



### **Topic of the Speech:**

Comparison of Subjective and Objective Assessments of Japanese People's Feeling of 'Out of Place' with Their Clothing

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**Professor Tamaki Takada Mitsuno** received her Ph.D. degree in human life science, Specialist, in clothing physiology from the Graduate School of Kyoritsu Women's University, Tokyo, Japan in 1996. She is currently a project professor, and former head of the Home Economics course in the Faculty of Education and Graduate School of Medicine, Science and Technology (Doctor's Program).

Her research interests include clothing wearing comfort, clothing pressure, and its pressure sense and supported wear for burning body fat and reducing swelling. She has developed a clothing pressure measurement device, a hydrostatic pressure-balanced method, using the direct method. She has studied the comfort of clothing and the pressure feeling associated with clothing compression, so far. After clarifying the physiological functions and sensations of humans, she has tried to design and develop clothing that more effectively enhances human physiological functions. Based on this data, she has developed and demonstrated the effectiveness of more functional clothing, such as support wear that burns body fat and reduces swelling. To date, she has published over 70 peer-reviewed journal articles.

Currently, she is a Member of the Asian Regional Association for Home Economics, The Society of Fiber Science and Technology, Japan, The Japan Research Association for textile end-uses.

## **Comparison of Subjective and Objective Assessments of Japanese People's Feeling of 'Out of Place' with Their Clothing**

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**INTRODUCTION:** Japanese people usually wear Western clothes, which do not have as strict a dress code as the Kimono, are left to make their own decisions based on common sense. When we are the only ones dressed differently, we feel 'out of place' if we judge ourselves as inappropriate for the occasion. This study aimed to set up a situation in which this Japanese-specific feeling of being out of place occurs and to compare the subjective evaluation of this situation with an objective evaluation.

**EXPERIMENTAL METHOD:** The subjects were 16 female university students aged 20-23, and three female collaborators aged 21-22 who were not acquainted with the subjects. The questionnaire was used as the subjective evaluation, while EEG and heart rate were measured as physiological indices for objective evaluation. In Experiment I, all four participants wore white shirts, while in Experiment II, only the subject wore a white shirt, and the other three collaborators wore black suits. EEG were measured derived from Fz, Cz, and Pz using a digital EEG measuring system. Heart rate was also measured simultaneously, and HF and LF/HF were determined from fluctuations in the R-R interval. As for the task, the subjects wrote a letter to the children in the class she took charge of during her educational training (Experiment I), while Experiment II was a place where she wrote a thank-you letter to the homeroom class teacher. Questionnaires I and II were administered after the completion of Experiments I and II with the same content, and subjects were asked the items relating to comfort and lack of rejection on a five-point scale.

**RESULTS/DISCUSSION:** A comparison of Questionnaires I and II confirmed that the subjects felt significantly more feeling of 'out of place' in Experiment II than in Experiment I. Neither  $\alpha$  (HF) nor  $\beta$  waves (LF/HF) at that before-, after-, and during work differed significantly between Experiments I and II. When compared before- and after-works within each experiment,  $\alpha$  ( $\beta$ ) waves during work significantly decreased (increased) compared to before- and after-works. This suggests that the brain (the sympathetic nervous system) was activated during work in both Experiments I and II. The correlation coefficient between 'feeling out of place' and the content of  $\alpha$  and  $\beta$  waves was calculated. The more strongly subjects reported feeling out of place in Experiment II, the more the  $\alpha$  waves decreased and the  $\beta$  waves increased significantly. Note that  $\alpha$  waves increased at the end of the work in Experiment I, while  $\beta$  waves increased in Experiment II. In the condition where the subject did not feel out of place,  $\alpha$  waves increased at the end of the work. This indicates that the subjects felt 'out of place' when occurring with an increase of  $\beta$  waves and a decrease of  $\alpha$  waves at the end of work.