

21st Human Neuroscience Seminar: Emotion, Music, Language, and Social Cognitive Neuroscience

Date: Friday, April 26th, 2024, 14:30 ~17:20

Venue: Seminar room, Department of Human Brain science,
3F Smart-Aging Research Center building, IDAC, Tohoku University

14:30 – 15:30 *Presentation by students*

Speaker 1 – Momoyo Tsuchiya (M2)

Exploring the Brain Mechanisms Underlying Sad Music Preference

Speaker 2 – Chunlin Liu (D3)

The Effect of Emotional Facial Cues on L2 Emotional Word Learning: An fMRI Study

15:50-17:20 *Special lecture*

Francesca M.M. Citron,
Lancaster University, Department of Psychology

Neurophysiological correlates of figurative language comprehension and emotional engagement



Philosophical traditions have long advocated for a rhetorical advantage of metaphors and other figures of speech. Yet, psycholinguistic and neurolinguistic research on figurative language processing has not addressed its role in engaging readers or listeners at the emotional level. Research from my lab initially aimed to investigate how abstract concepts are represented at the neural level. To do so, we decided to focus on metaphors, which map abstract concepts to concrete ones, e.g., 'She looked at him *sweetly*' vs. '*kindly*', where sweet taste is used to represent the otherwise abstract concept of kindness. Using functional magnetic resonance imaging (fMRI), we found activation of taste cortices during the comprehension of abstract, metaphorical concepts. In addition, we found that metaphorical formulations evoked stronger activation of the emotion neural network (left amygdala, among other brain structures) compared to their literal counterparts. This finding showed that, if we express something metaphorically, we manage to engage readers or listeners at the emotional level more strongly than if we use plain, literal language. In a series of follow-up studies, we replicated and generalised this finding to metaphors that involve other sensory modalities (not only taste), to more natural reading processes (short stories), to idioms (highly conventionalised expressions) and we also compared native and second language (L2) speakers. We have also investigated which properties of metaphors make them more engaging: is it the sensorimotor representations that they evoke? Or their richness in meaning? In this talk, I will first present an overview of our research, and then briefly outline new lines of research that we have started to explore such as: the effects of culture on affective engagement in response to L2; intercultural pragmatics; literary reception and appreciation; the effects of reading devices on affective and cognitive responses to fiction reading.

Bio: Francesca Citron is Senior Lecturer in Psychology at Lancaster University, UK. She has previously worked in several institutions including the Max Planck Institute for Human Cognitive Neuroscience, Leipzig, Germany, the University of Sussex, UK, Freie Universität Berlin, Germany, and Princeton University, NJ. Francesca's research interests include the processing of emotive content of language, the processing of figurative language such as metaphors and idioms, second language processing, and aesthetic perception in literary reading. Francesca has employed a range of methods including behavioural studies, surveys, EEG/ERPs, fMRI, and physiological responses such as pupil dilation.