

# Hesitation in Intercultural Communication: Some Observations on Interpreting Shoulder Shrugging

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**Abstract.** This paper concerns the different ways in which hesitation, and hesitation related phenomena like uncertainty, doubt and lack of knowledge are expressed in different cultures. The paper focuses especially on shoulder shrugging as a signal of hesitation or uncertainty, and starts from the observation that shoulder shrugging has different interpretations depending on the interlocutor's cultural context. It is not commonly used in Eastern cultures while in Western cultures it is a sign of uncertainty and ignorance. The paper reports a small study on the differences in interpretation of a particular video tape gesture, and draws some preliminary conclusions of how this affects intercultural communication between human interlocutors and between humans and conversational agents.

**Keywords:** hesitation signaling, gesturing, intercultural communication

## 1 Introduction

Intercultural communication (ICC) is usually defined as communication between people who do not have the same ethnic or national cultural background, e.g. communication between a Chinese person and a German person (cf. Hofstede 1980, Allwood 1985). One of the goals of the study of ICC is to discover similarities and differences in the way people from different cultures communicate through cross-cultural comparative studies. With this cross-cultural information as a background, it is then possible to study whether and how such differences influence intercultural communication between people who have different cultural backgrounds.

There are many types of studies of intercultural communication. The most common type is questionnaire based cross cultural studies of differences in attitudes and values. Probably the most well known is the IBM-study reported Hofstede (1980).

Another approach is to observe people's communicative behaviour, based on audio or video recordings of actual interactions in different cultures (leading to cross-cultural comparison) or on recordings of intercultural interaction. This line of research ranges from linguistic-cultural studies to computational modeling of cultural

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behaviour patterns and has become common with the video corpora being collected and easily available for analysis. Usually, there are three different possible foci for such studies: (i) differences in produced communicative behavior, (ii) differences in interpretation and understanding of the behavior produced and (iii) studies of how context influences the communicative behavior produced or its interpretation. For instance, Pajupuu (1995) studied communicative behaviour of Finns and Estonians, and found differences in speaking rate, length of pauses and turns, and interruptions. As she discussed the differences in terms of high-context and low-context cultures (Hall 1976), she concluded that communication even among people from neighbouring countries with closely related languages like Finnish and Estonian can have differences that reflect cultural differences. Jokinen and Wilcock (2005), on the other hand, studied Finnish and English communication strategies from the point of view of shared context and common ground, and noticed that misinterpretations in various everyday dialogue situations depend on cultural presuppositions of the interlocutors. This can be related to the continuum of high-context vs. low-context cultures, but they also pointed out that dialogue strategies are learnt through interaction, and that awareness of cultural differences can help in facilitating miscommunication in ordinary activities such as everyday conversations. In virtual agent technology, cultural differences have been actively studied so as to produce appropriate behaviour in virtual conversational agents, and computational models for their culture specific communicative behaviour have recently been built, see e.g. Jan et al. (2007) and Edrass et al. (2009).

The three main foci of intercultural studies may be further subdivided in several ways. For instance, the produced communicative behavior may be divided in (i) vocal (verbal and non-verbal), (ii) written (verbal and non-verbal e.g. pictures) and (iii) body movements (verbal and non-verbal), depending on the medium in which the communicative context is mediated. Interpretation may be subdivided in factual and emotional interpretation and context can be subdivided into, for example, physical setting and social setting. In this paper we will be interested in body movement (shoulder shrug) and the influence of social activity as a type of social setting.

The goal of this paper is to study the different ways in which phenomena like hesitation, uncertainty, doubt and lack of knowledge are expressed in different cultures. We will refer to this as hesitation related phenomena. We are also interested in how a given communicative behavior – the shoulder shrug (which in many Western cultures is used to express lack of knowledge) – is interpreted by people with different cultural backgrounds. This research is part of the on-going collaboration between three universities in Nordic countries (Sweden, Finland, Denmark), and in larger intercultural context (NOMCO-project, [www.nomco.org](http://www.nomco.org)) concerning non-verbal communication in different cultural settings.

In general, hesitation related phenomena can be expressed in a number of different ways:

1. Facial expression
2. Head movement
3. Shoulder movement
4. Prosody (e.g. lengthening or pausing)
5. Special verbal markers like *eh* or *hm*





head sideways and to prolong the words in the utterance *so desu nee* (roughly translated as “well it is so”).

In order to study the connection of shoulder shrugging and hesitation in a more systematic way, especially the interpretation of shrugging as a sign of uncertainty, we conducted a small empirical study with the video data. We showed the video to people of different cultural background, and asked them to interpret the gesture and tell us about their own use of a similar gesturing. The main purpose was to get data on two aspects related to body movements as communicative signals: do people notice certain kinds of body movements, and how do they interpret them in the communicative context.

The interview study was conducted in international contexts at two locations, Japan and Sweden. In Japan, the subjects were university students and residents at a residence hall for foreign students and scholars in Kyoto, and the test took place in a quiet corner of the common lounge. The 14 subjects were mostly exchange students who had come to Japan to study their particular discipline, and for many this was their first experience of living abroad. Half of them were just over 20 years of age (7 out of 14), and two older scholars’ also took part in the experiment. A summary of the subjects’ background is given in Table 1. In Sweden the subjects were linguistics students at the University of Gothenburg, and the test was part of their course assignment. The subjects were immigrants, exchange students, and native Swedish students. There were 28 subjects in their 20’s, with the nationality distribution given in Table 2.

**Table 1.** Background information of the subjects (N = 14) in Japan. The numbers after the country name indicate the years the person has lived abroad.

Nationality	Experience abroad	Age group	Gender
Catalan	No	20-24	F
Danish	Belgium (20), Japan (1)	20-24	M
Swedish	US (2), France (1), Spain, Uganda, Brazil	25-44	M
Canadian	US, France, Japan	45-65	M
Moroccan	No	25-44	F
Uzbek	No	20-24	F
Filipino	US (4)	20-24	F
Filipino	US (10)	45-65	F
Korean	No	20-24	M
Chinese	No	20-24	M
Chinese	No (English teacher)	25-44	F
Japanese	US (1)	25-44	F
Japanese	No (work with foreigners)	25-44	F
Japanese	No	20-24	M

Considering the subjects’ nationality and experience abroad, we tried to balance the numbers so that there would be subjects from both Eastern vs. Western culture. In the multicultural context of exchange students and researchers, the subjects are of course already used to very international communication, so the setup was not to ask

the subjects' interpretation of the video clip in void, but to interview them with the help of the video clip concerning how hesitation is expressed in their culture.

The setup of the interview study was simple. The purpose of the study was first explained to the subjects together with some background of the cultural differences in the interpretation of gestures. In most cases this prompted enthusiastic presentation of the subjects' own experiences and observations of the cultural differences that they have noticed in their own interactions. The subjects were then shown the video clip and if they had not noticed the particular shrug, their attention was drawn to it by verbally describing what the person does. They could see the video as many times as they wanted, usually 2-3 was enough. They were also given a short questionnaire which included questions about their cultural background and interpretation of the video clip. The adjectives in the questionnaire to describe the movement were picked from the Roget's Thesaurus as synonyms for the words hesitant and unsure, and then mixed. The questionnaire is in the appendix of the paper.

**Table 2** Nationality distribution among the participants (N=28) in Sweden.

Nationality	Number
British	1
British/Mexican	1
Cameroonian	1
Chinese	6
German	1
Greek	1
Iranian	3
Iraqi	1
Lithuanian	1
Pakistani	1
Romanian	1
Russian	3
Swedish	5
Vietnamese	1

### 3 Results and discussion

The preliminary analysis of the data confirmed the observation that Chinese and Japanese participants do not use shoulder shrug as a sign of hesitation, and would rather shake their head or move hands sideways. The interpretation of the video clip was related to the speaker being doubtful or puzzled, uncertain, and unsure, and the male participant expressed the speaker's thoughts as "I don't think you are right but I don't want to tell you you're wrong. I don't agree with you". The Japanese subjects also recognized the shrug as hesitant and unsure, but would express their own hesitation verbally or by tilting the head sideways. The Korean male student recognized the gesture as uncertain, unsure and impolite (!), but he also said he would use the gesture himself in cases when he would not be sure of the situation or would not know the topic. It is interesting that the Swedish participant would also have

expected eye-contact in the situation, so that for him the body movement did not appear only as hesitant, doubtful, reserved, and reluctant, but also impolite. For the Danish subject (who grew up in Belgium), the gesturing conveyed feeling of a reserved, shy, and timid person, who was polite and did not want to impose his views on the others. For the two Filipinos who had long experience in living in the US, the gesture indicated, somewhat surprisingly, communication that is certain, sure, strong, and confident. They would use similar gesturing if confident and of control of the situation, but would also use more relaxed signaling with smiling and not having hands on chin. The female participants from Morocco, Catalonia, and Uzbekistan all considered the gesture fairly common, and interpreted it as uncertain, irresolute, unsure, indecisive, perplexed, and baffled. The Uzbek would also use it herself if not sure or cannot decide what to do, while the Catalan and Moroccan would also convey meaning of “doesn’t matter”, “as you want”, “probably”. The Moroccan also pointed out that the unfinished sentence conveys the meaning that the speaker is not very sure of the idea, and that the gesture also signals that the person does not care, which is the way in which she would herself use the gesture.

Another interesting tendency was that the four Middle Eastern subjects seem to interpret the gesture as a sign of a sure, certain and confident speaker. This may be due to a confusion among the subjects concerning the adjectives (e.g. one subject had marked the “confident” words first but changed them to “inconfident” ones after realizing inconsistent marking), but it may also be a cultural tendency, especially since one of the subjects wrote that the person on the video is certain about the topic and shows certainty with a friendly gesture, and another wrote that the person tries to show or emphasize what he is saying. Also, these subjects would not use the gesture themselves because it is impolite and shows lack of respect for older people. Cultural conventions and the use of gestures in general would certainly require more investigations here.

Concerning the word questionnaire, global frequencies concerning all the subjects are given in Table 3. As can be seen, there is a tendency to interpret the gesture as unsure, uncertain, doubtful, and inconfident, i.e. expressing hesitation. It is worth noticing that the adjective *hesitant* does not have especially high frequency: the gesture is described as related to the speaker not being confident or sure of what to say rather than hesitant whether to say something. This seems to be the correct interpretation of the gesture given the topic and general situation in the conversation.

However, as discussed above, it is interesting that the opposite adjectives were also selected to describe the gesture, which shows that there may be something related to the use of gestures in general in different cultures, and that the subjects may have interpreted the should shrug in the short video clip from the point of view general gesturing behaviour rather than as part of the particular interactive situation. The selection of appropriate words from the list of descriptive adjectives may also be somewhat affected by the subjects’ knowledge of English (non-native speakers), and since the subjects’ English ability was not tested, the word-test need not accurately reflect the subjects’ understanding of the situation.

The word selection test also showed that a more detailed analysis of the semantics of hesitation related words is also necessary. It would be useful to conduct a linguistic analysis of the words describing hesitation related phenomena and to cluster their occurrence according to their semantic similarity and the context in which they occur.

**Table 3** Global frequencies (N=42)

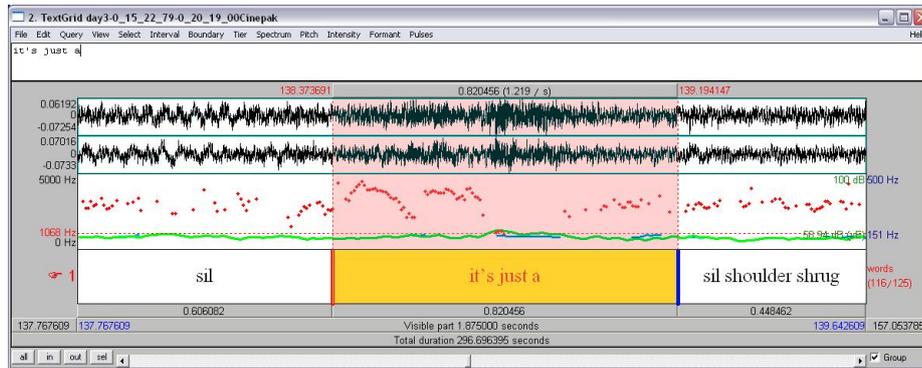
hesitant 10	unhesitant 4	troubled 3	doubtful 15	distracted
confused 5	disturbed 3	puzzled 6	certain 6	uncertain 23
resolute 1	irresolute 7	perplexed 8	reserved 9	unconvinced 9
strong 3	wavering 5	weak 2	shy 4	incoherent 6
timid 2	bold 1	bashful 2	confused 4	unwavering
reluctant 7	sorry	afraid 1	baffled 4	ambivalent 7
sure 7	unsure 22	decisive	confident 7	indecisive 7
polite 4	impolite 3	apologetic	regretful 1	inconfident* 12

We also studied how communicative body movements are related to prosody. In English, it has been shown that marking of hesitation in speech is fairly varied, and ranges from different types of filled pauses or hesitation markers (*uhh, umm*) to unfilled pauses (silence) and slow speaking rate. Fundamental frequency F0 is also shown to rise when the pause occurs in grammatical pauses (major syntactic boundaries), but not if the pause occurs in ungrammatical ones.

Figure 1 show speech analysis of the speaker during the shoulder shrug (using the Praat software). The red points show variation of the first format F0, the blue line is the pitch, and the green line shows intensity.

The speaker's highlighted utterance *it's just a* has a typical speech contour of hesitation, and it does not differ from his other hesitative utterances. The fundamental frequency shows a slight upwards tendency just before the pause (and the gesture) which can be interpreted as a hesitation marker in general. However, it seems that the shoulder shrugging gesture and prosodic marking have no special correlation in this particular case: the shrug occurs during the pause which is preceded by a hesitative utterance, and it seems more natural to relate this kind of prosody to uncertainty in general rather than to the particular gesture. It seems safe to assume that the gesture is used to emphasize the speaker's uncertainty, or to add "don't care" type meaning association (as some subjects described the gesture) since the actual thoughts of what the French think about other speakers not using personal pronouns correctly is not of the main importance in this speaking context. In fact, it may be justified to conclude that the shoulder shrug in this particular case has a status of an independent

communicative act itself, i.e. after the unfinished utterance *it's just a*, the speaker continues with a shoulder shrug to finish off the sentence with a gesture expression in order to indicate that it is not important to express the actual content in words.



**Figure 1** Speech analysis of the shoulder shrug, explained in detail in the text.

#### 4 Conclusion and Future Work

We plan to collect more empirical data on hesitation expressions in different cultures, and also more examples of shoulder shrugging gesturing. Similar kind of interview experiments with video examples and with participants of different cultural background can provide us with more detailed information of how non-verbal communication is used to give and elicit feedback concerning the interlocutors' emotions, state of mind, understanding, and acceptance of the what is being said. This would allow us to study in a more systematic way how hesitation, uncertainty, doubt, and lack of knowledge are expressed in different cultures, and also how particular expressions are interpreted by interlocutors. Moreover, including observations on uncertainty in different social activities may give us further insights to different manifestations of hesitation related phenomena: the role of the interlocutors is likely to produce different behaviour patterns and thus also differences in the acceptable ways of expressing one's hesitation or ignorance. Talking to one's superior or colleague, or to a familiar or an unfamiliar partner seems to have an impact on the type and frequency of such expressions, tolerance of silence and the use of body movements. Also the difference between male and female interlocutors would be interesting to investigate more, as the difference in their communicative strategies is often described in terms of certainty vs. tentativeness, respectively. Our current study of the recognition of shoulder shrugging, however, did not distinguish between the subject's gender, and it may be that the typical differences in the male and female communication are better described in terms of the social activity and roles the agents are engaged in, rather than their inherent gender differences.

This conclusion seems to hold also in intercultural communication in general. The five dimensions of Hofstede (1980), i.e. hierarchy, identity, gender, uncertainty, and

orientation, can easily be associated with the roles and activities that the individuals in different cultures are involved with, and thus it might be more fruitful to study intercultural communication from the point of view of activities and social interactions among the individual agents instead of simply contrasting stereotypical behaviours. It would thus be useful to study hesitation and uncertainty expressions in varied social activities.

In ICT (Intercultural Communication Technology) virtual humans and embodied communicative agents form an important application area and the behaviour of such artificial agents becomes more human-like. Such applications aim at recognizing and monitoring the user's behaviour – both verbal and non-verbal – and providing responses that are appropriate given the task (e.g. factual information exchange) and the interaction context. As the context also includes cultural context, adaptation of the agents to different languages and cultures is a relevant topic that needs to be modeled as well. For instance, in educational applications, training environments, and virtual companions such culture-specific factors affect the users' learning and enjoyment, and taking them into consideration can improve the efficiency and effectiveness of the applications. In these cases, the starting point has usually been an explicit indication of the level of understanding and it is common to study conversational feedback and grounding processes to provide the users with effective responses and help in problematic situations. This kind of positive feedback is useful if we consider the participants' understanding, i.e. the intake of the information and its grounding in the existing knowledge. However, the level of commitment to the knowledge also seems important, and thus studies of various hesitation related phenomena can complement the analysis in a useful way: it is useful to compare and categorize different strategies that the agents use to express their understanding and hesitation, so as to create shared understanding and mutual bonds in intercultural communication.

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Appendix

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QUESTIONNAIRE FOR THE VIDEO INTERPRETATION

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Please fill in the form and return it to the instructor.

AGE: \_\_\_\_\_ GENDER: \_\_\_\_\_

MOTHER TONGUE: \_\_\_\_\_

WHICH OTHER LANGUAGES DO YOU SPEAK?

Please indicate also the level of your knowledge:

- (1) like native                      (2) good command  
(3) sufficient (for daily life)      (4) basic knowledge only

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

NATIONALITY: \_\_\_\_\_

WHICH COUNTRIES HAVE YOU LIVED IN AND FOR HOW LONG?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

HOW WOULD YOU INTERPRET THE PERSON'S BODY MOVEMENT  
IN THE VIDEO?

Choose as many alternatives as you like:

- |               |                |                |               |                 |
|---------------|----------------|----------------|---------------|-----------------|
| hesitant ___  | unhesitant ___ | troubled ___   | doubtful ___  | distracted ___  |
| confused ___  | disturbed ___  | puzzled ___    | certain ___   | uncertain ___   |
| resolute ___  | irresolute ___ | perplexed ___  | reserved ___  | unconvinced ___ |
| strong ___    | wavering ___   | weak ___       | shy ___       | incoherent ___  |
| timid ___     | bold ___       | bashful ___    | confused ___  | unwavering ___  |
| reluctant ___ | sorry ___      | afraid ___     | baffled ___   | ambivalent ___  |
| sure ___      | unsure ___     | decisive ___   | confident ___ | indecisive ___  |
| polite ___    | impolite ___   | apologetic ___ | regretful ___ | inconfident ___ |

PLEASE DESCRIBE THE MEANING OF THE BODY MOVEMENT IN YOUR OWN WORDS:

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WOULD YOU USE SIMILAR GESTURING IN A SIMILAR SITUATION YOURSELF?

YES \_\_\_ NO \_\_\_

IF YES, WHY?  
IS IT COMMON IN YOUR CULTURE?

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IF NOT, WHY NOT?  
WHAT KIND OF GESTURING WOULD YOU USE IN A SIMILAR SITUATION IN YOUR CULTURE?

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THANK YOU VERY MUCH FOR YOUR TIME!  
WE APPRECIATE YOUR HELP!  
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