Interpretation of Emotionally Expressive Characters in an Intercultural Communication

Tomoko Koda

JST CREST Digital City Project/Kyoto University,
Ichino-Funeiri-cho 366, Nakagyo-ku, 604-0924 Kyoto Japan
koda@digitalcity.jst.go.jp

Abstract. This paper reports an early result of an evaluation experiment of emotionally expressive characters for intercultural communication. The experiment was conducted as a series of discussions on a multilingual BBS with expressive characters between China and Japan. The result shows some characters and facial expressions used in the experiment were interpreted completely differently and used for different purposes between Chinese and Japanese participants. As emoticons are widely used for international business communications as well as daily casual ones via instant messengers, this finding rises an important research questions, i.e., what is an appropriate character representation for intercultural communication, what kind of character traits are suitable for intercultural representation, what kind of facial expressions are universally understood and interpreted, and so on.

1 Introduction

As instant messengers and chat services are frequently used in daily communication, emoticons and avatars are widely used to provide nonverbal cues to text-only messages [1, 2, 3]. There are number of studies on effects of emoticons and avatars on computer mediated communication that report positive results. Those studies indicate emoticons and avatars improve user experiences and interactions [4, 5, 6]. However, it is still an open question whether the characters and expressions used in those instant messengers or chat services are interpreted and understood similarly among individuals and different cultures. As business becomes global and the Internet is used beyond languages and cultural boundaries, there is a need to survey what kind of characters/character traits are universally understood, and whether emoticons and facial expressions are understood and used similarly across countries.

2 Experiment Overview

The experiment was conducted using a multilingual BBS called TransBBS that incorporates translation service among Chinese, Japanese, and English [7 for more details

on TransBBS]. An expressive character interface is added to a text-based bulletin board on TransBBS.

The objective of the experiment is to understand what kind of character representations are commonly understood between China and Japan and what kinds are not, and whether commonly used facial expressions or emoticons are similarly interpreted between the two different cultures.

2-1 Experiment Procedure

Nineteen subjects from Japan and 16 subjects from China participated in the experiment. Participation in the experiment was invitation only. The subjects discussed predetermined research topics on TransBBS for two weeks using their native languages, namely Chinese and Japanese. The subjects selected one character as their avatar from 20 different character representations (see Fig. 1). Each character representation has 7 different facial expressions (see Fig. 2). They selected one facial expression that corresponded to their underlying feeling when they posted a message. The message is displayed with an original text (written in their native language, either Chinese or Japanese), translated texts (English and Chinese/Japanese) with a character representation with the corresponding facial expression. Fig. 3 shows posted messages with character expressions on TransBBS.

The subjects completed a questionnaire after a two-week discussion on TransBBS. The questionnaire answers were analyzed together with message logs.

Character Representation / Facial Expressions

The 20 characters and 7 facial expressions are taken from a character based instant messaging service in Japan known as "Petaro[1] [8]." The characters used in the experiment are categorized into 6 groups as shown in Fig. 1. These are human figures, animal figures, abstract figures, imaginary figures, object, and vegetables/plants. The imaginary figures appear in old Japanese tales, while they are not known in China.

The seven facial expressions are presented as an eyeball expression to the subjects as shown in Fig. 2 when they select an expression. The seven expressions are selected from most frequently used expressions in handwritten messages and emoticons in emails in Japan when Petaro was developed in 1997 [8]. There was no textual description of the facial expressions shown to the subjects. Thus selection of a facial expression solely depends on a subject's interpretation of a visual representation of each facial expression.

Fig. 3 shows posted messages with corresponding character expressions. A character representation as a poster's avatar with a facial expression, message with the original language, and translated messages are shown on a bulletin board.

[1] Petaro© characters Copyright©1998-2004 Hakuhodo Inc.& TYO Productions Inc. Used by permission.

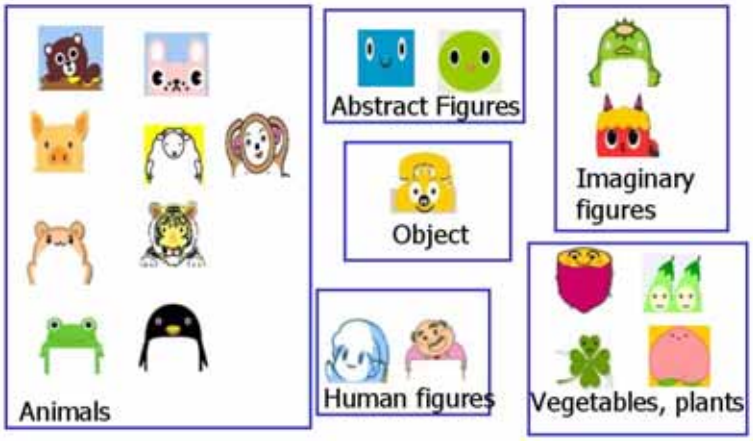

Fig. 1 Twenty character representations used as users' avatars on TransBBS (Copyright©1998-2004 Hakuhodo Inc.& TYO Productions Inc. Used by permission)

Fig. 2 Seven facial expressions used to show users' feelings (Copyright©1998-2004 Hakuhodo Inc.& TYO Productions Inc. Used by permission)

Fig. 3 Posted messages with character expressions on TransBBS

Questionnaire
A questionnaire survey was conducted to understand the subjects' subjective evaluation of the characters. The questionnaire had the following questions:

1) Subjects' interpretation of each character.
2) Subjects' interpretation of each facial expression and description of the situation when they use the expression.
3) Facial expressions that were not present in the experiment but needed for intercultural communication.

3 Results

Thirty-four subjects from China and Japan actively discussed two separate topics in two different rooms. Characters are used in 82% of the total messages posted (547 messages with characters out of 671 messages) during the experiment. The subjects evenly select the 20 characters as avatars, in other words, each subject selected different character as his/her avatar.

3-1 Character Interpretation

The questionnaire answers to interpretation of characters shows an interesting result. There are some characters that are interpreted completely differently between the Chinese and Japanese participants. As shown in Table 1, four characters, namely "hamster", two imaginary figures "kappa" and "ogre", and "clover", had a common interpretation among the Japanese subjects, while Chinese subjects' interpretations are different from those of Japanese as well as among individuals.

Those "misunderstood" characters have the following characteristics:

1) A character that has a special meaning in one culture (i.e., commercially popular character such as a "hamster")
2) An imaginary character in old tales in one culture ("kappa", "ogre")
3) A symbolic character that is popularly known in one culture ("clover")

Table 1 Characters that have different interpretations between China and Japan

Character representation	Japanese interpretation	Chinese interpretation
	Hamster (popular pet in Japan), "Ham-taro" (a popular comic character)	Bear, mouse, panda, squirrel, unknown
	"kappa" (a water sprite that appears in old Japanese tales)	Animal, seal, bird, chicken, unknown
	"oni" (an ogre; This red "oni" is known as a sympathetic "good" ogre in Japan.)	Cat, tiger, ghost, squirrel, unknown
	Clove, four-leaf clover (known as a symbol of happiness)	Leaf, flower, bee, kite, butterfly

3-2 Interpretation and Usage of Facial Expressions

Interpretations of the seven facial expressions also show differences between two countries. Table 2 shows the subjects' interpretations of the facial expressions and the situations of using each expression.

The interpretation and usage of "neutral", "happy", "angry", and "sad" expressions are the same for both in China and Japan. However, other expressions ("in trouble", "surprised", and "sleepy") are interpreted and used differently among individuals and between cultures. Especially, several Chinese subjects interpreted the "surprised" expression (as for Japanese) as "intelligent" and actually used the expression when they stated their opinions or started a new topic on TransBBS. The interpretations of the "sleepy" expression are more diverse. Some use the "sleepy" expression to show they are thinking hard, while others use it to express "not thinking or tired." We should be careful in using the "sleepy" expression both for inner and intercultural communication.

Table 2 Interpretations of facial expressions and used situations (**Black/bold**: common interpretation, *Blue/Italic*: Japanese interpretation, Red/courier: Chinese interpretation)

Expersss ions	Interpretation before experiment	Situations when the expression is used	Situations (if changed after the experiment)	Reason for the change
	Neutral	**No need for expressing emotions. No adequate expressions**	-	-
	Happy, Pleased	**Agreeing, Proposing an idea When received a reply**	*Disagreeing, Being ironic*	*To soften the atmosphere, to receive response*
	**Angry**	**Disagreeing,** *Will not use in any situation*		
	**Sad, Crying, In trouble**	**Sorry that msg was not understood or misunderstood,** *admitting a mistake, received a harsh comment*	*To express keenness,* Red/courier: To ask for help	*To show there was a misunderstanding*
	**In trouble,** *Tense,* Red/courier: Ashamed, Suspicious	*Be on different wavelengths,To bring an counterargument,* Red/courier: To set an argument right, don't understand the meaning	*To express keenness, to correct a mistake*	-
	**Surprised,** Red/courier: Confused, Intelligent	*Surprised, To emphasize, To strongly agree, To state a novel idea,* Red/courier: to ask for opinions, when not understand	*When received an unexpected opinion/interesting opinions*	-
	Sleepy, *Thinking, Not thinking,* Red/courier: Tired, Indifferent, Boring, Disagree	*To express thoughtfulness, when not understand,* Red/courier: when busy, **(don't use because the meaning is not clear)**	**When the idea is not clear,** *to send a serious message*	*There is not other adequate expression*

The frequency in use of each facial expression shows a supporting result of the differences in its interpretations. As shown in Fig. 4, "neutral" and "happy" expressions are the most frequently used expressions. Those two expressions don't have a negative connotation, and are frequently used to activate the discussion and to enhance a friendly atmosphere, as their usage are when one has "no need to express

emotions" (neutral), or one is "agreeing or happy to receive a response" (happy) (see Table 2).

However, confusing expressions such as "in trouble", "surprised", and "sleepy" (as in Japanese interpretation) were not used frequently. The subjects either did not encounter a situation where those expressions are needed or simply could not figure out when to use them. The "angry" expression was used rarely in spite of the common interpretation. The subjects' comments shows that they tried to avoid using expressions that have negative connotations and may lead to misunderstandings.

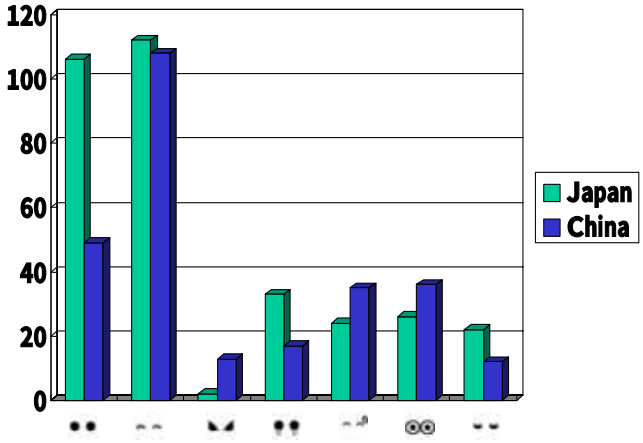

Fig. 4 Frequency in use for seven facial expressions

3-3 Expressions Needed for Intercultural Communication

Subjects' answers to desired additional facial expressions are "having a question", "agreeing", "disagreeing", "apologizing", "asking for a request", "don't understand", and "having an idea." The desired expressions are to show one's cognitive states or opinions rather than emotions. The seven facial expressions used in the experiments are popularly used in daily chat and handwritten messages among close friends. Expressions that show one's emotional states are frequently used for communications among friends [8]. The subjects' comments indicate that expressions to show one's cognitive states are more necessary for intercultural communication where people don't have enough understandings of each other and there is a big room for misunderstandings.

4 Discussions and Future Work

The experiment result shows we should be careful in selecting character representations for intercultural communication. Especially use of characters that have special

meaning in one culture, commercially popular characters, or seemingly regarded as a universal symbol may cause misunderstandings among different cultures and countries. Use of characters designed by other countries such as Chinese-designed characters would confirm this finding. The evaluations of facial expressions also show there are differences in interpreting expressions, and those expressions are used in different situations in other cultures. Frequently used expressions in instant messengers and chats, such as “sweaty (in trouble)”, “surprised”, and “sleeping (closed eyes)” should be carefully used for intercultural communication.

The subjects’ requests for additional expressions suggest that expressions frequently used in instant messengers and chats are not the same as the ones needed for intercultural communication, especially when a purpose of a communication is to discuss research or business issues on a bulletin board. Difference of media (email and messengers (closed) vs. BBS (open)) may influence the usage of emotional expressions and kinds of expressions. Expressions that show one’s cognitive status such as agreeing, disagreeing, proposing, and questioning may play more important roles in intercultural communication.

As business becomes global and the Internet is used beyond languages and cultural boundaries, there is a need to survey what kind of characters/character traits are universally understood, and what kind of emoticons and facial expressions are understood and used similarly across countries.

References

1. MSN Messenger: http://www.msn.com
2. Yahoo! Messenger: http://messenger.yahoo.com/
3. Smiley Central: http://www.smileycentral.com/
4. Kurlander, D., Skelly, T., Salesin, D.: Comic Chat. Proceedings of Computer Graphics and Interactive Techniques, ACM Press, New York (1996) 225-236
5. Smith, M.A., Farnham, S.D., and Drucker, S.M.: The Social Life of Small Graphical Chat Spaces. Proceedings of CHI, ACM Press, New York (2000) 462-469
6. Pesson, P.: ExMS: an Animated and Avatar-based Messaging System for Expressive peer Communication. Proceedings of GROUP, ACM Press, New York (2003) 31-39
7. Nomura, S., Ishida, T., Yasuoka, M., Yamashita, N., and Funakoshi, K.: Open Source Software Development with Your Mother Language: Intercultural Collaboration Experiment 2002. Proceedings of HCI International, Lawrence Earlbaum Associates, Inc (2003)
8. Petaro: http://www.petaro.gr.jp/

Acknowledgements

This work has been supported by MPMPT Asia Broadband Project and CREST of JST (Japan Science Technology Agency). Hakuhodo Inc. and TYO Productions Inc. kindly offered a permission to use “Petaro”© characters for the experiment.