audience, which is more connected to Own Communication Management (OCM). Although the extent to which the types, functions, or relations of gestural feedback to vocal-verbal feedback vary between men and women is not discussed in their study, gender variation in using gestures is confirmed to some extent, i.e. females use more gestures than males. Then, how about the use of feedback gestures? Do females also use more feedback gestures than males? Besides this, are there any further differences in female-female, female-male, and male-male scenarios? When a systematic study of gestural feedback is the goal of research, gender variation should be taken into account.

3. Materials, method, and technical support

Eight dyadic dialogues of Chinese and Swedish university students with systematic variations of culture and gender had been video-recorded. Chinese is the communicative language for the Chinese-Chinese interactions; meanwhile, English is the communicative language for the Chinese-Swedish interactions.

In order to generalize some conclusions of the Chinese features of gestural feedback, four Chinese people, two females (Cf1 and Cf2) and two males (Cm1 and Cm2), were studied in four Chinese-Chinese video-recordings (see table 1). Gender variation was also investigated.

*Table 1: Numbers of video-recordings with respect to culture and gender differences (**Note:** C=Chinese, S=Swedish, f=female, and m=male.)*

interaction situation		Chinese-Chinese	Chinese-Swedish	No. of recordings
gender matching scenario	male-male	Cm1-Cm2	Cm1-Sm1	2
	male-female	Cm1-Cf2 & Cf1-Cm2	Cm1-Sf1 & Cf1-Sm1	4
	female-female	Cf1-Cf2	Cf1-Sf1	2
No. of recordings		4	4	8

One of the Chinese females (Cf1) and one of the Chinese males (Cm1) were studied in detail in a comparison between mono- cultural and intercultural interactions. In the male-female intercultural scenario, there were two interactions, one was between Chinese male (Cm1) and Swedish female (Sf1) and the other was between Chinese female (Cf1) and Swedish male (Sm1), as can be seen in table 1 also. Although the numbers of Chinese (with two females and two males) and Swedish (with one female and one male) subjects were quite restricted, they were still studied as representatives of different national or ethnic groups with gender variation in the project. This necessitates further quantitative studies.

In order to eliminate as many influencing factors as possible, such as acquaintance and physical environment, strangers who had no earlier acquaintance were given the task of getting to know each other, and they were video-filmed by three video cameras (left-, centre-, and right-posited) in standing position. With a purpose to present more reliable data for a comparative study, the main subjects Cf1 and Cm1 were video-recorded four times, and their counterparts Cf2, Cm2, Sf1 and Sm1 were video-recorded twice in different gender and cultural matching scenarios. Each video-recording lasted approximately eight to ten minutes, and the first five minutes were analyzed in detail in the present study.

Video-recorded data were transcribed and checked, according to the GTS version 6.2 (Nivre, 1999). There was one transcriber, who is the author, one Chinese checker mainly dealt with the Chinese-Chinese transcriptions reliability checking, and two Swedish checkers mainly dealt with the Chinese-Swedish transcriptions reliability

checking. Extractions of the video-recordings were manually annotated by means of the MUMIN multimodal coding scheme for feedback (Allwood et al., 2005; Navarretta, Allwood, Cerrato, Jokinen & Paggio, 2006). Features of gestural feedback varying between cultures and genders were primarily captured and analyzed manually. Self-confrontation interviews with some subjects were also carried out, when the author and transcriber was not sure about the interpretations of the subjects' intentionality of using feedback gestures. In this way, the attitudinal and emotional functions of the target feedback gestures were further explored. As a result, it was found that most of the interpretations of the emotions and attitudes made by the author were agreed on by the subjects. However, there were a few cases where the subjects forgot the underlying emotions and attitudes that they had in mind at the moment when they used some feedback gestures. The author did not get to the conclusion until the subjects and the author had achieved agreement. Consequently, people's self-recognition was enhanced and the coding scheme was enlarged to some extent.

Qualitative and quantitative analyzing methods, with respect to comparing the objects and the properties of feedback gestures, were primarily used in this study. That is, the objects, mainly the types of gestural feedback were analyzed quantitatively. The properties, mainly the underlying emotional and attitudinal functions of gestural feedback in particular and its relationship to vocal-verbal means, were studied qualitatively. General Chinese features of gestural feedback associated with context and gender variations were investigated comparatively in mono-cultural and intercultural interactions.

4. Analysis and results

In section 4, features of Chinese gestural feedback with the gender variation, including frequencies, types, and functions of gestural feedback as well as its relations to vocal-verbal feedback were studied in mono-cultural and intercultural interactions.

4.1 Features of Chinese gestural feedback in Chinese mono-cultural interactions

In the following sections of 4.1, frequencies, types and functions of Chinese gestural feedback as well as its relations to vocal-verbal feedback with gender variation in the Chinese-Chinese mono-cultural interactions were reported.

4.1.1 General distributional features of Chinese gestural feedback

All of the Chinese subjects had 65-85 utterances in each dialogue, as can be seen in table 2. There were only a few vocal-verbal feedback (only) expressions and a few gestural feedback (only) expressions, with low shares of 17% and 19% respectively. Most Chinese feedback was a combination of both vocal verbal and gestural means, with a share of 64%.

*Table 2: Numbers of Chinese gestural feedback and vocal-verbal feedback in Chinese-Chinese mono-cultural interactions (**Note:** all the percentages in this table are based on the total number of feedback used in the four Chinese-Chinese dialogues, and the percentages are rounded to the whole numbers.)*

data	**subject**	**number of utterance**	**number of feedback (henceforth FB)**			
			only vocal-verbal FB	**only gestural FB**	**gestural FB combined with vocal-verbal FB**	**total**
Dial. 1	Cf1	66	6 (2%)	7 (2%)	30 (9%)	43 (13%)
	Cf2	66	8 (2%)	7 (2%)	32 (10%)	47 (14%)
Dial. 2	Cf1	62	5 (2%)	12 (4%)	27 (8%)	44 (14%)
	Cm2	62	8 (2%)	5 (2%)	23 (7%)	36 (11%)
Dial. 3	Cm1	84	7 (2%)	5 (2%)	17 (5%)	29 (9%)
	Cf2	85	5 (2%)	12 (4%)	59 (18%)	76 (24%)
Dial. 4	Cm1	69	4 (1%)	2 (1%)	14 (4%)	20 (6%)
	Cm2	69	12 (4%)	7 (2%)	9 (3%)	28 (9%)
Total number of feedback			55 (17%)	57 (19%)	211 (64%)	323 (100%)

When gender variation is taken into account, the two Chinese males and two Chinese females were taken as representatives of Chinese males and females, although there was a restriction of the numbers of subjects in this study[3]. As can been seen from table 3, Chinese males and females did not show the same tendency of using gestural feedback. They had different preferences.

[3] Whenever gender variation is taken into account in this study with respect to either Chinese or Swedish, the only subject(s) is/are taken as representative(s) of the Chinese or the Swedish still, although there was a restriction of the numbers of subjects in the data of this pilot study project.

*Table 3: Numbers of gestural and vocal-verbal feedback between Chinese males and females (**Note:** all the percentages in this table are based on the total number of feedback used in the four Chinese-Chinese dialogues, and the percentages are rounded to the whole numbers.)*

Chinese subjects	**number of feedback (FB)**			
	only vocal-verbal FB	**only gestural FB**	**gestural FB combined with vocal-verbal FB**	**total**
female	24 (8%)	38 (12%)	148 (45%)	210 (65%)
male	31 (9%)	19 (7%)	63 (19%)	113 (35%)
total	55 (17%)	57 (19%)	211 (64%)	323 (100%)

The Chinese males used 9% of all the feedback as vocal-verbal feedback (only), which is roughly the same as females used (with a frequency of 8%), as shown in table 3. However, totally Chinese females used approximately twice as many feedback as Chinese males, with frequencies of 65% and 35% respectively. The Chinese females also used more than twice as many combinations of gestural feedback and vocal-verbal feedback expressions (with a share of 45%) as Chinese males used (with a share of 19%). To put it differently, Chinese males and females have equal use of vocal-verbal feedback (only), although with rather low frequencies; meanwhile, the Chinese females used more feedback gestures, with an average frequency of more than twice of the males.

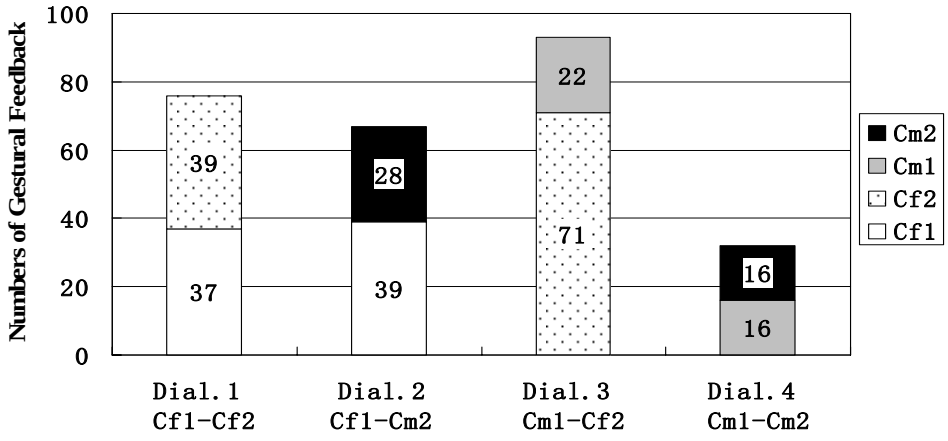

Figure 1: Numbers of Chinese gestural feedback in Chinese-Chinese interactions in relation to gender

Chinese males and females varied a lot in using gestural feedback when they were communicating with the same and with the different gender (see table 2). First,

Chinese females Cf1 and Cf2 tended to use more gestural feedback when they were communicating with the different gender. As presented in figure 1, female Cf1 used 37 feedback gestures when she was communicating with female Cf2, but she used 39 with male Cm2. Although 37 and 39 can be regarded roughly the same, there are still two more from 37 to 39. Cf2 used 39 feedback gestures when she was communicating with female Cf1, but she used 71 with male Cm1. Second, Chinese males showed the same tendency that they used more feedback gestures when they were communicating with the different gender other than with the same gender. As can be seen in figure 1, both Cm1 and Cm2 used 16 feedback gestures, when they were communicating with the same gender; whereas, they used 22 and 28 respectively, when they were communicating with the different gender.

4.1.2 Types of Chinese gestural feedback

According to the coding scheme adopted in this study, as mentioned in section 1.1, the target gestural feedback mainly consists of head movements, facial expressions, postures, as well as shoulder and hand movements. As can be seen from table 4, 47% of Chinese feedback gestures were head movements, 49% were facial expressions, and only 4% were hand movements. In addition, there was only one posture used by one Chinese male, Cm2, and there was no shoulder movement at all (see table 4).

*Table 4: Types of Chinese gestural feedback (**Note:** all the percentages in this table are based on the total number of gestural feedback used in the four Chinese-Chinese dialogues, and the percentages are rounded to the whole numbers except that of the occurrence of 1 which is rounded to 0. 1% instead. Otherwise, it would be 0% for the occurrence of 1, which does not really make sense for this statistical analysis.)*

types of gestural feedback	**numbers of gestural feedback**										
	Dial.1		**Dial.2**		**Dial.3**		**Dial.4**		**gender term**		**total**
	Cf1	Cf2	Cf1	Cm2	Cm1	Cf2	Cm1	Cm2	female	male	
head movement	15 6%	23 9%	10 4%	7 3%	8 3%	50 19%	8 3%	5 2%	98 37%	28 10%	126 47%
facial expression	21 8%	14 5%	26 10%	21 8%	13 5%	19 7%	8 3%	9 3%	80 30%	51 19%	131 49%
hand movement	1 0.4%	2 1%	3 1%	0 0%	1 0.4%	2 1%	0 0%	1 0.4%	8 3%	2 1%	10 4%
posture	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%	1 0.4%	0 0%	1 0.4%	1 0.4%

shoulder movement	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%
total	37 14%	39 15%	39 15%	28 11%	22 8%	71 26%	16 6%	16 5%	186 70%	82 30%	268 100%

As can be seen from table 4, Chinese females used 70% of all the feedback gestures, which was more than twice of those Chinese males used (with a frequency of 30%). Comparing with all the types of feedback gestures, Chinese females showed the greatest preference of using head movement over others. For instance, Chinese females used 37% of head movements, but 30% facial expressions and only 3% hand movements in total (see table 4). On the other hand, Chinese males showed the greatest preference of using facial expressions rather than other feedback gestures. For example, Chinese males used 19% facial expressions, but 10% head movements, 1% hand movements and only 0.4% postures. Neither Chinese females nor males would like to use shoulder movement or posture as feedback in communication. Since the coding scheme for gestural feedback in this study, as already introduced in section 1.1 on page 2, primarily includes head movements, facial expressions, postures, shoulder movements, and hand movements, other body movements or gestures such as foot or leg movements were not taken into account in the present project.

What is more interesting is that both females and males showed a greater tendency of using almost the same numbers of feedback gestures when they were communicating with the same gender. For example, with respect to Chinese males' interaction in dialogue 4, Cm1 and Cm2 used 6% and 5% feedback gestures respectively, with 3% and 2% of head movements, 3% and 3% facial expressions, as well as almost 0% and 0% hand movements and postures for each respectively (see table 3). With respect to Chinese females' interaction in dialogue 1, Cf1 and Cf2 used roughly the same frequencies of feedback gestures, with shares of 14% and 15% respectively. As can be seen in the same dialogue 1 from table 4, when Cf1 used 6% head movements, Cf2 used 9%; when Cf1 used 8% facial expressions, Cf2 used 5%; when Cf1 used 0.4% hand movements, Cf2 used 1%. The statistics shows that both Chinese females and

males tended to use roughly the same frequencies of the same type of feedback gesture when they were communicating with the same gender. However, when Chinese females and males communicated with the different gender, they did not show the same tendency as above. As can be seen from the same table 4, Cf1 used 15% feedback gestures in dialogue 2, but Cm2 used 11%; similarly, Cf2 used 26% feedback gestures in dialogue 3, but Cm1 used only 8%.

Head movements, facial expressions, hand movements and postures are examined in detail in the following sections.

4.1.2.1 Head movements of Chinese gestural feedback

According to the coding scheme presented in section 1.1, feedback head movement includes tilts, nods, shakes, and jerks. As presented in table 5, Chinese females and males used 126 feedback head movements in total, 87% of which were nods. Tilts, shakes, and jerks only occurred with percentages of 4%, 4% and 5% respectively.

*Table 5: Numbers of feedback head movements in Chinese mono-cultural interactions (**Note:** all the percentages in this table are based on the total number of feedback head movements used in the four Chinese-Chinese dialogues, and the percentages are rounded to the whole numbers.)*

head movements	**Dial.1**		**Dial.2**		**Dial.3**		**Dial.4**		gender term		total
	Cf1	Cf2	Cf1	Cm2	Cm1	Cf2	Cm1	Cm2	F	M	
tilt(s)	2	0	0	3	0	0	0	0	2	3	5
	2%	0%	0%	2%	0%	0%	0%	0%	2%	2%	4%
nod(s)	13	22	8	3	7	45	7	5	88	22	110
	10%	17%	6%	2%	6%	36%	6%	4%	69%	18%	87%
shakes(s)	0	0	1	0	1	2	1	0	3	2	5
	0%	0%	1%	0%	1%	1%	1%	0%	2%	2%	4%
jerk(s)	0	1	1	1	0	3	0	0	5	1	6
	0%	1%	1%	1%	0%	2%	0%	0%	4%	1%	5%
total	15	23	10	7	8	50	8	5	98	28	126
	12%	18%	8%	5%	7%	39%	7%	4%	77%	23%	100%

It can be noted from the same table 5 that nods were mostly used by females (with a share of 69%) compared with males (with a share of only 18%). Both Chinese females and males used the same frequency of tilts and shakes, with a percentage of 2%

for each. Besides this, females used 4% jerks, but males used only 1%.

4.1.2.2 Facial expressions of Chinese gestural feedback

Following the MUMIN multimodal coding scheme, feedback facial expressions primarily include eyebrow movements (frowning, raising), gaze (gaze up, gaze down, gaze sideways, i.e. gaze left or right, gaze towards interlocutors), general face (smile, laughter, scowl), and shapes of mouth (open in a circle and corners down), as presented in section 1.1.

*Table 6: Numbers of Chinese feedback facial expressions in Chinese mono-cultural interactions (**Note:** all the percentages in this table are based on the total number of feedback facial expressions used in the four Chinese-Chinese dialogues, and the percentages are rounded to the whole numbers.)*

facial	**displays**	Dial. 1		Dial. 2		Dial. 3		Dial. 4		gender		**total No.**	
		Cf1	Cf2	Cf1	Cm2	Cm1	Cf2	Cm1	Cm2	F	M		
eye-brow	frowning	1	0	1	0	0	2	0	0	4 3%	0 0%	4 3%	14 11%
	raising	1	1	4	1	0	0	2	1	6 5%	4 3%	10 8%	
gaze	up	4	1	2	0	0	0	0	1	7 5%	1 1%	8 6%	55 42%
	down	2	1	0	0	1	0	0	1	3 2%	2 2%	5 4%	
	around	3	1	5	7	0	0	0	0	9 7%	7 5%	16 12%	
	sideways	1	0	0	3	3	2	2	4	3 2%	12 9%	15 11%	
	at inter-locutor	3	1	2	4	1	0	0	0	6 5%	5 4%	11 9%	
general face	smile	4	7	9	6	5	7	1	0	27 21%	12 9%	39 30%	57 44%
	laughter	0	2	2	0	1	8	3	2	12 9%	6 5%	18 14%	
	scowl	0	0	0	0	0	0	0	0	0 0%	0 0%	0 0%	
eyes shape		0	0	0	0	0	0	0	0	0 0%	0 0%	0 0%	0 0%
mouth shape	open in a circle	2	0	0	0	2	0	0	0	2 2%	2 1%	4 3%	5 3%
	corners down	0	0	1	0	0	0	0	0	1 0%	0 0%	1 0%	
total No.		21	14	26	21	13	19	8	9	80 61%	51 39%	131 100%	

Chinese females and males used 131 feedback facial expressions in total, most of which were gaze movements and general faces with shares of 42% and 44% respectively (see table 6). Chinese females and males used 11% eyebrow movements and 3% mouth shape movements, but they did not use any eyes shape displays to show feedback at all. In addition, one new coding category of gaze around was found in the Chinese-Chinese interactions, which eventually extends the MUMIN multimodal coding scheme for feedback gestures.

Chinese subjects used general face displays (with a share of 44%) most frequently, including 30% smiles and 14% laughter, comparing with other feedback facial expressions. In the data, there was no scowl at all. Gaze movements (with a share of 42%) were the second most commonly used Chinese feedback facial expressions, and there were 12% of all the feedback facial expressions were gaze around. Chinese also used a lot of gaze sideways and gaze at the interlocutor, with percentages of 11% and 9% respectively (see table 6). There were 11% eyebrow movements, consisting of 8% eyebrow raising and 3% frowning. However, frowning was only used by Chinese females not by males, as can be seen from table 6.

When it comes to the gender variation, Chinese females and males did not vary much in using gaze down, gaze around and gaze at the interlocutor, with shares of 2% versus 2%, 7% versus 5%, and 5% versus 4% respectively. Neither did they vary much in using mouth shape displays. For instance, Chinese females used 2% mouth open in a circle, and males used 1%. However, as shown in table 6, Chinese males used more feedback gaze sideways than females with a share of 9% compared to 2%, although they used less feedback facial expressions with a share of 39% compared to females' 61%.

4.1.2.3 Postures, hand and shoulder movements of Chinese gestural feedback

The rest of the types of gestural feedback include feedback postures (mainly the trunk movements), feedback shoulder movements (mainly shoulder shrugs), and hand

movements, as can be referred to the coding scheme presented in section 1.1.

Table 7: Numbers of feedback postures, hand and shoulder movements in Chinese mono-cultural interactions

types	**Dial.1**		**Dial.2**		**Dial.3**		**Dial.4**		gender term		total
	Cf1	Cf2	Cf1	Cm2	Cm1	Cf2	Cm1	Cm2	F	M	
postures	0	0	0	0	0	0	0	1	0	1	1
shoulders	0	0	0	0	0	0	0	0	0	0	0
hands	1	2	3	0	1	2	0	1	8	2	10

As shown in table 7, there was only one marked posture used by one Chinese male, and there was no shoulder movement used by any Chinese at all. It is surprising that Chinese people used as many as 10 feedback hand movements in the data, since hand movement has not been found as a very common feedback gesture in any of the previous studies that have been presented in this paper. Furthermore, it was found that most of those hand movements were used accompanying laughter or smiles in the Chinese-Chinese video-recordings (see comment 2 in excerpt 1[4]). Since the Chinese subjects laughed and smiled very often in this particular activity, they had many hand movements accompanying the smiles and laughter as feedback. Especially the Chinese females used as many as four times of hand movements that Chinese males used. This proportion is roughly the same as that of laughter and smiles that females used in the Chinese-Chinese data compared with males, i.e. three to four times more frequently than males, as presented in the previous section 4.1.2.2.

Excerpt 1: (extracted from dialogue 3 transcription page 2)
$ Cm1: ou wo shi wo shi hui zu
$ Cf2: <1 <2 <3 ou ha xing>3 >2 >1 zan liang dou shi shao shu min zu
@ <1 gaze at> CPUE/A **interest/ surprise**
@ <2 left hand covers the mouth> CPUE/A **casualness**
@ <3 laugh> CPUE/A **happiness/ surprise**
English translation:
$ Cm1: oh i am i am of *hui* nationality
$ Cf2: oh ha good both of us are of minority nationalities (among Chinese 56 nationalities)

[4] In this study, all the functions of feedback gestures are bolded in the comments in the presented excerpts.

4.1.3 Functions of Chinese gestural feedback

As presented in section 1.2, basic functions of gestural feedback, C (Contact), P (Perception), U (Understanding), and E/A (emotion and attitude) as well as its relation to vocal-verbal feedback expressions were examined in detail in this section.

*Table 8: Basic functions of Chinese gestural feedback in mono-cultural interactions (**Note:** all the percentages in this table are based on the total number of the basic functions of Chinese gestural feedback used in the four Chinese-Chinese dialogues, and they are rounded to the whole numbers.)*

function	**Dial.1**		**Dial.2**		**Dial.3**		**Dial.4**		gender term		total
	Cf1	Cf2	Cf1	Cm2	Cm1	Cf2	Cm1	Cm2	F	M	
CPUE/A	37	39	39	27	21	71	15	15	186 (69%)	78 (30%)	264 (99%)
CPE/A	0	0	0	1	1	0	1	1	0 (0%)	4 (1%)	4 (1%)
total	37	39	39	28	22	71	16	16	186 (69%)	82 (31%)	268 (100%)

As can be seen from table 8, there was 99% Chinese gestural feedback functioning as CPUE/A at the same time; meanwhile, only 1% of the Chinese feedback gestures functioned as CPE/A without U. As can be seen in excerpt 2, Cm2 did not understand what Cf1 said in the preceding utterance, but Cm2 accomplished CPE/A.

Excerpt 2: (extracted from dialogue 2 transcription page 1)
$ Cf1: sui bian liao
$ Cm2: <1 a>1
@ <1 eye brow raise> CPE/A surprise
English translation:
$ Cf1: (we can) talk freely
$ Cm2: what

Most often interlocutors in the data can accomplish C, P, U, and E/A simultaneously, i.e. both Chinese females and males showed rather high communicative competence in accomplishing the basic functions of gestural feedback in this 'strangers' first-meeting' activity.

What is more interesting is that the Chinese subjects also showed gender variation here. Chinese males did not show that they were as good as females in understanding. As can be seen in all the Chinese-Chinese dialogues, it was only males that had problems in accomplishing U of the basic communicative functions. As in dialogues 2 and 3 between different genders, Cm2 did not understand the other female interlocutor Cf1 once, by raising eyebrow in dialogue 2; similarly, Cm1 did not understand Cf2 once, by using gaze around in dialogue 3 (see table 8). In addition, the lack of U doubled in dialogue 4 between males Cm1 and Cm2 with a frequency of 2. This lack of U in males can be easily perceived by the audience, as shown in excerpt 2 for instance. Females did not have any lack of U at all, at least as the Chinese females showed themselves in the four Chinese-Chinese dialogues.

4.1.3.1 Emotional and attitudinal functions of Chinese feedback gestures

The expressive attitudes and emotions of feedback gestures[5], including agreement, amusement, appreciation, casualness, certainty, confidence, curiosity, disagreement, eagerness, embarrassment, friendliness, happiness, hesitation, interest, nervousness, patience, satisfaction, self-pity, shyness, surprise, sympathy, trust, uncertainty, in-confidence, and unease, as mentioned in section 1.2.1, were studied in detail in this section.

As can be seen in table 9[6], the emotions of agreement, certainty, interest, surprise, and uncertainty occurred most commonly in the Chinese data, with shares of 25%, 9%, 10%, 8%, and 9% respectively. Head movements were most frequently used for expressing agreement (20%) and certainty (9%). Facial expressions were most commonly used for expressing hesitation (6%), interest (6%), surprise (6%), and uncertainty (7%). Hand movements were frequently used to convey the attitude and emotion of casualness (2%). The only one posture was used for showing casualness.

[5] Some emotions and attitudes are not mutually exclusive, as can be seen in the following study. They can work together simultaneously.

[6] It should be noted that when one feedback gesture serves more than one emotional and attitudinal functions, the numbers of emotional and attitudinal functions were counted and taken into account in this study instead of the numbers of feedback gestures.

*Table 9: Emotional and attitudinal functions of Chinese feedback gestures in Chinese mono-cultural interactions (**Note:** all the percentages in this table are based on the total number of the emotional and attitudinal functions of the gestural feedback used in the four Chinese-Chinese dialogues, and the percentages are rounded to the whole numbers except that of the occurrence of 1 which is rounded to 0.1% instead. Otherwise, it would be 0% for the occurrence of 1, which does not really make sense for this statistical analysis.)*

functions	***head movement***	***facial expression***	***hand movement***	***posture***	**total**
agreement	68 (20%)	18(5%)	0 (0%)	0 (0%)	86 (25%)
amusement	0 (0%)	9 (3%)	0 (0%)	0 (0%)	9 (3%)
appreciation	2 (1%)	0 (0%)	0 (0%)	0 (0%)	2 (1%)
casualness	2 (1%)	1 (0.3%)	8 (2%)	1 (0.3%)	12 (3%)
certainty	32 (9%)	1 (0.3%)	0 (0%)	0 (0%)	33 (9%)
confidence	1 (0.3%)	0 (0%)	0 (0%)	0 (0%)	1 (0.3%)
curiosity	0 (0%)	1 (0.3%)	1 (0.3%)	0 (0%)	2 (1%)
disagreement	0 (0%)	5 (1%)	0 (0%)	0 (0%)	5 (1%)
eagerness	6 (2%)	0 (0%)	0 (0%)	0 (0%)	6 (2%)
embarrassment	1 (0.3%)	15 (4%)	1 (0.3%)	0 (0%)	17 (5%)
friendliness	0 (0%)	8 (2%)	0 (0%)	0 (0%)	8 (2%)
happiness	0 (0%)	7 (2%)	0 (0%)	0 (0%)	7 (2%)
hesitation	4 (1%)	19 (6%)	0 (0%)	0 (0%)	23 (7%)
interest	11 (3%)	21 (6%)	2 (1%)	0 (0%)	34 (10%)
nervousness	0 (0%)	0 (0%)	1 (0.3%)	0 (0%)	1 (0.3%)
patience	5 (1%)	4 (1%)	1 (0.3%)	0 (0%)	10 (2%)
satisfaction	0 (0%)	2 (1%)	0 (0%)	0 (0%)	2 (1%)
self-pity	0 (0%)	3 (1%)	0 (0%)	0 (0%)	3 (1%)
shyness	0 (0%)	1 (0.3%)	0 (0%)	0 (0%)	1 (0.3%)
surprise	8 (2%)	21 (6%)	0 (0%)	0 (0%)	29 (8%)
sympathy	4 (1%)	1 (0.3%)	0 (0%)	0 (0%)	5 (1%)
trust	4 (1%)	1 (0.3%)	0 (0%)	0 (0%)	5 (1%)
uncertainty	7 (2%)	25 (7%)	1 (0.3%)	0 (0%)	33 (9%)
in-confidence	0 (0%)	2 (1%)	0 (0%)	0 (0%)	2 (1%)
unease	0 (0%)	2 (1%)	1 (0.3%)	0 (0%)	3 (1%)
total	155(45%)	167(49%)	16 (5%)	1 (0.3%)	339 (100%)

Referring to the preceding results as above, there were totally 268 feedback gestures used by the Chinese subjects in their mono-cultural interactions conveying 339 emotional and attitudinal functions. It was found that many emotions and attitudes were not exclusive, i.e. one feedback gesture can have more than one emotional and attitudinal functions. For instance, agreement often worked together with hesitation,

uncertainty, or certainty in the target data; eagerness often went together with interest, as presented in detail in the following.

With respect to feedback head movements in the Chinese-Chinese interactions, the most common emotional and attitudinal functions of them were agreement, certainty, and interest, with frequencies of 68, 32, and 11 respectively (see table 10), and most of them were conveyed by nods. As can be also seen from table 10, tilt used by Chinese people was normally functioning as showing interest, patience, or casualness, with the same frequency of 2 for each. Nod was most frequently functioning as agreement, certainty, interest, and eagerness, with frequencies of 66, 32, 9 and 6 respectively. Shake was only functioning as agreement (with a frequency of 2) and surprise (with a frequency of 1). Jerk only functioned as surprise and uncertainty, with frequencies of 5 and 1 respectively.

Table 10: Emotional and attitudinal functions of Chinese feedback head movements in Chinese mono-cultural interactions

head movement	eagerness	certainty	uncertainty	trust	agreement	interest	patience	surprise	appreciation	sympathy	embarrassment	confidence	hesitation	casualness	total
tilt	0	0	0	0	0	2	2	1	0	0	1	1	0	2	9
nod	6	32	5	4	66	9	3	1	2	4	0	0	4	0	136
shake	0	0	1	0	2	0	0	1	0	0	0	0	0	0	4
jerk	0	0	1	0	0	0	0	5	0	0	0	0	0	0	6
total	6	32	7	4	68	11	5	8	2	4	1	1	4	2	155

When nod functioned as showing eagerness, it sometimes served as showing interest simultaneously. For instance, in excerpt 3, Cf2 showed great eagerness and interest of Cm1's nationality belief by repeating the Chinese feedback word 'en' three times with nods. As presented in excerpt 4, when nod functioned as showing hesitation, it very often went together with agreement at the same time, i.e. the hesitant agreement.

Excerpt 3: (extracted from dialogue 3 transcription page 2)
$ Cm1: dui wo zhi bu guo dan shi wo bu zuo shen me li bai a zhi lei de
$ Cf2: <1 en en en >1
@ <1 nods> CPUE/A eagerness/interest
English translation:
$ Cm1: yes i just but i do not go to church or such activities
$ Cf2: ok ok ok

Excerpt 4: (extracted from dialogue 4 transcriptions page 8-9)
$ Cm2: dan shi ta men dou shi zuo gong ye she ji de ran hou gong ye she ji jiu shi chu yi xie zhi sheng ji a shen me de
$ Cm1: <1 e e e dui>1
@ <1 nods> CPUE/A hesitation/agreement
English translation:
$ Cm2: however they are doing industrial design and mainly designing helicopters and so forth
$ Cm1: emm emm emm yeah

Furthermore, when nod was used to show trust, it often functioned as agreement simultaneously, and when nod was used to show sympathy, it often functioned as trust at the same time (see excerpt 5 and 6 respectively).

Excerpt 5: (extracted from dialogue 3 transcriptions page 2-3)
$ Cm1: na ge da le zhi hou wo ye mei you shi jian
$ Cf2: <1 en>1
@ <1 nods> CPUE/A trust/agreement
English translation:
$ Cm1: then when i grow up i do not have time
$ Cf2: yes i know

Excerpt 6: (extracted from dialogue 3 transcription page 3)
$ Cm1: wo yi zhi bu chi zhu rou de
$ Cf2: <1 a>1
@ <1 nods> CPUE/A sympathy/trust
English translation:
$ Cm1: i never eat pork
$ Cf2: ah

With respect to feedback facial expressions in the Chinese-Chinese data, the most common emotional and attitudinal functions of them were uncertainty, surprise, interest, friendliness, and agreement, with frequencies of 25, 22, 21, 17, and 16 respectively (see table 11).

Table 11: Numbers of motional and attitudinal functions of Chinese feedback facial expressions in Chinese mono-cultural interactions

facial exp.	**amusement**	**disagreement**	**uncertainty**	**trust**	**agreement**	**interest**	**patience**	**surprise**	**self-pity**	**sympathy**	**embarrassme**	**shyness**	**hesitation**	**casualness**	**happiness**	**satisfaction**	**in-confidence**	**friendliness**	**curiosity**	**unease**	**certainty**	**total**
eyebrow frown	0	0	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	4
eyebrow raise	0	0	2	0	0	1	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	13
gaze up	0	0	4	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	8
gaze down	0	1	1	0	0	0	0	0	0	1	0	0	2	0	0	0	1	0	0	0	0	6
gaze sideway	0	0	6	0	3	0	0	0	1	0	0	0	4	0	0	0	0	0	0	2	0	16
gaze around	0	1	9	0	2	1	1	0	1	0	0	0	5	0	0	0	0	0	0	0	0	20
gaze at	0	0	1	1	3	8	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	17
smile	3	3	0	0	4	9	0	1	1	0	9	1	1	0	2	0	0	11	0	0	0	45
laugh	6	0	0	0	4	2	0	1	0	0	4	0	0	0	5	2	0	6	1	0	1	32
mouth circle	0	0	0	0	0	0	0	3	0	0	1	0	1	0	0	0	0	0	0	0	0	5
mouth corner	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
total number	9	5	25	1	16	21	4	22	3	1	14	1	13	1	7	2	1	17	1	2	1	167

As can be seen from table 11, eyebrow raising was most frequently used for showing surprise, with a frequency of 11. Eye brow frowning was only used to show surprise and uncertainty, with a frequency of 2 for each. In the same table 11, it can be also seen that Chinese gaze movements played an important role in communicating emotional and attitudinal messages. For instance, gaze up simply functioned as showing uncertainty and surprise, with a frequency of 4 for each. Gaze down was mainly used to show hesitation with a frequency of 2, which sometimes worked

together with agreement simultaneously (see excerpt 7). Gaze sideways were mainly used for conveying uncertainty with a frequency of 6. Gaze around were mainly used to show uncertainty or hesitation (see excerpt 8) with frequencies of 9 and 5 respectively. Gaze at the interlocutor primarily functioned as showing interest with a frequency of 8.

Excerpt 7: (extracted from dialogue 1 transcription page 3)
$ Cf1: wo you management
$ Cf2: <1 na ou dui shi>1 ying gai shi
@ <1 gaze down> CPUE/A hesitation/agreement
English translation:
$ Cf1: i have management (in my major)
$ Cf2: then oh yeah yes could be

Excerpt 8: (extracted from dialogue 2 transcription page 4)
$ Cm2: wo hai yi wei ye shi zhe ge zhuan ye ne
$ Cf1: <1 a ou bu shi>1 wen xue
@ <1 gaze around> CPUE/A hesitation/in-confidence
English translation:
$ Cm2: i did not think you were not studying the same subject (before)
$ Cf1: ah oh no (i used to study) literature

General face expressions smile and laughter were also used commonly to convey emotional and attitudinal messages. As can be seen from table 11, smile was mainly used for showing friendliness, embarrassment and interest, with frequencies of 11, 9 and 9 respectively. For example, as in excerpt 9, Chinese people smiled when they felt embarrassed, which might be culture dependent. Meanwhile, laughter mainly functioned as expressing happiness, amusement, and friendliness, with almost the same frequency around 6 for each (see table 11 also).

Excerpt 9: (extracted from dialogue 4 transcription page 1)
$ Cm2: ran hou wo men xia mian liao shen me ne ha ha ha
$ Cm1: a <1 he he he>1
@ <1 smile> CPUE/A embarrassment/friendliness
English translation:
$ Cm2: then what shall we talk about (laugh)
$ Cm1: ah (smile)

Concerning mouth shapes, Chinese subjects usually opened mouth in a circle to show surprise and made mouth corners down to show casualness, as can be seen in excerpt 10 and 11.

Excerpt 10: (extracted from dialogue 1 transcription page 2)
$ Cf2: ran hou na ge wo xian zai ye zai lindholmen na kuai er du
$ Cf1: <1 <2 >2 >1
@ <1 eyebrow raise> CPUE/A surprise
@ <2 mouth open in a circle> CPUE/A surprise
English translation:
$ Cf2: then (i want to say) i am now studying in lindholmen also
$ Cf1: (only gestures)

Excerpt 11: (extracted from dialogue 2 transcription page 6)
$ Cm2: xia yi ge topic shi
$ Cf1: <1 en>1 ai hao a zhi lei de
@ <1 mouth corners down> CPUE/A casualness
English translation:
$ Cm2: next topic is
$ Cf1: emm hobby and so on so forth

Table 12: Emotional and attitudinal functions of Chinese feedback hand movements and postures in Chinese mono-cultural interactions

functions	***hand movement***	***posture***	**total**
casualness	8	1	12
curiosity	1	0	2
embarrassment	1	0	17
interest	2	0	34
nervousness	1	0	1
patience	1	0	10
uncertainty	1	0	33
unease	1	0	3
total	16	1	339

As shown in table 12, hand movements and postures mainly functioned as casualness, although there were not many. Most of the feedback hand movements functioned as conveying emotional and attitudinal message of casualness, as presented in excerpt 12 and 13 (see comment 2).

Excerpt 12: (extracted from dialogue 4 transcription page 2-3)
$ Cm1: dian zi chan pin de gong si
$ Cm2: <1 a ha>1
@ <1 hands cross each other> CPUE/A interest/casualness
English translation:
$ Cm2: an electronic product company
$ Cf1: aha

Excerpt 13: (extracted from dialogue 3 transcription page 1)
$ Cf2: e wo jiao ge gen ta na jiao wo ta na jiu xing
$ Cm1: a ha
$ Cf2: <1 <2 hei shao shu min zu >2 >1
@ <1 smile> CPUE/A friendliness
@ <2 hands are crossing each other and playing in front of the breast> CPUE/A casualness
English translation:
$ Cf2: well my name is ge gen ta na call me ta na is ok
$ Cf1: what oh
$ Cf2: yes (i am of) minority nationality

Some hand movements were also used as showing uncertainty or curiosity. As in excerpt 14, the subject Cm2 showed he was thinking about it or trying to figure it out by means of the vocal-verbal feedback expression 'a' with a long duration and the feedback hand movement. Hand movements were also used to show nervousness (see excerpt 15, comment 4) and patience (see excerpt 16, comment 1).

Excerpt 14: (extracted from dialogue 4 transcription page 3)
$ Cm1: mei ji ge ren shi shi shang
$ Cm2: <1 a>1
@ <1 left hand touches the chin> CPE/A uncertainty/curiosity
English translation:
$ Cm2: as a matter of fact there are not many people
$ Cf1: oh

Excerpt 15: (extracted from dialogue 3 transcription page 7)
$ Cf2: na ni xian zai zhao dao le ma
$ Cm1: <1 <2 <3 <4 a >4 >3 >2 >1
@ <1 smile> CPUE/A embarrassment
@ <2 mouth open in a circle> CPUE/A embarrassment/surprise
@ <3 gaze left and back to look at Cf2> CPUE/A embarrassment/unease
@ <4 hands move to cross each other in front of the belly> CPUE/A nervousness
English translation:
$ Cm2: then did you find the girl (you want)
$ Cf1: ah

Excerpt 16: (extracted from dialogue 2 transcription page 2)
$ Cm2: dui wo shi ling ba jie ling ba jie na ge e
$ Cf1: <1 <2 en >2 >1
@ <1 hands move to the front of the belly instead of scratching the clothes> CPE/A patience
@ <2 one nod> CPUE/A agreement
English translation:
$ Cm2: yes i was admitted in 2008 2008 and then
$ Cf1: yes (i think so and then what do you want to say)

4.1.3.2 Relation between Chinese feedback gestures and vocal-verbal means

As discussed in section 1.2.2, feedback gestures sometimes modify the meaning of the vocal-verbal expressions by means of reinforcement (R), other additions (O) as well as reinforcement with other additions (R+O). In this section, Chinese feedback gestures that accompanied vocal-verbal feedback expressions were investigated in terms of these three relations.

T*able 13: Relation between Chinese feedback gestures and vocal-verbal means in Chinese mono-cultural interactions (**Note:** all the percentages in this table are based on the total number of gestural feedback that are accompanying vocal-verbal feedback means in the four Chinese-Chinese dialogues, and the percentages are rounded to the whole numbers.)*

FB gestures	***reinforcement (R)***	***other additions (O)***	***R+O***	***total No.***
head movements	84 (40%)	18 (9%)	8 (4%)	110 (53%)
facial expressions	10 (5%)	82 (39%)	1 (0%)	93 (44%)
hand movements	0 (0%)	7 (3%)	0 (0%)	7 (3%)
postures	0 (0%)	1 (0%)	0 (0%)	1 (0%)
shoulder movements	0 (0%)	0 (0%)	0 (0%)	0 (0%)
total No.	94 (45%)	108 (51 %)	9 (4%)	211 (100%)

Only 4% of the feedback gestures functioned as R+O to its accompanied vocal-verbal feedback expressions, as shown in table 13; whereas, most gestural feedback functioned as O or R to the vocal-verbal means, with shares of 51% and 45% respectively. Similarly important, most of the head movements functioned as R, with a share of 40%. Most of the facial expressions functioned as O, with a share of 39% also. Hand movements (with a share of 3%) and postures (with a frequency of 1) only

functioned as O (see table 13).

4.1.3.2.1 Relation between Chinese feedback head movements and vocal-verbal means

With respect to head movements in the Chinese-Chinese data, as can be seen from table 14, there were 76.4% of them functioned as R, 16.5% head movements functioned as O and only 7% functioned as R+O to its accompanied vocal-verbal feedback expressions. That is, most head movements by Chinese people were used as R, some of them were used as O, and only a few of them were used as R+O.

*Table14: Relation between Chinese feedback head movements and vocal-verbal means in Chinese mono-cultural interactions (**Note:** all the percentages in this table are based on the total number of feedback head movements that are accompanying vocal-verbal feedback means in the four Chinese-Chinese dialogues, and the percentages are rounded to the whole numbers except that of the occurrence below 5 which is rounded to 0. 1% instead.)*

head movements	***tilt(s)***	***nod(s)***	***shake(s)***	***jerk(s)***	***total***
reinforcement (R)	0 (0%)	78 (71%)	3 (2.7%)	3 (2.7%)	84(76.4%)
other additions (O)	3 (2.7%)	13 (12%)	1 (0.9%)	1 (0.9%)	18(16.5%)
R+O	0 (0%)	8 (7%)	0 (0%)	0 (0%)	8 (7%)
total	3 (2.7%)	99 (90%)	4 (3.6%)	4 (3.6%)	110 (100%)

As presented in table 14, tilt was only used as O, with a frequency of 2.7%. Nod, shake and jerk were most commonly used as R, with frequencies of 71%, 2.7% and 2.7% respectively. What's more, almost all the jerks in the Chinese data were accompanied by eyebrow raise, as can be seen in excerpt 17, functioning as reinforcement to the vocal-verbal feedback expression(s) and very often with an emotion and attitude of surprising.

Excerpt 17: (extracted from dialogue 3 transcription page 5)
$ Cm1: yin wei yin wei yin wei na ge yi hou xue yuan ma bi jiao hao
$ Cf2: <1 <2 shi ma>2 >1
@ <1 eyebrow raise> CPUE/A surprise R
@ <2 jerk> CPUE/A surprise R
English translation:

$ Cm1: because because because (it will result in) better blood kinship
$ Cf2: really

4.1.3.2.2 Relation between Chinese feedback facial expressions and vocal-verbal means

There were 93 facial expressions accompanying vocal-verbal feedback expressions in the Chinese-Chinese data, as shown in table 15, and the most common relation between the feedback facial expressions and vocal-verbal means was O, with a share of 88%.

*Table 15: Relation between Chinese feedback facial expressions and vocal-verbal means in Chinese mono-cultural interactions (**Note:** all the percentages in this table are based on the total number of feedback facial expressions that are accompanying vocal-verbal feedback means in the four Chinese-Chinese dialogues, and the percentages are rounded to the whole numbers.)*

facial	***expression***	***reinforcement (R)***	***other additions (O)***	***R+O***	***total***
eyebrow	**frowning**	0 (0%)	2 (2%)	0 (0%)	2 (2%)
	raising	10 (11%)	2 (2%)	0 (0%)	12 (13%)
	subtotal	10 (11%)	4 (4%)	0 (0%)	14 (15%)
gaze	**up**	0 (0%)	5 (5%)	0 (0%)	5 (5%)
	down	0 (0%)	3 (3%)	0 (0%)	3 (3%)
	around	0 (0%)	11 (12%)	0 (0%)	11 (12%)
	sideways	0 (0%)	8 (9%)	0 (0%)	8 (9%)
	at interlocutor	0 (0%)	8 (9%)	0 (0%)	8 (9%)
	subtotal	0 (0%)	35 (38%)	0 (0%)	35 (38%)
general face	**smile**	0 (0%)	34 (36%)	0 (0%)	34 (36%)
	laughter	0 (0%)	7 (8%)	1 (1%)	8 (9%)
	subtotal	0 (0%)	41 (44%)	1 (1%)	42 (45%)
mouth shape	**open in a circle**	0 (0%)	1 (1%)	0 (0%)	1 (1%)
	corners down	0 (0%)	1 (1%)	0 (0%)	1 (1%)
	subtotal	0 (0%)	2 (2%)	0 (0%)	2 (2%)
total No.		10 (11%)	82 (88%)	1 (1%)	93 (100%)

Besides this, there were 11% of the feedback facial expressions functioning as R (see excerpt 18 comment 1 in particular) and only 1% of them functioning as R+O to the vocal-verbal feedback means. As can be also seen from table 15, only eyebrow movement (only raising) functioned as R to its accompanied vocal-verbal feedback expressions, with a share of 11% (see excerpt 19). Only laughter functioned as R+O

to its accompanied vocal-verbal feedback means, with a fairly low frequency of 1% (see excerpt 20, comment 1). All the gaze movements and mouth movements functioned as O, with shares of 39% and 2% respectively (see table 15)

Excerpt 18: (extracted from dialogue 1 transcription page 2)
$ Cf2: a na ge en wo jiao ge gen ta na
$ Cf1: <1 <2 <3 ou >3 >2 >1
@ <1 mouth open in a circle> CPUE/A surprise R
@ <2 frowning> CPUE/A uncertainty A
@ <3 smile> CPUE/A interest A
English translation:
$ Cf2: ah then my name is ge gen ta na
$ Cf1: oh

Excerpt 19: (extracted from dialogue 4 transcription page 2)
$ Cm2: dui wo chalmers de
$ Cm1: <1 ni chalmers de >1
@ <1 eyebrow raise> CPUE/A surprise/uncertainty R
English translation:
$ Cm2: yes i am studying in chalmers
$ Cm1: are you (is it true that you are studying there in chalmers)

Excerpt 20: (extracted from dialogue 3 transcription page 2)
$ Cf2: ou ha xing zan liang dou shi shao shu min zu
$ Cm1: <1 <2 dui> 2 >1 wo zhi bu guo dan shi wo bu zuo shen me li bai a zhi lei de
@ <1 laugh> CPUE/A agreement/happiness R/A
@ <2 gaze right> CPUE/A hesitation A
English translation:
$ Cm1: oh ha good both of us are of minority nationalites
$ Cf2: yes i just but i do not go to church or such activities

4.1.3.2.3 Relation between Chinese feedback hand movements or postures and vocal-verbal means

As can be seen from table 16, posture and hand movements (see excerpt 21) in the Chinese data only functioned as O in relation to the vocal-verbal feedback expressions.

Excerpt 21: (extracted from dialogue 4 transcription page 7)
$ Cm2: tuo dao yi nian cai xie thesis
$ Cm1: <2 <1 tuo le tuo le>1 <3 yi nian le>2 <4 dui>4 >3

@ <1 gaze down> CPUE/A agreement/in-confidence (O)other additions
@ <2 hand movement> CPUE/A embarrassment/unease (O)other additions
@ <3 gaze at interlocutor Cm2> CPUE/A agreement (O)other additions
@ <4 nods> CPUE/A agreement (R)reinforcement
English translation:
$ Cm2: you were delayed one year before you started the thesis again
$ Cm1: delayed delayed one year yes

Table16: Relation between Chinese feedback hand movements or postures and the vocal-verbal means in Chinese mono-cultural interactions

other feedback gestures	***postures***	***hand movements***
reinforcement (R)	0	0
other additions (O)	1	7
R+O	0	0
total	1	7

In excerpt 21, the hand movement added affirmation or more intensity to the embarrassment and unease to modify the vocal-verbal message 'tuo le tuo le yi nian le' ('delayed, delayed, one year').

4.2 Features of Chinese gestural feedback in intercultural interactions

In the following sections of 4.2, features of Chinese gestural feedback with a main focus on the frequencies and types in particular were studied with gender variation in the Chinese-Swedish inter-cultural interactions of dialogue 5, 6, 7, and 8. It should be noted also that whenever gender variation was taken into account in the analysis, the only one Chinese male Cm1, one Chinese female Cf1, one Swedish male Sm1, and one Swedish female Sf1 were still taken as representatives of each gender group of Chinese and Swedish people, although there was a restriction of the numbers of subjects in this study.

As can be seen from table 17, in the Chinese-Swedish data, Swedish subjects used almost twice the feedback gestures that Chinese subjects used, with shares of 61% and 39% respectively.

*Table 17: Numbers of Chinese and Swedish feedback gestures used in the Chinese-Swedish interactions (dialogue 5, 6, 7, and 8) (**Note:** all the percentages in this table are based on the total number of feedback gestures that are used in the four Chinese-Swedish dialogues, and the percentages are rounded to the whole numbers.)*

subject	***male***	***female***	***total***
Chinese	74 (16%)	101 (23%)	175 (39%)
Swedish	184 (41%)	89 (20%)	273 (61%)
total	258 (57%)	190 (42%)	448 (100%)

In the same way, it was found that Swedish male used 41% of the feedback gestures which was more than twice of that the Chinese male used. The Chinese female and the Swedish female used roughly the same numbers of feedback gestures, with a frequency around 20% instead.

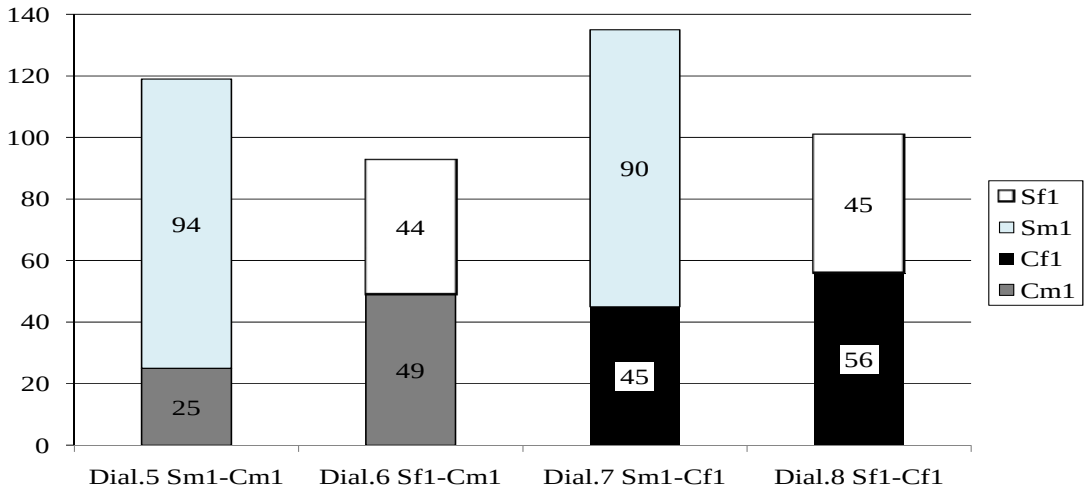

Figure 2: Numbers of feedback gestures in Chinese-Swedish intercultural interactions

As presented in figure 2, the Chinese female Cf1 used more feedback gestures than the Chinese male Cm1 in this intercultural situation. For instance, Cf1 used 56 with Sf1 and 45 with Sm1, which were more than those Cm1 used with Sf1 and Sm1 with frequencies of 49 and 25 respectively. Meanwhile, Swedes showed a different tendency that the male Sm1 used more feedback gestures than the female Sf1 in this intercultural situation. For example, Sm1 used 90 feedback gestures with Cf1 and 94 with Cm1, which were more than those Sf1 used with Cf1 and Cm1 with frequencies of 45 and 44 respectively. That is, the Chinese female used more feedback gestures

than the Chinese male in the intercultural interactions; whereas, the Swedish male used more feedback gestures than the Swedish female instead in the same situation.

The Chinese male Cm1 used more feedback gestures when he was communicating with the Swedish female Sf1 than with the Swedish male Sm1, with frequencies of 49 and 25 respectively (see figure 2). Meanwhile, the Chinese female Cf1 used more feedback gestures when she was communicating with the Swedish female Sf1 than with the Swedish male Sm1, with frequencies of 56 and 45 respectively (see figure 2). That is, in the intercultural communication, the Chinese male used more feedback gestures with the different gender than with the same gender; whereas, in the same intercultural communication context, the Chinese female used more with the same gender than with the different gender instead. On the other hand, the Swedish subjects Sf1 and Sm1 showed a constant tendency of using more feedback gestures with the same gender in this intercultural communication context, although it was not significant. As can be seen in figure 2 also, Sf1 used 44 with Cm1, but one more with Cf1 with a frequency of 45; meanwhile, Sm1 used 90 with Cf1, but four more with Cm1 with a frequency of 94.

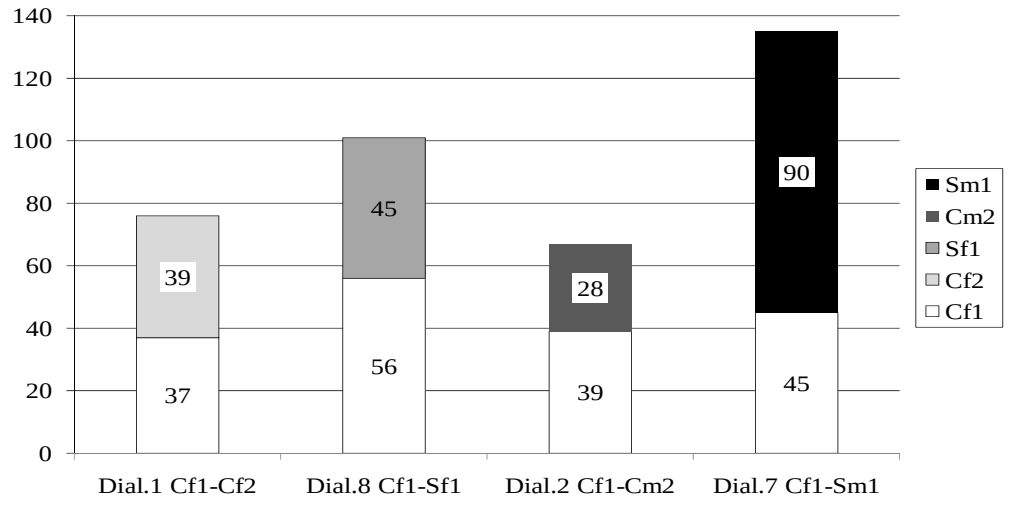

Figure 3: Numbers of Chinese female feedback gestures in mono-cultural and intercultural interactions

When the Chinese female Cf1 was studied in the mono-cultural and intercultural interactions, it was found that she used more feedback gestures with the Swedish

interlocutors in the intercultural situation than with the Chinese interlocutors in the mono-cultural situation. For instance, as can be seen from figure 3, Cf1 used 56 feedback gestures with Sf1 and 45 Sm1, but 37 with Cf2 and 39 with Cm2. Similarly important, it can be found that Cf1 used most of the feedback gestures with the Swedish female but the least with the Chinese female.

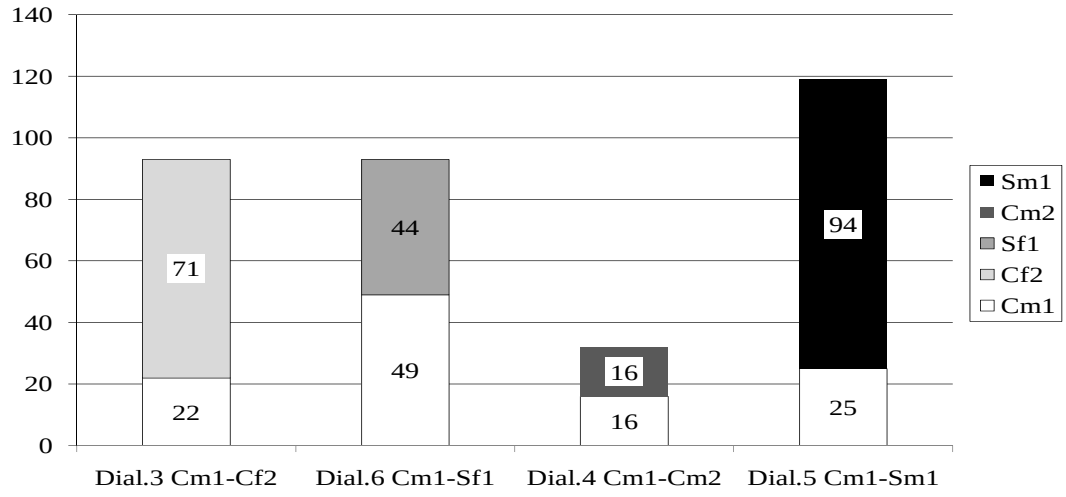

Figure 4: Numbers of Chinese male feedback gestures in mono-cultural and intercultural interactions

When the Chinese male Cm1 was studied in the mono-cultural and intercultural communicative situations, it was found that he used more feedback gestures with the Swedish interlocutors in the intercultural situation other than with the Chinese interlocutors in the mono-cultural situation. As presented in figure 4, Cm1 used 49 feedback gestures with Sf1 and 25 with Sm1, but 22 with Cf2 and 16 with Cm2. In addition, Cm1 used most of the feedback gestures with the Swedish female but the least with the Chinese male.

Both Chinese female and male used more feedback gestures with the Swedish in intercultural interactions other than with the Chinese in mono-cultural interactions. Similarly important, both Chinese female and male showed a great tendency of using most of the feedback gestures with the Swedish female in intercultural interactions, but they used the least with the same gender as theirs in the Chinese mono-cultural interactions.

4.3 Discussion

In this section, Chinese features of using gestural feedback in mono-cultural and intercultural interactions are discussed.

4.3.1 General frequencies of Chinese gestural feedback in mono-cultural interactions

First, most of the vocal-verbal feedback expressions and feedback gestures were used accompanying each other by Chinese people in their mono-cultural interactions. Chinese did not use vocal-verbal feedback (only) very often. This might be activity-dependent. Since the interlocutors had no earlier acquaintance, they might feel insecure towards the topics or even worried about the flow of the conversation. In this case, people might be less talkative than normally.

Second, Chinese females showed greater tendency than males of using gestural feedback in general, with an average frequency of twice to three times more than males usually used. This may confirm the assumption that females are more expressive than males (Nicoladis, Pika, Yin & Marentette, 2007), with respect to Chinese people in this case in particular.

Third, both Chinese males and females tended to use more gestural feedback when they were communicating with the different gender other than with the same gender, especially males showed a very stable and clear tendency of this. However, one female used only two more feedback gestures when she was communicating with one male, comparing with what she used with the other female, but the other female used 32 more instead in the same situation. This might be caused by personality differences, but still it necessitates further quantitative research to confirm whether the Chinese females really have this tendency.

4.3.2 Types of Chinese gestural feedback in mono-cultural interactions

Chinese males and females preferred to use head movements and facial expressions to

give and elicit feedback. They rarely used hand movements or postures, and they did not use shoulder movements at all. Furthermore, both Chinese males and females tended to use roughly the same frequency of the same type of gestural feedback when they were communicating with the same gender. This might be because of the gender effect[7] or the similarity effect[8], which still necessitates further research to explore the most possible reasons. Simultaneously, it was found that when they were communicating with the different gender, the Chinese subjects did not show the same tendency as they did with the same gender, as above. Thus, it might be claimed that the gender effect was stronger than the similarity effect in this case. However, whether this is a solid conclusion still necessitates further study.

With respect to **head movements**, both Chinese females and males were more likely to use nods rather than other feedback head movements. Both of them used the same numbers of tilts and shakes, but Chinese females used three times more jerks than males. Because jerks were most commonly used to show surprise or uncertainty, as presented in section 4.1.3.1, it can be claimed that Chinese females were more expressive to show emotions and attitudes of surprise or uncertainty by means of jerks other than Chinese males. This might be because of a gender effect on the expressivity of surprise and uncertainty. With regard to **facial expressions**, Chinese females and males used general faces most frequently, primarily smiles and laughter, and there was no scowl at all. This might be more dependent on the activity, in which strangers were more likely to behave as friendly as they can. Similarly important, depending on the activity itself, the subjects might feel insecure towards a stranger while being video-recorded at the same time; therefore, it is quite normal for people to smile or laugh so as to relieve the tension. Scowl was not found being used itself or accompanying smile or laughter in this project, but whether it is exclusive to smile and laughter still needs future investigation. Chinese subjects also used gaze

[7] The gender effect mainly refers to the performances that are affected by gender, or say the effects that are dependent on gender differences (cf. Ademola, 2009; Croson & Gneezy, 2004).
[8] The similarity effect mainly refers to the same or similar performances that are affected by mutual influence (cf. Conrad & Hull, 1964; Nairne & Kelley, 1999).

movements very often, especially gaze around which was found a new coding category that extends the MUMIN multimodal coding scheme. Chinese females and males did not vary much in using gaze movements, but Chinese males tended to use more gaze sideways than females. Since emotions and attitudes of uncertainty and hesitation was primarily conveyed by gaze sideways, as presented in section 4.1.3.1, it can be claimed that Chinese males were more expressive to show uncertainty or hesitation by means of gaze sideways other than Chinese females. Concerning **hand movements**, it was found that Chinese people used hand movements most often accompanying laughter or smiles to cover their mouths. Because covering the mouth when one is smiling, laughing, or eating is regarded as one typical Chinese traditional value in Confucianism, especially for females, it is still influencing many people in China across generations, much depending on the educational or family cultural background.

4.3.3 Functions

In general, both Chinese females and males showed rather high communicative competence in accomplishing C (contact), P (perception) and U (understanding) with E/A (emotions/attitudes) in this 'strangers' first-meeting' activity. In addition, there is a tendency of degrees of CPUE/A associated with gender variation. Chinese males did not show that they were as good as females in accomplishing U. Because it was always the Chinese male(s) that did not accomplish U of the basic communicative functions, if there was any; whereas, Chinese females did not have this problem at all, at least they did not show that they had this problem at all.

According to the author's experience and self-observation in the daily life, however, some non-Chinese people have complained about what they experienced in the communication that many Chinese people showed they had understood it without really understanding, and that the non-Chinese people did not realize it until something related to the communicated information went wrong later on. This might be true with Chinese people in some cases, especially when they are communicating

in other languages rather than Chinese. Second language interference can be the most probable reason. We would still like to believe people really want to understand each other and get understood also in the communication rather than just 'pretending' or 'showing' understanding without really understanding. Similarly important, the Chinese people who 'showed' 'understanding' in the above case might want to have more contexts to help his/her further understanding. That is, he/she just gave feedback of this 'understanding' to encourage the other interlocutor to continue the conversation and provide more information for him/her. This conduct was without any purpose of 'pretending' that he or she had already understood. Besides these, there is no other reasonable cognitive explanation for this phenomenon, as far as studies of Chinese features of communication have shown.

Since the Chinese subjects were communicating in their first language in the target data, it is less possible that they were linguistically influenced; also, it is less possible for the Chinese subjects to feel insecure to ask questions, if they did not really understand other Chinese interlocutors. There is no reason for them to just show that they have understood without really understanding in such a Chinese-Chinese communicative situation. In addition, since both the transcriber and checker are native Chinese, it is less possible that both the transcriber and the checker missed or even mistook the subject's lack of understanding as understanding. Therefore, it may be true that Chinese females were not 'pretending' or 'showing' they had understood but in fact they really understood. It may be assumed that Chinese females' communicative intelligibility and understanding ability is relatively higher than Chinese males'.

With respect to feedback **head movements**, the most common emotional and attitudinal functions of them were agreement, certainty, and interest. Chinese people normally used nods to show agreement and certainty; shakes to show disagreement; tilts to show interest, patience, and casualness; jerks to show surprise and uncertainty. Besides these, many emotions and attitudes were found being accomplished by the

same feedback gesture simultaneously, especially by means of nods; for instance, nods simultaneously conveyed eagerness with interest, hesitation/ uncertainty with agreement, and certainty/ trust with agreement also. Regarding Chinese feedback **facial expressions**, it was found that most of them were used to show emotions and attitudes of uncertainty, interest, surprise, hesitation, and agreement. Chinese subjects in the Chinese-Chinese data normally used eyebrow raise to show surprise or uncertainty and most often with jerk in combination. Chinese used gaze up to show uncertainty or surprise; gaze down to show hesitation, sometimes in combination with agreement or in-confidence; gaze sideways and gaze around to show uncertainty or hesitation; gaze at the interlocutor to show interest. Smile was mainly used to show friendliness, embarrassment and interest; meanwhile, laughter mainly functioned as showing happiness, amusement and friendliness. Embarrassed smile was found more culture dependent, which may be regarded as one typical Chinese feature of gestural feedback. Meanwhile, the embarrassed smile was also activity dependent. Since the subjects had no earlier acquaintance and they were video-recorded in front of the camera, it is normal that people may feel a little embarrassed. Additionally, Chinese subjects made mouth open in a circle to show surprise and made mouth corners down to show casualness. **Hand movements** and **posture** mainly functioned as casualness, although there were not many. However, as presented in table 9, most of the emotion and attitude of casualness was conveyed by means of hand movements. Since hand movements have not been found as a common type of feedback in previous studies, the findings in this project might be regarded as a contribution to the research of feedback in some sense.

As presented above, many emotions and attitudes or some feedback gestures were found compatible but not exclusive to each other in the Chinese-Chinese data. That is, one feedback gesture can function as more than one emotions and attitudes simultaneously, and more than one feedback gestures can work together to convey the same emotional and attitudinal information. Therefore, tables of the object (types of gestural feedback) and tables of the property (functions of gestural feedback) in this

study are not carried out on the same percentage base. To put it differently, tables of the object are based on the numbers of the target feedback gestures; meanwhile, tables of the property are based on the numbers of the target gestural feedback emotions and attitudes.

4.3.4 Relations between Chinese feedback gestures and vocal-verbal means in mono-cultural interactions

It has turned out that only a few Chinese gestural feedback expressions were functioning as R+O to its accompanied vocal-verbal feedback expressions, most Chinese feedback gestures functioned as O or R to the vocal-verbal means. Similarly important, most head movements functioned as R, most facial expressions functioned as O, and hand movements or posture only functioned as O. However, as presented in section 1.2.2, the relation of O (other additions) to the vocal-verbal messages still necessitates further categorization, besides its added functions of affirmation or negation.

4.3.5 Chinese Features of gestural feedback in intercultural interactions

Swedish subjects used almost twice the feedback gestures that Chinese subjects used, and the Swedish male used more than twice of that the Chinese male used. The Chinese female and the Swedish female used roughly the same numbers of feedback gestures. Chinese female used more feedback gestures than Chinese male still, in this intercultural situation; whereas, Swedish male used more than Swedish female instead. It might be assumed that not all the females in the world are more expressive with feedback gestures than males. However, we do not really know whether this is more context dependent or more individual dependent, which still necessitates further quantitative research on both Chinese and Swedish feedback gestures in Chinese-Chinese, Chinese-Swedish, and Swedish-Swedish interactions.

In this intercultural communication context, Chinese male used more feedback gestures with the different gender; whereas, Chinese female used more with the same

gender instead. On the other hand, the Swedish subjects Sf1 and Sm1 showed a constant tendency of using more feedback gestures with the same gender in the same intercultural communication context, although it was not significant.

Both Chinese female and male used more feedback gestures with the Swedish in intercultural interactions other than with the Chinese in the mono-cultural ones. This might be caused by second language interference that people might use more feedback gestures when they are communicating in other languages rather than the mother tongue. Similarly important, people might be also influenced by their interlocutors in terms of the similarity effect (see foot note 8). These are two possible reasons which still need confirmation.

The Chinese female and male showed a great tendency of using most of the feedback gestures with the Swedish female in the intercultural communication, which might be because Chinese were more willingly to communicate more information with females from other cultures. Or it could be also more dependent on individuals, i.e. the Chinese had lower intelligibility with the Swedish female whose language and speaking tempo was faster than the Swedish male, so the Chinese used more feedback gestures unconsciously to modify their vocal-verbal means with a purpose to achieve more effective and friendly communication. Meanwhile, both Chinese female and male used the least with the same gender in the Chinese mono-cultural interactions, which might be because Chinese had higher intelligibility within the same gender and they did not really need to use much gestural feedback to reinforce or add information to the vocal-verbal messages.

Since this project is a pilot study of Chinese feedback gestures and the data is not good enough to make a decision of which are the most important issues, most of the findings that have been reported and discussed here in this paper still necessitate further investigation.

5. Research limitation

There are some limitations of this study. First of all, since there were only two females and two males being studied in the Chinese-Chinese mono-cultural interactions, and there were only one Chinese female, one Chinese male, one Swedish female and one Swedish male being studied in the Chinese-Swedish intercultural interactions, the results and conclusions cannot be as solid enough as it may be expected. Furthermore, some of the results might be individual dependent or activity dependent, which still necessitates further quantitative studies in the future. Second, in order to compare the differences of people using feedback gestures associated with gender and language variables in both mono-cultural and intercultural interactions, some subjects were video-recorded twice, and the main subjects Cf1 and Cm1 were video-recoded four times each. This may result in that some subjects might get more experienced when they were video-recoded more than once, and to some extent they might get used to communicating with a stranger before the video camera. Third, this study only focuses on the Chinese overseas university students and their meetings with strangers. It does not pay any attention to other social or geographic variables of the Chinese population or activity variation. Whether those results in this pilot study can be regarded representing the Chinese features of using feedback gestures still necessitates further confirmation. Fourth, because of time restriction, emotional and attitudinal features of Chinese gestural feedback as well as its relations to the vocal-verbal means in the intercultural interactions were not investigated as deep as in the mono-cultural ones; instead, the general features of types of Chinese feedback gestures with gender variation were mainly studied between them. This would be probably done in the next paper.

6. Conclusion

The aim of this study was to explore the features of Chinese gestural feedback in mono-cultural and intercultural interactions with a focus on the mono-cultural one in particular. Types, functions of gestural feedback and the relations to its accompanied vocal-verbal feedback expressions were investigated with the intention of answering

the three following research questions: What are features of Chinese gestural feedback? Are there any gender differences? Do Chinese people use different gestural feedback in mono-cultural and intercultural interactions?

First, at the light of the results, it was found that Chinese feedback was mostly expressed simultaneously by gestural and vocal-verbal means. Most Chinese feedback gestures functioned as other additions (O) or reinforcement (R) to the vocal-verbal means, and only a few R+O. It seems necessary to further categorize other additions into more specific modifying functions, such as affirmation and negation. Besides, emotions and attitudes were found mutually compatible other than exclusive to each other, such as agreement with certainty shown by nods. Some feedback gestures were also found compatible in showing the same emotion and attitude, such as eyebrow raising and jerk showing surprise. Similarly important, uncertain or hesitant gaze around, embarrassed smile, and hand movements accompanying laughter or smiles to cover the mouth (one Chinese traditional value especially for females) were assumed typical Chinese feedback gestures.

Second, Chinese females were found more expressive in terms of using feedback gestures, and they showed relatively higher communicative intelligibility than Chinese males in accomplishing CPUE/A. Both Chinese females and males tended to use roughly the same frequency of the same type of gestural feedback when they were communicating with the same gender; whereas, they did not show this tendency with the different gender. The gender effect is thus assumed stronger than the similarity effect in this case. Since both Chinese females and males used the least feedback gestures with the same gender in mono-cultural interactions, it can be assumed that people may have higher intelligibility within the same ethnic and gender group; they do not need to use much gestural feedback to add extra information to emphasize or contradict what is or has been said.

Third, in the intercultural interactions, both Chinese female and male used more

feedback gestures with the Swedish compared with what they used with Chinese in the mono-cultural interactions. This may be caused by second language interference, i.e. people may use more feedback gestures to help increasing intelligibility when they communicate in other languages rather than the mother tongue; meanwhile, this may be also caused by similarity effect that people get adapted to their interlocutors. In addition, the Chinese female used more feedback gestures than the Chinese male in the intercultural interactions still; whereas, the Swedish female did not. It may be assumed that not all the females in the world are more expressive than males in terms of using gestural feedback. Non-Chinese people should be also aware of Chinese people's 'understanding' signal(s), especially when it is with hesitation or uncertainty that can be perceived from phonological and prosodic phenomena, like lengthening and variation of pitch contour. Because most often, at such a moment, the Chinese people may not really understand what is or has been said but they intend to get more contextual information instead by nodding, for instance, meaning 'what is it then'.

Furthermore, since the materials are quite limited in size and activity variation, further research is still needed to verify the assumptions and confirm the preliminary results. However, this pilot study can still contribute to the practice of business consulting, personal marketing, video-conferencing, or animated agents' synthesis, so as to help Chinese people get better understood by the world and eventually achieve more effective and friendly interactions.

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[i] The Gothenburg Transcription Standard was mainly created by Joakim Nivre, Jens Allwood, Leif Grönqvist, Magnus Gunnarsson, Elisabeth Ahlsén, Hans Vappula, Johan Hagman, Staffan Larsson, Sylvana Sofkova, and Cajsa Ottesjö in Department of Linguistics of Göteborg University. It is a standard for machine-readable transcriptions of spoken language first used within the research program Semantics and Spoken Language at the Department of Linguistics, Göteborg University. Recently it has been more popularly used as a transcription standard for the study of spoken language features and social activity patterns.

[ii] The MUMIN multimodal coding scheme was mainly created by Jens Allwood, Loredana Cerrato, Laila Dybkær, Kristiina Jokinen, Costanza Navarretta and Patrizia Paggio. It was originally created to experiment with annotation of multimodal communication in video clips. Recently, it has been popularly used as a general instrument for the study of gestures and facial displays in interpersonal communication, in particular the role played by multimodal expressions for feedback, turn management and sequencing.