

Women’s Negotiation Support System—As Affected by Personal Appearance Versus Use of Language

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Abstract In this study, we investigate the influence of Kawaii appearance on persuasiveness within the context of a negotiation, and propose a support system for advising women on their negotiation approach—with a focus on the negotiator’s Kawaii appearance. As a result of this experiment, we were able to obtain the multiple regression equation indicating the importance of the three language factors (euphemistic, honorific and sympathy expressions) for impressions made during negotiations. Based on this multiple regression equation, we constructed a system which automatically suggests negotiation sentences appropriate for creating a certain desired impression. Our system is expected to be able to recommend the optimal negotiation sentences based on the user’s personal and situational factors (such as Kawaii appearance, use of language, age, and relationship to the negotiation counterpart).

Keywords Negotiation support system · Human-systems integration · Personal appearance · Use of language

1 Introduction

In this study, we investigate the influence of Kawaii appearance on persuasiveness within the context of a negotiation, and propose a support system for advising women on their negotiation approach—with a focus on the negotiator’s Kawaii appearance.

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Negotiation is a method for obtaining one's objectives, through a process of consensus building between people with differing preferences. In daily life, we negotiate with people such as superiors and colleagues at work, friends, neighbors, and family members. Negotiations take place between individuals as well as between organizations and governments.

Previous engineering studies for negotiation have investigated the use of negotiation strategies through simulation models, and game theory where the parties involved have equal power. These studies have focused on maximizing the satisfaction of the two parties by determining which strategies are numerically dominant. However, real-life negotiations are further complicated by psychological factors related to an individual's personal qualities, such as a kawaii appearance.

In this respect, recent sociological studies for negotiation have focused on such psychological factors. Among the four stages in the negotiation process; (1) pre-negotiation, (2) the negotiation itself, (3) the negotiation result, and (4) implementation, psychological impressions are most important in the (1) pre-negotiation stage. In the (1) pre-negotiation stage, the individuals interpret the negotiation details through psychological impressions, which color the understanding they bring to the negotiation table. They then enter the next stage, (2) the negotiation itself, after having organized and decided their feelings towards their negotiating partner and the relationship [1]. Moreover, when given contradictory information through verbal, visual, and audio communication, people tend to regard visual messages (e.g., facial expression) as more important than the relative impact of words, or tone of voice [2].

Furthermore, a previous study [3] investigating women's verbal impressions has revealed that people tend to prefer a woman to use a gentle approach by using honorific language and indirect expressions. In the Japanese language, the ending structure of a conversational sentence can have a distinctly feminine or masculine form. This ending structure of the conversational sentence also functions as an indicator of the speaker's intent, as well as the speaker's internal qualities [4].

In light of these previous studies, our study proposes a Kansei engineering method for supporting women's negotiation, through a new investigation which combines the impressions of appearance and the use of language, both of which are important factors in sociological negotiations. With the recent measures taken by the Japanese government for women's empowerment, we have particularly focused this study on identifying the optimal negotiation expressions for Japanese women.

2 Method

In this section, we describe the psychological experiment that we performed to quantitatively analyze the relationship between the personal appearance and the use of language.

2.1 Psychological Experiment

Participants. The evaluation group for the “Girlfriend” and “Female colleague” category consisted of seventeen paid university students, aged 20 to 25 years (17 men). As the evaluation group for the “Wife” and “Female superior” category, fifteen paid participants, aged 20–60 years (15 men) participated in this experiment.

Stimuli. We prepared pictures of three women with a range of appearance, and set various situations in which they negotiate with their male counterparts as a girlfriend, wife, female colleague, or female superior. Then we created twelve negotiation scenarios (four negotiation situations \times three patterns of negotiation sentences). We showed the “Girlfriend” and “Colleague” scenarios to the seventeen university students, and the “Wife” and “Superior” scenarios to the other fifteen participants.

Procedure. We showed the male participants the three female pictures and the negotiation situation, and asked them to report how they felt about each picture on a seven-point SD scale for six affective factors (positive impression, extraversion, intelligence, conscientiousness, emotional stability, agreeableness) [6]. They then answered how they felt about each negotiation scenario (presented pictures and situation combined with negotiation sentences) on a seven-point SD scale for seven affective factors (positive impression, extraversion, intelligence, conscientiousness, emotional stability, agreeableness, degree of persuasion).

2.2 Results and Analysis

As a result of the experiment, we obtained 14,784 items of data (7 SD scales \times 66 patterns of negotiation stimuli \times 32 participants).

Through the two-way analysis of variance (factor A: appearance, factor B: affective scales) using average values for picture A to C in Table 1, we confirmed that picture A to C (Fig. 1) individually had significantly different impressions ($p < 0.001$) in six affective factors (positive impression, extraversion, intelligence, conscientiousness, emotional stability, agreeableness) ($F(10,465) = 6.023$, $p < 0.001$). We also conducted the two-way analysis of variance (factor A: effects of negotiation sentence, factor B: affective scales). As a result, we found the factor A: effects of negotiation sentence \times factor B: affective scales interaction for picture A and C (A: $F(53,595) = 12.178$, $p < 0.01$, C: $F(53,470) = 3.346$, $p < 0.01$). By investigating the simple main effect, we found the respective significant differences ($p < 0.05$) in extraversion and emotional stability for picture A, and those in all six scales for picture C. Therefore, the results of the variance analysis and Table 1 showed that Kawaii women might worsen their impressions in negotiation by the use of language though their impressions were originally good, and Not Kawaii women could effectively improve their impressions in negotiation by the use of language though their impressions might be still lower than Kawaii women. On the

Table 1 Average values and variances for picture A/A+Negotiation to picture C/C+Negotiation

	Positive impression	Extraversion	Intelligence	Conscientiousness	Emotional stability	Agreeableness
A:Average value	1.66	1.97	0.969	0.375	0.313	0.969
A:Variance	1.31	0.822	1.28	1.26	1.42	1.20
A+Negotiation:Average value	1.17	1.26	0.862	0.811	0.813	0.943
A+Negotiation:Variance	1.52	1.36	1.45	1.32	1.31	1.41
B:Average value	0.0625	0.406	0.0938	0.406	0.219	0.219
B:Variance	1.22	1.19	1.12	1.19	1.29	1.18
B+Negotiation:Average value	0.561	0.697	0.416	0.427	0.439	0.495
B+Negotiation:Variance	1.34	1.26	1.33	1.24	1.18	1.24
C:Average value	-2.19	-1.06	-1.84	-1.47	-1.44	-1.63
C:Variance	0.896	1.70	1.11	1.22	1.34	1.52
C+Negotiation:Average value	-0.654	-0.292	-0.489	-0.381	-0.408	-0.425
C+Negotiation:Variance	1.56	1.58	1.53	1.42	1.34	1.48

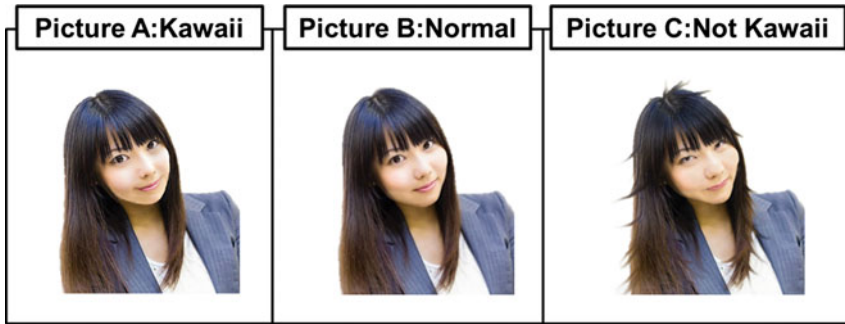


Fig. 1 Three pictures used in the experiment

other hand, the impressions made by women of normal appearance were not easily affected by their use of language.

We calculated the average rating values for each scale for all stimuli. By using the average rating values for the seven affective factors as the objective variables, and three language factors composing negotiation sentences (euphemistic expression, honorific expression, and sympathy expression) [5] as the predictor variables, we conducted mathematical quantification theory class I. Then we obtained the multiple regression equation indicating the importance of the three language factors (euphemistic expressions, honorific expressions, and sympathy expressions) for impressions made during negotiation. Table 2 shows an example of the multiple regression equation for the female negotiator. In the table, we colored the most important language factors for each affective scale. Table 2 indicates that polite use of language (euphemistic expressions) gives the male counterparts the impression

Table 2 An example of the multiple regression equation for female negotiator

	Euphemistic expressions	Honorific expressions	Sympathy expressions	R ²
Positive impression	0.116***	0.203***	0.241***	0.873
Extraversion	0.125**	0.183***	0.242***	0.969
Intelligence	0.163***	0.166***	0.196***	0.810
Conscientiousness	0.216***	0.177***	0.119***	0.794
Emotional stability	0.132***	0.149***	0.146***	0.849
Agreeableness	0.129**	0.213***	0.205***	0.858
Degree of persuasion	0.130***	0.190***	0.230***	0.918

** $p < 0.01$

*** $p < 0.001$

that the speaker is conscientious. Moreover, male counterparts tend to prefer feminine use of language from their female counterparts (honorific expressions and sympathy expressions). On the basis of the multiple regression equation, we constructed a system which automatically suggests negotiation sentences appropriate for creating a certain desired impression.

Furthermore, by using the average rating values for positive impression as the objective variables, and the other average rating values for extraversion, intelligence, conscientiousness, emotional stability, and agreeableness as the predictor variables, we conducted a multiple regression analysis. In Table 3, we show the respective results of the analysis for pictures A, B and C.

According to Table 3, extraversion is the most important quality for all types of woman (Kawaii, normal, and Not Kawaii) in making a positive impression on their negotiating partner. Only the Not Kawaii women can significantly improve their positive impression by the intelligent use of language. On the other hand, conscientiousness is also important for Kawaii and normal women in order to evoke positive impression, but not so for Not Kawaii women. In addition, only for Kawaii women, expressions demonstrating emotional stability tend to have a detrimental effect in making a positive impression on their negotiating partner.

3 System Construction

In this section, we describe the procedure for constructing the women's negotiation support system. Our system automatically recommends suitable expressions and negotiation sentences corresponding to the situation and the user's attributes. In Sect. 2, we obtained the multiple regression equation indicating the importance of the three language factors. Our system suggests the use of language that increases positive impression based on this multiple regression equation.

Our system is comprised of a user interface module, a negotiator attribute evaluation module, and a database of negotiation sentences. Figure 2 shows the construction of our system. In the user interface module, our system suggests the appropriate negotiation sentence and suitable language factors for composing the negotiation sentences (honorific, euphemistic, and sympathy expressions) based on the negotiator attributes input by a user. The user can input the four elements of sex, age, appearance and negotiation situation, with "female" being the default value for sex. For appearance, the user can input "Kawaii", "normal", or "Not Kawaii." And for the negotiation situation, the user can input "colleague at work", "boyfriend", "superior", or "husband."

The negotiation attribute evaluation module calculates the importance of the three factors of negotiation sentences (honorific, euphemistic, and sympathy expressions) in improving the negotiator's positive impression on their partner, based on her appearance and the situation. Then the module transmits the

Table 3 The results of multiple regression analysis for positive impression

Regression statistics	Coefficients			Standard error			t-statistic			
	A	B	C	A	B	C	A	B	C	
Adjusted R ²	0.690	0.689	0.660							
Standard error	0.846	0.746	0.912							
Observations	689	663	664							
	Coefficients			Standard error			t-statistic			
Intercept	0.0933*	-0.0333	-0.304***	0.0441	0.0333	0.0376	2.12	-1.00	-8.09	
Extraversion	0.530***	0.620***	0.431***	0.0406	0.0366	0.0375	13.0	17.0	11.5	
Intelligence	0.0769	0.0529	0.158***	0.0404	0.0360	0.0414	1.90	1.47	3.81	
Conscientiousness	0.114*	0.126**	0.0590	0.0448	0.0392	0.0455	2.54	3.20	1.30	
Emotional stability	-0.112*	0.0346	0.170***	0.0450	0.0404	0.0454	-2.50	0.857	3.74	
Agreeableness	0.368***	0.144***	0.129**	0.0425	0.0406	0.0462	8.65	3.55	2.80	

* $p < 0.05$

** $p < 0.01$

*** $p < 0.001$

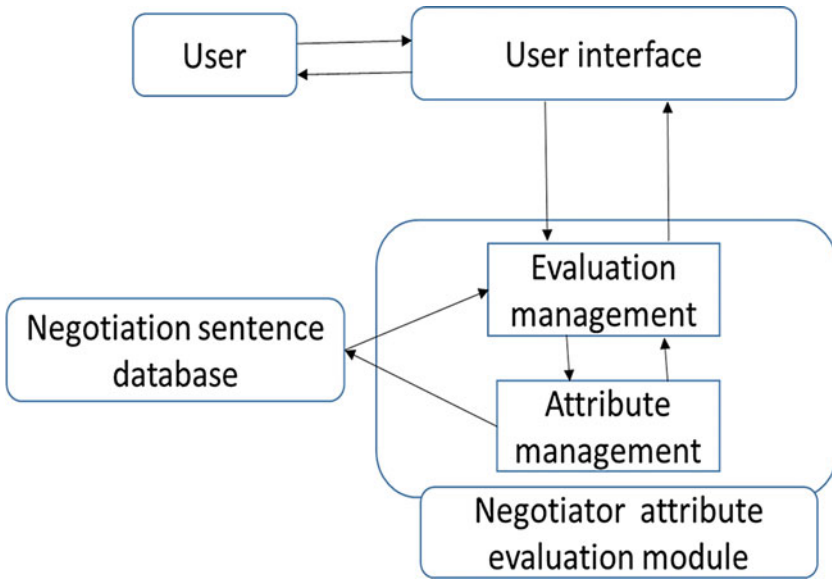


Fig. 2 Configuration diagram of women's negotiation support system

importance of negotiation factors to the database, and calculates the evaluation value for affective factors through the multiple regression equations obtained in the experiment. This module will then receive suitable negotiation sentences from the database and will send these sentences and the evaluation values of language factors to the user interface module.

In our system, the database will hold a collection of negotiation sentences. These sentences will be labeled as honorific, euphemistic, or sympathy expressions. For example, "Could/Would you please" is classified as a honorific expression, "Would you mind doing?" is classified as a euphemistic expression, and "I would be glad if you could" is classified as a sympathy expression. For example, if a user were to input the attributes "gender: female, appearance: Kawaii, and negotiation situation: boyfriend" into our system, the system will output sentences such as "I would be happy if you could" and "I will be glad if you would", along with the evaluation values of each of the three language factors. In this situation, the evaluation values calculated by our system based on the multiple regression equations show that sympathy expressions are suitable and honorific expressions are not. As a result, our system will extract negotiation sentences which include euphemistic expressions from the database and display them with the evaluation values. Figure 3 shows an example of the output from our system.

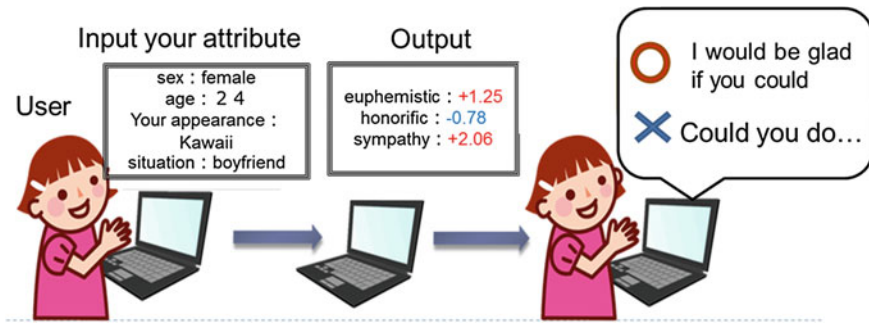


Fig. 3 Example of output from our system

4 Conclusion

In this study, we have constructed a system which automatically suggests negotiation sentences appropriate for creating a certain desired impression, and demonstrated how this system can be used to recommend suitable negotiation sentences.

We found that Kawaii women might worsen their impressions in negotiation by the use of language, in spite of the fact that the first impressions they made were originally good. We also found that the Not Kawaii women could effectively improve their impressions in negotiation by the use of language, though their impressions might still be less positive than those made by Kawaii women. On the other hand, the impressions made by women of normal appearance were not easily affected by the use of language. Extraversion is the most important for all types of woman (Kawaii, normal, and Not Kawaii) for making a positive impression on their negotiating partner. Only the Not Kawaii women can significantly improve their positive impression by the intelligent use of language. On the other hand, conscientiousness is also important for Kawaii and normal women (but not so for the Not Kawaii women) to evoke positive impression. In addition, only Kawaii women should avoid expressing emotional stability, as this tends to decrease the positive impression made on their negotiating partner.

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