

International Symposium

# New Perspectives in Affective Science

28-30 January 2005

Kyoto University Clock Tower Centennial Hall

21<sup>st</sup> COE Program “Center of Excellence for Psychological Studies”  
Kyoto University Psychology Union



**International Symposium**  
**“New Perspectives in Affective Science”**  
28-30 January 2005  
Kyoto University Clock Tower Centennial Hall

Affective science is a new multidisciplinary research field that is growing rapidly. The main goal of the symposium is to demonstrate the range of different disciplines contribute to affective science, to bring recent major findings together, and to share the advantages of an interdisciplinary approach in exploring affective phenomena, such as emotion, mood, feelings, affective style, and attitudes. The three-day symposium includes five oral sessions: “Neural Systems”, “Cognition and Language”, “Evolution and Development”, “Social Interaction and Culture”, and “Pathology and Health”.

We have planned this international symposium with the aim of providing a forum for discussion by researchers from different backgrounds; it is our hope that this symposium will offer new and richer perspectives approaching affective workings of the human mind. We anticipate an exciting and potentially very rewarding symposium.

**Organizing Committee**

Sakiko Yoshikawa  
Motoki Watabe  
Takashi Kusumi  
Toshio Kawai  
Shoji Itakura  
Shintaro Funahashi  
Kazuo Fujita

Supported by

Kyoto University 21<sup>st</sup> COE Program from Ministry of Education, Culture, Sports, Science, & Technology, Japan

## Program

### 28th January 2005

**9:30- Opening Remarks** Kazuo Fujita (Kyoto University, Japan)

**9:45-12:45 Session 1: Social Interaction and Culture**

Session Chair: Motoki Watabe (Kyoto University, Japan)

Beatrice DeGelder (University of Tilburg, Netherlands)

*Face recognition in context*

Sakiko Yoshikawa (Kyoto University, Japan)

*Social communication via facial expressions*

----- Coffee Break (10:45-11:15) -----

Daniel M.T. Fessler (University of California Los Angeles, USA)

*Shame in Two Cultures*

Ross Buck (University of Connecticut, USA)

*A Developmental-Interactionist Theory of Biological and Higher Level Emotions: A Cross-National Comparison of America and Japan*

Discussant: Shinobu Kitayama (University of Michigan, USA)

**12:45-14:30 Poster Session (Lunch Time)**

**14:30-17:30 Session 2: Pathology and Health**

Session Chair: Tomoko Kuwabara (Kyoto University, Japan)

Toshiya Murai (Kyoto University, Japan)

*Emotional Cognition and Decision Making in Neuropsychiatric Disorders*

Randolph Nesse (University of Michigan, USA)

*How an evolutionary understanding of mood can help to explain cross cultural differences in depression*

----- Coffee Break (15:30-16:00) -----

Peter Widmer (Psychotherapist, Switzerland)

*Anxiety — a challenge for the research on causality*

Toshio Kawai (Kyoto University, Japan)

*The experience of the “numinous” today: from the novels of Haruki Murakami*

Discussant: Carl Becker (Kyoto University, Japan)

## 29th January 2005

### 9:30-12:30 Session 3: Neural Systems

Session Chair: Yoshio Sakurai (Kyoto University, Japan)

Ryoi Tamura (Toyama Medical and Pharmaceutical University Japan)

*The effects of dopamine receptor subtype knockout on goal-directed behavior and reward-anticipatory neural responses in the nucleus accumbens of mice*

Edmund Rolls (University of Oxford, UK)

*Neurophysiology, neuroimaging and neuropsychology of the orbitofrontal cortex*

----- Coffee Break (10:30-11:00) -----

Antoine Bechara (University of Iowa, USA)

*Human emotions in decision-making: Useful or disruptive role?*

Piotr Winkielman (University of California San Diego, USA)

*Preferences with and without inferences: The interplay of feelings and beliefs in judgment and behavior*

Discussant: Shintaro Funahashi (Kyoto University, Japan)

### 12:30-14:30 Poster Session (Lunch Time)

### 14:30-17:30 Session 4: Cognition and Language

Session Chair: Toshihiko Endo (Kyoto University, Japan)

Keith Oatley (University of Toronto, Canada)

*How language affects emotions: Effects of narrative, metaphor, and metonymy*

Zoltán Kövecses (Eötvös Loránd University, Hungary)

*Metaphor and emotion*

----- Coffee Break (15:30-16:00) -----

Takashi Kusumi (Kyoto University, Japan)

*Emotion metaphors: Effects of image schemas, experiences and norms*

Justine Cassell (Northwestern University, USA)

*Establishing Rapport with Virtual Peers*

Discussant: Yuichiro Anzai (Keio-Gijuku University, Japan)

### 18:30- Banquet

## 30th January 2005

### 9:30-12:30    **Session 5: Evolution and Development**

Session Chair: Masaki Tomonaga    (Kyoto University, Japan)

Kim Bard    (University of Portsmouth, UK)

*Comparative developmental perspectives on emotion*

Shunya Sogon    (Osaka-Gakuin University, Japan)

*Culturally specific affective-cognitive structures of human emotions*

----- Coffee Break    (10:30- 11:00) -----

Yukari Kubo    (Toyo University, Japan)

*Preschool children's understanding of multiple emotions*

Carolyn Saarni    (Sonoma State University, USA)

*Promoting Emotional Competence in Children and Youth*

Discussant: Kazuo Fujita    (Kyoto University, Japan)

**12:30-            Closing Remarks            Sakiko Yoshikawa    (Kyoto University, Japan)**

## Poster Session

### “Social Interaction and Culture”

**S-1** Makoto Nakamura, Utsunomiya University

*A data analytic examination of the emotion judgment through expressive behaviors and contexts: Multilevel modeling versus difference score analysis*

**S-2** Mai Yamaguchi and Naoto Suzuki, Doshisha University

*Examination of relationship between impulsive behaviors and personality traits*

**S-3** Kyoko Yamamoto and Naoto Suzuki, Doshisha University

*The effects of social interaction on facial displays*

**S-4** Masanori Kimura and Ikuo Daibo, Osaka University

*Interpersonal synchrony in the conversation about emotional episodes: A measurement by “the between-design pseudosynchrony experimental paradigm”*

**S-5** Hiroki Ozono, Kyoto University

*The effect of facial expression and face direction on approach-avoidance behavior*

**S-6** Hiroki Takehashi, Nagoya university

*The effect of sensitivities of behavioral inhibition system and behavioral approach system on arousals and strategic means of goal attainment*

**S-7** Mayumi Karasawa<sup>1</sup> and Batja Mesquita<sup>2</sup>, <sup>1</sup>Tokyo Woman's Christian University, <sup>2</sup>Wake Forest University

*Emotions as Culture-Specific Ways of Relating: A Comparison Between Japanese and American Groups*

**S-8** Rie Onodera<sup>1</sup>, Kazumi Watanabe<sup>2</sup> and Hideki Ohira<sup>1</sup>, <sup>1</sup>Nagoya University, <sup>2</sup>National Research Institute of Police Science

*Fear of Crime : investigation of environmental and circumstantial factors*

**S-9** Norberto Eiji Nawa and Katsunori Shimohara, ATR Network Informatics Labs

*How Does Social Comparison Affect the Perception of Emotions?*

### “Pathology and Health”

**CL-1** Yumi Iwamatsu<sup>1</sup>, Kazutaka Shimoda<sup>2</sup>, Hajime Abe<sup>3</sup>, Tohru Tani<sup>3</sup>, Masako Okawa<sup>3</sup>, Hitoshi Miyaoka<sup>1</sup> and Ross Buck<sup>4</sup>, <sup>1</sup>Kitasato University, <sup>2</sup>Dokkyo University School of Medicine, <sup>3</sup>University School of Medicine Shiga, <sup>4</sup>University of Connecticut

*The Relationship among anxiety, emotional suppression, and psychological distress before and after breast cancer diagnosis*

**CL-2** Haruko Hayashi<sup>1</sup>, Mayumi Karasawa<sup>1</sup>, Akiko Hiraga<sup>2</sup>, Shinobu Kitayama<sup>3</sup>, Hazel R. Markus<sup>4</sup> and Katherine B. Curhan<sup>4</sup>, <sup>1</sup>Tokyo Woman's Christian University, <sup>2</sup>Hokusei Gakuen University, <sup>3</sup>Kyoto University, <sup>4</sup>Stanford University

*Cultural constructs of control and mental health*

**CL-3** Haruka Sudo, Kyoto University

*Emotional experience among the same sex friends in adolescence and two aspects of the self -difference between male and female-*

**CL-4** Yamamoto, Y.<sup>1</sup>, Kawano, N.<sup>1</sup>, Kuwabara, H.<sup>1</sup>, Suruji, M.<sup>1</sup>, Umimoto, R.<sup>1</sup>, Fujimoto, M.<sup>1</sup>, Tanaka, S.<sup>1</sup>, Furuno, Y.<sup>1</sup>, Inoue, Y.<sup>1</sup>, Fukuda, I.<sup>1</sup>, Itoh, Y.<sup>1</sup>, Kosugi, S.<sup>2</sup>, Fujimura, S.<sup>2</sup>, Tomiwa, K.<sup>2</sup>, Yorifuji, T.<sup>2</sup> and Fujita, J.<sup>2</sup>, <sup>1</sup>Kyoto University, <sup>2</sup>Kyoto University Hospital  
*Psychological themes in genetic counseling. -from the viewpoint of classifying the psychological chief complaints*

**CL-5** Tomoe Toriu, Noriko Matsukawa and Ayumi Abe, Kyoto University  
*The dreams of students who have somatic tendency*

### “Neural Systems”

**N-1** Naho Ichikawa, JSPS/Nagoya University

*Emotional or Motivational Feedback effects on the learning process*

**N-2** Rie Fukumoto, Takeo Kondo, Yuri Saito, Shiori Aoyama and Tamotsu Toshima, Hiroshima University

*Activations in Broca's area for face and finger imitation: A NIRS imaging study*

**N-3** Kei Watanabe, Saori Igaki and Shintaro Funahashi, Kyoto University

*Neural processes for decision of saccade direction in the prefrontal cortex*

**N-4** Sonoko Ogawa, University of Tsukuba/The Rockefeller University

*Roles of estrogen receptors in the regulation of emotional behaviors in mice*

**N-5** Luc Berthouze<sup>1</sup> and Nadia Berthouze<sup>2</sup>, <sup>1</sup>AIST Neuroscience Research Institute, <sup>2</sup>University of Aizu

*Affective appraisal of avatar postures: a fMRI study*

### “Cognition and Language”

**C-1** Takao Kanasugi, Taisei Gakuin University

*Intrinsic Attention to Trigger the Orienting Reflex in Language Understanding*

**C-2** Ken Kihara and Naoyuki Osaka, Kyoto University

*Object substitution masking with emotional words*

**C-3** Hideya Kitamura, Toyo University

*False memory of facial expression of feeling of decision*

**C-4** Mika Itoh<sup>1</sup> and Sakiko Yoshikawa<sup>2</sup>, <sup>1</sup>Kyoto Koka Women's University, <sup>2</sup>Kyoto University

*The relative importance of upper/lower part of the face in recognizing facial expressions of emotion*

**C-5** Saea Iida, Nagoya University

*The effect of the recall of the character on person memory and impression evaluation*

**C-6** Keiko Nakamoto and Takashi Kusumi, Kyoto University

*Determinants of a subjective evaluation of metaphoric statements*

**C-7** Motoko Noguchi, Wataru Sato and Sakiko Yoshikawa, Kyoto University

*The effects of emotion-eliciting films in a Japanese sample*

**C-8** Yuuka Takeuchi<sup>1</sup>, Yukari Nagai<sup>1</sup> and Toshiharu Taura<sup>2</sup>, <sup>1</sup>Japan Advanced Institute of Science and Technology, <sup>2</sup>Kobe University

*How Feelings Are Represented in Design Process*



- C-9** Yohei Fukushi and Yukari Nagai, Japan Advanced Institute of Science and Technology  
*How can writing essays or drawing maps invoke feeling?*
- C-10** Yosuke Sekiguchi, Muneyoshi Hyodo, Chuo university  
*The effect of induced emotional state on high-level cognitive task*
- C-11** Hidetsugu Komeda and Takashi Kusumi, Kyoto University  
*The effect of a protagonist's emotional shift during normal reading process*
- C-12** Ken Matsuda and Takashi Kusumi, Kyoto University  
*A generalization of emotion and the J-curve effect influences the advertising judgments*
- C-13** Koichiro Hajiri, Waseda University/Tama Art University  
*Conversation System and the Emotional Computation*
- C-14** Michiko Sakaki, University of Tokyo  
*Nature of Autobiographical memory that facilitates improvement of negative moods*
- C-15** Akira Mukai, University of Liege, Belgium  
*Cross-modality priming for adjectivized people's names*

#### **“Evolution and Development”**

- D-1** Takahiro Hisazaki, Kyushu University  
*The effect of other-recognition on embarrassment and empathy (prosocial behaviors) in toddlers*
- D-2** Misa Kuroki, Kyushu University  
*The effect of emotion on infants' looking behavior*
- D-3** Tasuku Sugimoto<sup>1</sup>, Hiromi Kobayashi<sup>2</sup> and Kazuhide Hashiya<sup>1</sup>, <sup>1</sup>Kyushu University, <sup>2</sup>Seika Women's Junior College  
*The recognition of affective values of the music in infants*
- D-4** Ari Ueno, Yoshikazu Ueno and Masaki Tomonaga, Kyoto University  
*Affective responses to taste stimuli in newborn rhesus macaques (*Macaca mulatta*) and chimpanzees (*Pan troglodytes*)*
- D-5** Mako Okanda and Shoji Itakura, Kyoto University  
*Young Children in Asian cultures Say Yes to Yes-No question: Common and Cultural difference between Vietnamese and Japanese Children*
- D-6** Yuu Mizuno<sup>1</sup>, Hideko Takeshita<sup>2</sup> and Masaki Tomonaga<sup>1</sup>, <sup>1</sup> Kyoto University, <sup>2</sup>The University of Shiga Prefecture  
*“Crying” in infants and mother-infant interactions in chimpanzees*



## Oral and Poster Abstracts

## Session 1: Social Interaction and Culture

**Beatrice DeGelder** (Tilburg University, Netherlands)

### *Face recognition in context*

Investigations of social communication, emotion and culture have traditionally centered on the face. Here we open some new perspectives first by contrasting conscious and non-conscious recognition of facial emotions and next by sketching a broader context for recognition or facial expressions. The first part of this talk reviews some recent research on non-conscious recognition of facial expressions and discusses the most far reaching conception of nonconscious emotion perception and its neural underpinnings. The second half is devoted to research that moves beyond the face and concentrates on two contexts in which faces routinely appear in everyday life: the voice (expressions of emotion in the tone voice) and the whole body (bodily expressions of emotion). To conclude, the cultural implications of this extended perspective will be explored.

-----  
Beatrice de Gelder is Professor of cognitive neuroscience at Tilburg university and senior research fellow at the Martinos Center for Neuromagnetic Imaging, Massachusetts General Hospital and Harvard Medical School. Her research field is study of the functional and neuronal mechanisms in visual recognition of faces, facial and bodily expressions and the combination of visual and auditory signals at the basis of multisensory integration.

**Sakiko Yoshikawa** (Kyoto University, Japan)

*Social communication via facial expressions*

When focusing on the cognitive and emotional underpinnings of social communication, an examination of how people process dynamic properties of facial information is indispensable. I will describe one neuroimaging (Sato et al.2004) and two psychological studies using morphing animation and real video images of dynamic facial expressions. Previous neuroimaging studies indicated the activations of several brain areas such as STS and the amygdala in response to static facial expressions. We recently found that the activation levels of these brain areas were higher for dynamic faces than for static faces. In addition, we found higher activation levels in the premotor cortex for dynamic facial expressions, suggesting that the activity in this area may reflect ‘mirror’ functions. Congruent with these findings, psychological studies showed that dynamic facial expressions elicited externally observable, spontaneous facial mimicking. These mimicking behaviors were more evidently observed when the participant actively engaged in the emotion recognition task in social interaction situation. Based on these findings, I will discuss possible psychological stages where nature meets culture.

-----  
Sakiko Yoshikawa is Professor at Graduate School of Education, Kyoto University. She was educated in educational/cognitive psychology and received her Ph.D. degree from Kyoto University. From 1989 to 1990, she was a visiting researcher at Nottingham University in the UK. Her research interests are in cognitive psychology, especially in perception/cognitive aspects of face processing. Her current research focuses on the psychological processes of facial expressions of emotion, using both experimental and brain-imaging approaches.

**Daniel M.T. Fessler** (UCLA, USA)

*Shame in Two Cultures*

Research in Bengkulu (Indonesia) and California explored the nature and experience of shame in two disparate cultures. Study 1, perceived term use frequency, indicated that shame is more prominent in Bengkulu, a collectivistic culture, than in California, an individualistic culture. Study 2, comparing naturally occurring shame events (Bengkulu) with reports thereof (California), revealed that shame is associated with guilt-like accounts in California but not in Bengkulu, and subordination events in Bengkulu but not in California; published reports suggest that the latter pattern is prominent worldwide. Study 3 mapped the semantic domain of shame using a synonym task; again, guilt was prominent in California, subordination in Bengkulu. Because shame is overshadowed by guilt in individualistic cultures, and because these cultures downplay aversive emotions associated with subordination, a fuller understanding of shame is best arrived at through the study of collectivistic cultures such as Bengkulu.

-----  
Daniel M.T. Fessler is Assistant Professor of Anthropology at the University of California, Los Angeles (UCLA). Trained as a psychological anthropologist at the University of California, San Diego (Ph.D. 1995), his work combines evolutionary and cultural approaches to the study of emotions, decision making, cooperation, and ingestive and reproductive behaviors.

**Ross Buck** (University of Connecticut, USA)

***A Developmental-Interactionist Theory of Biological and Higher Level Emotions: A Cross-National Comparison of America and Japan***

Developmental-Interactionist theory suggests that emotional and rational cognition interact over the course of individual development. Biological emotions are hierarchically organized in the brain, including brainstem, subcortical and limbic system levels. Limbic-level emotions include the discrete primary affects, and also prosocial emotions (attachment, love, nurturance, protectiveness, play). Higher-level social, cognitive, and moral emotions are based upon the confluence of limbic-level emotions associated with attachment and exploration, and environmental contingencies. In the case of social emotions, the latter involve judgments of the relative success or failure on the part of a person (P) and comparison others (Os). Pride, arrogance, pity, and scorn are associated with P's success relative to Os; while guilt, shame, envy, and jealousy are associated with P's relative failure. Each social emotion is dynamically related to each of the others: pride/arrogance on the part of P implies pity/scorn toward Os; while Os will tend to respond to their own relative failure with guilt/shame and envy/jealousy toward P. Moral emotions such as humiliation, admiration, resentment, and sympathy involve considerations of equity/fairness as well as relative success/failure. Studies testing the dynamics of social emotions predicted by the model in the United States and Japan have found substantial support with some complexities.

-----  
Ross Buck is Professor of Communication Sciences and Psychology at the University of Connecticut, Storrs, CT USA. He was educated in social psychology at the University of Wisconsin (MA 1965) and the University of Pittsburgh (Ph.D. 1970). He has originated a developmental-interactionist theory of motivation, emotion, and cognition; and his research concerns the experience, expression, and communication of emotion and how emotional communication underlies social organization.

## Session 2: Pathology and Health

**Toshiya Murai** (Kyoto University, Japan)

### *Emotional Cognition and Decision Making in Neuropsychiatric Disorders*

Adequate decoding of emotional stimuli and subsequent decision making are essential for successful social interaction, and abnormality of these processes is a central feature of many neuropsychiatric disorders. We present a unique recognition pattern of emotional facial stimuli in an epileptic patient with a presumed hypersensitive amygdala, who exhibited an exaggerated recognition of negative emotion. Abnormal emotional cognition has also been indicated in other neuropsychiatric disorders with unspecified neural basis, notably in schizophrenia. On the other hand, normal decision making, especially when it is socially or personally relevant, requires integrity of the orbital and medial prefrontal regions. These areas are activated when the subjects engage in reward-related decision making tasks, such as gambling tasks. These areas are often damaged in traumatic brain injury in traffic accidents, which causes a long-lasting difficulty in social life for the sufferer. An even more devastating pattern of abnormal decision making is observed among those with conduct disorder and with antisocial personality disorder. These patients opt to make risky and disadvantageous choices in a gambling task. Abnormal development of the ventromedial cortex is suspected to be a neural basis of their destructive behaviour.

-----  
Toshiya Murai is a Lecturer at the Department of Psychiatry, Graduate School of Medicine, Kyoto University. He was educated in clinical psychiatry and neuropsychology at Kyoto University, and received the D.Sci. degree from Kyoto University in 1998. His research field is clinical neuropsychology, especially the study of cognitive and neural mechanism of emotional disturbance and psychotic symptoms after focal brain injury.



**Randolph Nesse** (University of Michigan, USA)

*How an evolutionary understanding of mood can help to explain cross cultural differences in depression*

Depression rates across cultures vary greatly but the explanation remains uncertain. An evolutionary understanding of affect recognizes depression as an extreme of a normal and useful capacity for low mood. The capacity for mood variation appears to be an adaptation, with low mood facilitating disengagement from activities that are not paying off. When individuals cannot give up the pursuit of large unreachable goals, ordinary low mood escalates into depression. Modern societies, to different degrees, foster the pursuit of large long-term goals with uncertain payoffs and no good alternatives. This could explain the prevalence of depression and cultural differences in rates.

-----  
Randolph M Nesse is Professor of Psychiatry and Professor of Psychology at the University of Michigan where he directs the Evolution and Human Adaptation Program. His primary teaching commitment is bringing evolutionary biology to medicine, an enterprise he pioneered with George Williams in many articles and a book, "Why We Get Sick: The New Science of Darwinian Medicine" His research is aimed at discovering the evolutionary origins of capacities for mood and for committed relationships as foundations for a general evolutionary understanding of why humans are so vulnerable to mental disorders.

**Peter Widmer** (Psychotherapist, Switzerland)

*Anxiety — a challenge for the research on causality*

One of the most important affects is anxiety. It connects mental life with the body — there is no anxiety without body-sensations — and the pathology with the normality — there is no human life without anxiety.

Nevertheless the questions of causality demand to be well examined. Neither the basic role of the body nor the basic role of the object of phobia are evident, even if it seems so. A spider, a mouse or a public place (agora) are "objectively" not dangerous for the subject; however he flees or tries to avoid certain situations. Therefore anxiety will be extended to expectation.

The phenomena of anxiety, especially the phobias, are structured like a language without articulated words. The proof is, that words of the other are able to change a symptom, sometimes they make it disappear. So it seems that psychoanalytical experience does not support the theory of the primacy of the body, even if anxiety cannot be treated without it. Language is also not the cause, but a help against anxiety. Therefore the question of the cause remains open.

-----  
Peter Widmer is a Swiss psychoanalyst and lecturer at various Universities in Switzerland, Austria and Germany. Actually he is a visiting-professor at Graduate School of the Faculty of Education, Kyoto University. He was educated in psychology and philosophy at Zuerich University, and received the doctorat in 1974. His research field is the conceptualization of a metapsychology, based both on the experiences of the practice and psychoanalytic and philosophical theories.

**Toshio Kawai** (Kyoto University, Japan)

*The experience of the “numinous” today: from the novels of Haruki Murakami*

The “numinous” (Rudolf Otto) is a notion to describe non-rational essence of the sacred in religion. It means creature feeling (dependency) and mysterium tremendum (tremendous mystery) which consists of awfulness and fascination. As these descriptions stress subjective experiences rather than objective contents of religion, the numinous can be a theme of psychology and affective science.

As Jung said “God has become diseases”, psychopathology has much to do with feeling of the numinous. The irrational fear in case of phobia, for example, is similar to the awfulness in religious experience. The numinous is experienced as negative and ambivalent feeling by the modern individual. But in recent years pathology seems to be shifting from feeling to action. As the increasing reports of dissociation show, there are more and more cases without conflicts and feeling.

I would like to illustrate characteristics of the experience of the numinous in the modern world by using novels of Haruki Murakami, world famous Japanese novelist. There are many bizarre images and scenes of violence in his novels. They can be interpreted as new experiences of the numinous, but without any religious contents and feeling experiences.

-----  
Toshio Kawai is Professor for Clinical Psychology at Graduate School of Education, Kyoto University. He was educated in clinical psychology at Kyoto University and in philosophical psychology at Zurich University where he received a Ph.D in 1987. He was trained at C.G. Jung Institute Zurich where he obtained a diploma for Jungian analyst in 1990. His research field is psychotherapy with dreams and images, psychosomatic medicine. He is also interested in philosophical and cultural background of psychotherapy.

### Session 3: Neural Systems

**Ryoi Tamura** (Toyama Med. and Pharmaceu. Univ., Japan)

*The effects of dopamine receptor subtype knockout on goal-directed behavior and reward-anticipatory neural responses in the nucleus accumbens of mice.*

In the present study, we tested the effects of dopamine receptor subtype knockout (D1R-KO or D2R-KO) on the performance of several behavioral tasks that required the mouse to navigate in an open field to acquire intra-cranial electrical stimulation (ICES) rewards. Furthermore, to clarify the neural correlates with the behavioral changes observed in these gene knockout animals, single neuron activity was recorded in the nucleus accumbens (NAc) while the mouse performed the behavioral tasks. As results, both D1R-KO and D2R-KO mice showed reduced locomotion activity and slower acquisition of the tasks; the performance of the D1R-KO mice was more impaired than D2R-KO mice. D1R-KO also reduced the sensitivity to ICES rewards, while D2R-KO did not change the sensitivity. For neuronal activity in the NAc, D1R-KO selectively eliminated excitatory responses, while D2R-KO eliminated inhibitory responses, during the pre-reward (reward-anticipatory) phase of the task. These results suggest the differential and complementary contributions of dopamine D1R and D2R systems both to neural activity in the NAc and the goal-directed behavior.

-----  
Ryoi Tamura is Associate Professor of Physiological Department in Toyama Medical and Pharmaceutical University. He was educated in medicine at this university and got MD license in 1986. Then he was educated in physiology and neuroscience at postgraduate course of the same university, and received PhD degree in 1990. His research field is system neuroscience, focusing on the neuronal mechanism of cognition, memory and emotion in the limbic system.

**Edmund Rolls** (University of Oxford, UK)

*Neurophysiology, neuroimaging and neuropsychology of the orbitofrontal cortex*

The orbitofrontal cortex contains the secondary taste cortex, in which the reward value of taste is represented. It also contains the secondary and tertiary olfactory cortical areas, in which information about the identity and also about the reward value of odours is represented. The orbitofrontal cortex also receives information about the sight of objects from the temporal lobe cortical visual areas, and neurons in it learn and reverse the visual stimulus to which they respond when the association of the visual stimulus with a primary reinforcing stimulus (such as taste) is reversed. This is an example of stimulus-reinforcement association learning, and is a type of stimulus-stimulus association learning. More generally, the stimulus might be a visual or olfactory stimulus, and the primary (unlearned) positive or negative reinforcer a taste or touch. A somatosensory input is revealed by neurons that respond to the texture of food in the mouth, including a population that responds to the mouth feel of fat. In complementary neuroimaging studies in humans, it is being found that areas of the orbitofrontal cortex are activated by pleasant touch, by painful touch, by taste, by smell, and by more abstract reinforcers such as winning or losing money. Damage to the orbitofrontal cortex can impair the learning and reversal of stimulus-reinforcement associations, and thus the correction of behavioural responses when these are no longer appropriate because previous reinforcement contingencies change. The information which reaches the orbitofrontal cortex for these functions includes information about faces, and damage to the orbitofrontal cortex can impair face (and voice) expression identification. This evidence thus shows that the orbitofrontal cortex is involved in decoding and representing some primary reinforcers such as taste and touch; in learning and reversing associations of visual and other stimuli to these primary reinforcers; and in controlling and correcting reward-related and punishment-related behaviour, and thus in emotion. The approach described here is aimed at providing a fundamental understanding of how the orbitofrontal cortex actually functions, and thus in how it is involved in motivational behaviour such as feeding and drinking, in emotional behaviour, and in social behaviour.

-----  
Edmund T. Rolls is Professor of Experimental Psychology at The University of Oxford. He was awarded the Degree of Doctor of Philosophy (in Psychology) and the degree of Doctor of Science of the University of Oxford. Prof Edmund T. Rolls' research interests include the neurophysiology of vision; the neurophysiology of taste, olfaction and feeding; neural mechanisms of memory and emotion. He has published more than 360 full length research papers on these topics. (<http://www.cns.ox.ac.uk>.)

**Antoine Bechara** (University of Iowa, USA)

***Human emotions in decision-making: Useful or disruptive role?***

There is a popular notion, which most of us learn from early on in life, that logical, rational calculation forms the basis of sound decisions. Many people say that emotion can only cloud the mind and interfere with good judgment. But what if these notions were wrong and had no scientific basis? What if sound, rational decision making in fact depended on prior accurate emotional processing? The studies of decision making in neurological patients who can no longer process emotional information normally suggest just that. Thus I will make the case that (1) decision-making is a process guided by emotions; (2) conscious knowledge alone is not sufficient for making advantageous decisions; (3) the implementation of decisions under certainty engage different neural circuitry than that of decisions under uncertainty or ambiguity; and (4) emotion may not always be beneficial to decision-making: there are conditions under which emotion can be disruptive.

-----  
Antoine Bechara is Associate professor of neurology at the University of Iowa Hospitals and Clinics. His undergraduate education is in pharmacology, and then he studied medicine and neuroscience at the University of Toronto and graduated in 1991. His research interests include the neuroscience of decision-making and its application to clinical conditions such as addiction, as well as social behaviors, such as economic decisions.

**Piotr Winkielman** (University of California, San Diego USA)

***Preferences with and without inferences: The interplay of feelings and beliefs in judgment and behavior.***

My work explores the nature of evaluations -assessments of goodness or badness. I explore evaluations across different levels of complexity, ranging from elaborate judgments (e.g., well-being) to simple reactions (e.g., approach/avoidance). Most psychologists typically examine how evaluations are determined by descriptive features (content) of the object. In contrast, I focus on the role of subjective feelings elicited in the perceiver. I will present three lines of work examining the role of cognitive and affective feelings. The first line focuses on the "cognitive feeling" of recall difficulty. I show that such feeling can dramatically qualify the evaluative implications of retrieved descriptive information. The second line focuses on the cognitive feelings of perceptual and conceptual fluency. I show that the feeling of fluency is positively marked and discuss its role in classic effects like "mere-exposure" and "beauty-in-averages" as well as in the perception of beauty. The third line focuses on basic affective reactions, as induced by subliminal facial emotional expressions. I show that such reactions can influence evaluative judgments and behavior without producing a conscious feeling. As a whole, the three lines of my research specify the role of feelings in evaluations, and explain how feelings interact with inferences.

-----  
Piotr Winkielman is Associate Professor of Psychology at the University of California-San Diego. His interests are broad and include social psychology, cognitive psychology, philosophy, and the emerging field of social neuroscience. His research explores the interplay between emotion, cognition, and awareness.

## Session 4: Cognition and Language

**Keith Oatley** (University of Toronto, Canada)

### *How language affects emotions: Effects of narrative, metaphor, and metonymy*

When we read accounts of the interactions of chimpanzees, such as those given by De Waal, we humans cannot avoid thinking of them in terms of stories of characters with intentions. Yet chimpanzees have no stories. They certainly have intentions, but they have no theory of mind and it is unlikely that they know that either they themselves or their fellow chimpanzees have intentions. When we humans tell a story we do so partly to convey mental models of situations and characters, but partly to enable the listener/reader to experience emotions as he or she comes to understand the emotions and intentions of the story characters. I propose that this depends on what I have called the suggestion structure of stories, which prompts associations, memories, and emotions in the listener/reader. Narrative enables a distance between events and the audience that direct experience does not allow. Metaphors and metonyms work by creating an intimacy between the story-teller and the listener/reader, who, in the space of this intimacy, experiences his or own emotions.

-----

Keith Oatley was an undergraduate at the University of Cambridge and did his PhD at University College London. He is Director of the University of Toronto Cognitive Science Program. He is a Fellow of the Royal Society of Canada, and a Fellow of the British Psychological Society. He is a cognitive psychologist whose research is on emotions and on the psychology of reading and writing fiction. He is also a novelist. His most recent novel is *A Natural History*, Toronto: Viking Penguin (1998), and his most recent psychology book is *Emotions: A Brief History*. Malden, MA: Blackwell (2004).



**Zoltán Kövecses** (Eötvös Loránd University, Hungary)

***Metaphor and emotion***

Emotion concepts are composed of a number of parts: metaphors, metonymies, “related concepts,” and cultural models (see, for example, Kövecses, 1986, 1998, 1990). Given these parts, a number of questions can be raised in connection with the general topic of “metaphor and emotion,” including the following: (1) What are emotion metaphors, metonymies, related concepts, and how are they related to each other? (2) Is there a “master metaphor” for the emotions? (3) Are emotion metaphors unique to the emotions? (4) How do emotion metaphors differ from metaphors for other related domains, such as human relationships? (5) What is the precise role of metaphors, metonymies, and related concepts in the cognitive construction of particular emotion concepts? (6) Are emotion metaphors universal? In my presentation, I will try to answer these questions in light of more recent research (see, for example, Kövecses, 2000 and 2005).

-----  
Zoltan Kövecses received his M.A. from Eotvos Lorand University, Budapest, in 1972 and his Ph.D. and D.Sc. from the Hungarian Academy of Sciences in 1988 and 1996, respectively. He is Professor of Linguistics in the Department of American Studies at Eotvos Lorand University, Budapest. In 2003, he was on a Fulbright in the Department of Linguistics at UC Berkeley, where he continued his research on metaphor with George Lakoff. His main research interests include the conceptualization of emotions, the study of metaphor and idiomaticity, the relationship between language, mind and culture, and American slang and American English. He is also working as a lexicographer, and is the author of several Hungarian-English, English-Hungarian dictionaries. He has taught at several American and European universities, including the University of Nevada at Las Vegas, Rutgers University, University of Massachusetts at Amherst, Hamburg University, Odense University, and University of California at Berkeley. He is currently working on the language and conceptualization of emotions and the issue of the relationship between language, mind, and culture from a cognitive linguistic perspective.

**Takashi Kusumi** (Kyoto University, Japan)

*Emotion metaphors: Effects of image schemas, experiences and norms*

This presentation focuses on the role of image schemas, experiences, and feeling norms in expressing emotion metaphors. First, I will show that subjects demonstrate commonalities in drawing, rating, and describing image schemas of emotions such as love, anger, sadness, and hope. Image schemas are comprised of physical features that are unique to each emotion; the image-schematic structure of the physical domain is mapped onto that of the psychological domain. For example, the metaphors LOVE IS DIFFUSION OF ENERGY and LOVE IS ENVELOPED IN A CONTAINER are based on image schemas of a container.

Second, I will show that the act of generating love metaphors is affected by subjects' experiences and feeling norms concerning romantic love, which we elicited by questionnaire. Our findings suggest that the subjects' experience and norms of emotion constrained their generation of love metaphors. For example, the metaphor LOVE IS A POWER was generated by experienced subjects and by those identified as norm keepers. LOVE IS AN ILLUSION was generated, however, by inexperienced participants and by norm violators.

We interpret these results as suggesting that emotion metaphors have cultural universality, because our image schemas emerge from common human physiological mechanisms of emotion. Any cultural differences are primarily the result of the experiences and feeling norms that are prevalent within each society.

-----  
Takashi Kusumi was an undergraduate and did his PhD at Gakushuin University in Tokyo. He is Associate Professor at Graduate School of Education, Kyoto University. He is a cognitive psychologist whose research is on metaphor, memory and emotion. His research interests have wide interdisciplinary application to human-computer interaction, critical thinking and decision making. His Japanese book is *Comprehending metaphor and knowledge structure*. Tokyo: Kazamashobou (1995)

**Justine Cassell** (Northwestern University, USA)

***Establishing Rapport with Virtual Peers***

Harmony or rapport between people is essential for relationships as diverse as seller-buyer and teacher-learner. In this talk I describe the kinds of verbal and non-verbal behaviors that function together to establish a sense of rapport between two people in conversation. These studies are used as the basis for the implementation of virtual peers - embodied conversational agents who are capable of acting as friends and learning partners with real children, collaborating to tell stories from the child's own cultural context, and aiding children in making the transition between home and school language.

-----  
Justine Cassell is a full professor in the departments of Communication Studies and Computer Science at Northwestern University, the director of the ArticulationLab research group, and the graduate director of the interdisciplinary Technology and Social Behavior Ph.D. program. Before coming to Northwestern, Cassell was a tenured associate professor at the MIT Media Lab where she directed the Gesture and Narrative Language Research Group. In 2001, Cassell was awarded the Edgerton Faculty Achievement Award at MIT. Cassell holds undergraduate degrees in Comparative Literature from Dartmouth and in Lettres Modernes from the Universite de Besançon (France). She holds a M.Phil in Linguistics from the University of Edinburgh (Scotland) and a double Ph.D. from the University of Chicago in Linguistics and Psychology.

Cassell's research concentrates on better understanding everyday kinds of conversation and narrative as practiced by children and adults, and on building technologies that simulate, mediate, and facilitate those everyday kinds of talk. These technologies, such as Embodied Conversational Agents, Story Listening Systems, and Online Communities, in turn allow her to study the nature of human communication with and through technology.

## Session 5: Evolution and Development

**Kim Bard** (University of Portsmouth, UK)

### *Comparative developmental perspectives on emotion*

One can view emotional development from two vantage points; from the parents' perspective, which focuses on the influence of caregivers, for example, the effect of scaffolding on increasing competent performance, or the influence of caregivers emotional availability on developing secure attachments; and from the infants' perspective, which focuses on the changing skills or capacities of the infant, for example their ability to regulate arousal, or the emotional quality of their reactions to events in the world. In my talk, I will consider emotional development in chimpanzees from both these perspectives. The Papousek's scheme of intuitive parenting is used to describe the manner in which chimpanzee mothers nurture their infants' integrative capacities, including their socio-emotional communicative skills. I use Trevarthen's conceptualization of infant intersubjectivity to summarize my studies of emotional development in chimpanzees from the infant's perspective. The interaction between intuitive parenting infant intersubjectivity allows for developmental flexibility, which is especially evident in emotional development. My research combines this developmental framework with a comparative perspective. When we compare the process of emotional development across primate species and across human cultural groups, we may see a common evolutionarily shared basis for developmental plasticity.

-----  
Dr. Bard is a Reader in Comparative Developmental Psychology in the Department of Psychology at the University of Portsmouth where she lectures on primate cognition, infant development, and observational methods. She is Director, Centre for the Study of Emotion, in the Faculty of Science at the University of Portsmouth, where she encourages and participates in studies of emotional intelligence, communication and emotion, physiological correlates of emotion, and emotion cognition. She received her PhD in 1988 from the Developmental Comparative Psychology program at Georgia State University, Atlanta GA USA. Her research includes the study of intuitive parenting in chimpanzees, social cognition with captive and wild apes, and socio-emotional communicative development in chimpanzees. She has 47 peer-reviewed publications and 25 book chapters, and is on the editorial and advisory board, respectively, of two international journals, *Infancy* and *Primates*.

**Shunya Sogon** (Osaka Gakuin University, Japan)

***Culturally specific affective-cognitive structures of human emotions.***

Regarding the triune brain theory of MacLean (1976), we human beings have three different evolutionary origins of behavior. The first derives from our reptilian stage, the second derives from our paleomammalian stage, and third derives from our neo-mammalian stage. These three strata are represented as different emotions in human beings. In addition, as we are growing up in cultural environments, our consciousness is also the product of culture. Therefore, there are two different origins of consciousness: one derives from the biological/evolutional base, and the other derives from the cultural base. For this reason, even though we have the same evolutionary origins of brain structure, our affective-cognitive structure is very different for each person. This individual difference is mainly produced by the different phases of culture such as meta, para, and sub levels. A meta-culture phase, for example, is the development of tool use in human society. All human societies use tools to maintain their life. Some para-culture phases may be reflected different ecological conditions. For instance, monotheism is established in desert climate areas, and polytheism is established in monsoon climate areas. One sub-culture phase is represented in family structure. For instance, relationships of family members change individuals' development. Thus, human society and their social systems are represented as a complicated mosaic. More details will be discussed during the session, focused on culturally influenced affective-cognitive structures among the United States, Japan, Korea, and China.

-----  
Shunya Sogon is Professor at Osaka Gakuin University, Human Behavior Laboratory. He was educated in the department of psychology, Doshisha University in Kyoto, and received the Ph.D. degree from Doshisha University in 1998. His research field is developmental psychology, including emotion regulation. He also contributes cross-cultural research for child development in China and Korea. Recently, his research field has expanded toward culturally based affective-cognitive structures, and related in new fields of ecological psychology.

**Yukari Kubo** (Toyo University, Japan)

*Preschool children's understanding of multiple emotions*

The purpose of this study is to examine preschoolers' implicit understanding of multiple emotions through using revised indices and leading questions. Five- and six-year-olds children heard two brief stories describing events expected to arouse multiple emotions toward the event. For the first story the interviewer revealed the protagonist's opposite-valence emotions and asked the children to explain why both positive and negative emotions were aroused. It was found that more than half of 5-year-olds could successfully explain. It was suggested that even 5-year-olds children could implicitly understand multiple emotions. At the end of the first story interview, the interviewer gave the children the example of the way to express the multiple emotions for the story, then the children heard the second story, and were asked to detect how the protagonist felt and to report their own similar experiences of multiple emotions. It was found that more than half of 6-year-olds could detect the multiple emotions and some of them could report their own similar experiences. Most of 5-year-olds could neither detect the multiple emotions nor report their own similar experiences. It was suggested that 6-year-olds children might construct semi-abstract understanding of the multiple emotions. The results are discussed in terms of a two-step developmental sequence between age 5 and 6.

-----  
Yukari Kubo is Professor at Faculty of Sociology, Toyo University. She was educated in developmental psychology at Graduate School of Education, The University of Tokyo. Her research field is social development of children, especially the study of children's understanding of emotions.

**Carolyn Saarni** (Sonoma State University, USA)

***Promoting Emotional Competence in Children and Youth***

Research is converging on those factors that help (or hinder) children and youth to acquire the skills of emotional competence, which is defined as the demonstration of self-efficacy in emotion-eliciting social interaction. The skills of emotional competence include (a) awareness of one's own affect, (b) understanding others' emotional experience, (c) possessing a lexicon of emotion, (d) capacity for empathy and sympathy, (e) recognizing that emotional expressions can be separated from internal emotional experience, (f) ability to regulate emotion and cope appropriately, (g) awareness that relationships are in large part defined by how emotion is communicated, and lastly (h) capacity for emotional self-efficacy, which is informed by one's moral sense as well as one's beliefs about desirable emotional "balance."

Use of path analyses has allowed the construction of hypothetical models for how emotional competence is mediated, and what appears to be emerging is that the child's emotion regulation style (as rated by parents or teachers) is a critical variable. In so far as emotion regulation may reflect the child's temperament, it is proposed that bi-directional effects play an important role in children's emotional development. By adolescence, these bi-directional effects also include youths' self-constructions.

In summary, children influence their own trajectory of emotional development through their unique emotion regulatory disposition, but that trajectory is also influenced by the family (e.g., through parental acceptance of the child's emotional experience), by the school and peer network, and by the culture in terms of how meaning and value are attributed to different kinds of emotional experience.

-----  
Dr. Carolyn Saarni received her Ph.D. from the University of California at Berkeley, specializing in developmental psychology. Since 1980 she has been a Professor in the Graduate Department of Counseling at Sonoma State University in California where she trains prospective marriage and family therapists and school counselors. Professor Saarni's research has focused on children's emotional development. Her co-edited volumes include *Lying and Deception in Everyday Life* (with Dr. Michael Lewis), *The Socialization of Emotion* (also with Dr. Michael Lewis), and *Children's Understanding of Emotion* (with Dr. Paul Harris). More recently Dr. Saarni has written a book titled *The Development of Emotional Competence*, (Guilford Press). The thesis of this book is that the skills of emotional competence are contextualized by culture, which includes a given society's moral values, beliefs about emotion, and assumptions about the nature of the relationship between the individual and the larger society.

*Discussants:*

**Shinobu Kitayama** (Session 1: Social Interaction and Culture)

Shinobu Kitayama is a Professor of Psychology at the University of Michigan. He has also maintained an active research project at Kyoto University. He obtained a BA from Kyoto University in 1979 and a PhD from the University of Michigan in 1987. He has taught at Chicago, Oregon and Kyoto. Current research focuses on cultural variations in various psychological processes such as self, cognition, emotion, and motivation. In these lines of work, he has examined both macroscopic differences and similarities across broadly defined cultural groups (e.g., East and West) and more specific regional and subgroup differences. The goal is to identify specific historical forces such as economically motivated voluntary settlement and religious movements that have had formative influences on the contemporary cultures.

**Carl Becker** (Session 2: Pathology and Health)

Carl Becker is Professor at Graduate School of Human and Environmental studies, Kyoto University. He received his MA in Comparative (East-West) Philosophy from the East-West Center of the University of Hawaii in 1973 and PhD in 1981. Subsequently he taught Asian Philosophy at Southern Illinois University and the University of Hawaii, and Comparative Thought at Osaka, Tsukuba, and Kyoto Universities. In 1986 he received the SIETAR Award for Contributing to Cross-Cultural Understanding, and in 1992 an Honorary Doctor of Letters from Bombay for his work in comparative studies of death and dying. He is a director of the Japan Holistic Medical Association, the Japan Society for Mind-Body Science, the Japan Society for Biothanatology. His numerous books include *Christianity: History and Philosophy* (Tokyo: Eihosha, 1984), *American and English Ideals* (Tokyo: Eihosha, 1988), *At the Border of Death: A Japanese Near-Death Experience* (Tokyo: Yomiuri Shinbunsha, 1992), and *Paranormal Experience and the Survival of Death* (Albany: SUNY Press, 1993).

**Shintaro Funahashi** (Session 3: Neural Systems)

Shintaro Funahashi is Professor at Graduate School of Human and Environmental studies, Kyoto University. He was born in Otsu, Japan in 1950, educated in physiology and neuroscience at Tokyo University of Education and Kyoto University, and received the D.Sci. degree from Kyoto University in 1982. His research field is cognitive neuroscience, especially the study of neuronal mechanisms of prefrontal cortical functions and prefrontal executive control.



**Yuichiro Anzai** (Session 4: Cognition and Language)

Yuichiro Anzai is President, and Professor at School of Open and Environmental Systems, Keio University. He received his doctoral degree at Keio University in 1974, and has held positions at Keio, Hokkaido University, Carnegie-Mellon University and McGill University. He was Dean of the Faculty of Science and Technology, Keio University, from 1993 to 2001, and has assumed the Office of President in May 2001. Prof. Anzai has published about 20 books and around 200 academic articles in cognitive science and information technology. His research interests include cognitive processes in learning, memory and thinking, human-computer interaction and human-robot interaction.

**Kazuo Fujita** (Session 5: Evolution and Development)

Kazuo Fujita is Professor at the Graduate School of Letters, Kyoto University. He was born in Osaka, Japan in 1953, educated in biology, primatology and psychology at Kyoto University, and received his D.Sci. degree from there in 1982. His research field is comparative cognition, especially the study of perceptual processes in primates and birds and physical and social cognition in primates.

## Poster Abstract

### “Social Interaction and Culture”

#### S-1

#### **A data analytic examination of the emotion judgment through expressive behaviors and contexts: Multilevel modeling versus difference score analysis.**

Makoto Nakamura

Faculty of International Studies, Utsunomiya University

This study focused on the possibility of a new analysis, multilevel modeling in the field of emotion judgment through expressive behaviors and contextual information. Watching a series of combinations of expressive behavior and an eliciting stimuli, 44 participants were asked to judge the emotional state of the expressers along 7-point pleasantness scales. The data was analyzed both with multilevel modeling and with difference score analysis. It was found that both of the results were consistently indicate the relative importance of expressions to elicitors in the emotion judgments. The advantage of multilevel modeling that can handle continuous values as the values of independent variables were demonstrated.

#### S-2

#### **Examination of relationship between impulsive behaviors and personality traits.**

Mai Yamaguchi and Naoto Suzuki

Department of Psychology, Doshisha University

Impulsive behaviors are one of major problematic behaviors. The purpose of the present research was to examine the relationship between impulsive behavior and personality traits. A total of 276 undergraduates (143 males and 133 females) answered a questionnaire. Measured personality traits contained extraversion, aggression, reflectivity, and attention. In addition, impulsive behaviors were measured using a list that included five types of impulsive behaviors (physical and verbal aggressive behavior, indirect aggressive behavior, panic behavior, and consumption behavior). The results showed that difference in the impulsive behavior depends on personality trait. Relationship between each impulsive behavior and personality trait were discussed.

### S-3

#### **The effects of social interaction on facial displays**

Kyoko Yamamoto and Naoto Suzuki

Department of Psychology, Doshisha University

Previous studies reported that expression of smiles was facilitated by social interaction between partners. We examined effects of social interaction and personal relationship on facial displays by 2×2 experimental design. Pairs of friends or strangers seated next to each other or separated by partition were shown film clips that were supposed to elicit positive or negative affects. Smiles were facilitated in the no partition condition. Pairs of friends expressed more smiles than pairs of strangers. Expression of frown was more frequent in pairs of friends but less frequent in pairs of strangers, in the no partition condition.

### S-4

#### **Interpersonal synchrony in the conversation about emotional episodes: A measurement by “the between-design pseudosynchrony experimental paradigm”**

Masanori Kimura and Ikuo Daibo

Graduate school of human science, Osaka University

Interpersonal synchrony refers to the coordination of movements between individuals in interpersonal communication. Most methods of studying interpersonal synchrony had focused on the particular channel. So, researchers concluded that interpersonal synchrony occurred in the conversation about positive episodes but did not in the conversation about negative episodes. Now, we studied the multi-channel level of synchrony in the conversation about emotional episodes, with the between-design "pseudosynchrony" experimental paradigm. Results showed that synchrony level was higher in true-interaction than in pseudo-interaction in both emotional episodes, and suggested that interpersonal synchrony occurred in the conversation about negative episodes as well as positive episodes.

## **S-5**

### **The effect of facial expression and face direction on approach-avoidance behavior**

Hiroki Ozono

Graduate School of Education, Kyoto University

Combined information obtained from other's facial expression and face/gaze direction are very important cue for achieving adaptive social behavior. For instance, when someone looks one direction with fearful expression, that implies something dangerous exists in that direction, avoiding behavior may be a good choice for adaptation. On the other hand, when someone looks one direction with happy expression, that implies something positive exists in that direction, approaching behavior may be an adaptive choice. I examined this hypothesis and the results largely confirmed my hypothesis.

## **S-6**

### **The effect of sensitivities of behavioral inhibition system and behavioral approach system on arousals and strategic means of goal attainment**

Hiroki Takehashi

Nagoya university

This study examined the sensitivities of two self-regulatory systems, which were behavioral inhibition system (BIS) and behavioral approach system (BAS), on two types of arousals and strategic means to attain goals. One hundred and thirty participants were presented with a situation about goal attainment and completed a questionnaire. Results indicated that participants with higher BAS sensitivity showed higher cheerfulness-related arousal, whereas participants with higher BIS sensitivity showed higher tense-related arousal. Furthermore, BAS sensitivity led to preference for approach, while BIS sensitivity led to preference for avoidance. The discussion considered general impacts of BIS and BAS on goal attainments.

## S-7

### **Emotions as Culture-Specific Ways of Relating: A Comparison Between Japanese and American Groups**

Mayumi Karasawa<sup>1</sup> and Batja Mesquita<sup>2</sup>

<sup>1</sup>Tokyo Woman's Christian University, <sup>2</sup>Wake Forest University

The current research is designed to map cultural differences in emotions that are consistent with cross-cultural differences in the cultural models. In this study we analyzed the free reports of emotional episodes with respect to their fit with the specific cultural models. We found that Japanese emotions would derive their meaning from a concern for the relationship with others, and would serve to restore the relational fit or closeness in the relationship. On the other hand, American express a concern with autonomy and independence from others, and these emotions would best be understood as ways to restore independence or self-esteem.

## S-8

### **Fear of Crime : investigation of environmental and circumstantial factors**

Rie Onodera<sup>1</sup>, Kazumi Watanabe<sup>2</sup> and Hideki Ohira<sup>1</sup>

<sup>1</sup>Nagoya University, <sup>2</sup>National Research Institute of Police Science

This research is a new approach to fear of crime, an anxiety to be victimized in crime. At first, we investigated the environmental characteristics which arouse fear of crime, and the relation between such fear and knowledge of crime happened in the campus. 391 undergraduate students drew the areas of usual activities and then the safe and fear places on campus map at will. The results revealed fear areas in the campus. Second, 20 participants evaluated the circumstantial factors while watching movies of the places, which were selected from the results of the previous investigation.

## S-9

### **How Does Social Comparison Affect the Perception of Emotions?**

Norberto Eiji Nawa and Katsunori Shimohara

ATR Network Informatics Labs, Dept. of Emergent Communications

In this research, we are trying to address the following questions: (1) how does social comparison (SC) affect a decision maker's perception of emotions? (2) is the SC effect directly reflected in the structures of the brain? and (3) how does the emotional modulation due to SC affect a decision maker's actual behavior? In order to answer the first inquiry, psychological experiments were performed where subjects had to make choices between pairs of gambles; in some conditions, a "social other" - who should become a salient reference point - obtained the payoff yielded by the unchosen gamble. After each choice, subjects informed how much regret, envy, jealousy, and satisfaction they had felt once the outcomes were determined. Preliminary analyses of the subjects self-responses are presented.

### **“Pathology and Health”**

#### CL-1

### **The Relationship among anxiety, emotional suppression, and psychological distress before and after breast cancer diagnosis**

Yumi Iwamatsu<sup>1</sup>, Kazutaka Shimoda<sup>2</sup>, Hajime Abe<sup>3</sup>, Tohru Tani<sup>4</sup>, Masako Okawa<sup>3</sup>, Hitoshi Miyaoka<sup>1</sup> and Ross Buck<sup>5</sup>

<sup>1</sup>Department of Medical Psychology, Graduate School of Medical Sciences, Kitasato University, <sup>2</sup>Department of Psychiatry, Dokkyo University School of Medicine, <sup>3</sup>Department of Psychiatry, Shiga University of Medical Science, <sup>4</sup>Department of Surgery, Shiga University of Medical Science, <sup>5</sup>Department of Communication Sciences, University of Connecticut

We investigated how anxiety and emotional suppression influence psychological distress in clinic patients before and after being told their breast cancer diagnosis. Patients included 21 with breast cancer and 72 with benign tumor. Results showed that the breast cancer patients who suppress emotion and feel chronic high anxiety felt the most emotional distress both before and after diagnosis. In the other hands, the benign tumor patients who were highly anxious felt more psychological distress in general, and in particular felt more distress at the first visit than those who did not feel anxious.

## CL-2

### **Cultural constructs of control and mental health**

Haruko Hayashi<sup>1</sup>, Mayumi Karasawa<sup>1</sup>, Akiko Hiraga<sup>2</sup>, Shinobu Kitayama<sup>3</sup>, Hazel R. Markus<sup>4</sup> and Katherine B. Curhan<sup>4</sup>

<sup>1</sup>Tokyo Woman's Christian University, <sup>2</sup>Hokusei Gakuen University, <sup>3</sup>Kyoto University, <sup>4</sup>Stanford University

Health and well-being is correlated to control for both Japanese and Americans. However, the nature of the control differs in cultural context. For Americans, health and well-being are most closely related to environmental mastery and to lack of constraints. For Japanese, they are related to control of the self and to constraints. In this study, using data of MIDUS and MIDJA, we analyzed relationship among generalized control, seven control dimensions and mental health, such as positive-negative affects in two cultures. The results showed that these correlations for Japanese respondents were generally lower than those for Americans and that negative affects for Japanese were more closely associated with degree of constraints.

## CL-3

### **Emotional experience among the same sex friends in adolescence and two aspects of the self - difference between male and female -**

Haruka Sudo

Graduate School of Education, Kyoto University

In this study, the relation between emotional experience among the same age and sex friends in adolescence and two aspects of the self was examined; Connected-Self, which one recognizes oneself as connected to others, Separated-Self, which one recognizes oneself as separated from others, autonomous. Especially, sex difference was examined. Two kinds of questionnaire were given to undergraduate and graduate students. From the results, male participants showed that as they had empathetic experience, or identified themselves with friends, they tend to feel themselves as connected to others. Female participants showed that as they felt alienated from friends, or identified themselves with friends, they had difficulty in separating themselves from others. It is discussed that female tend to recognize the same sex friends as more connected to themselves than males, and that the relation between emotional experience among same sex friends and the aspects of self is different between sexes.

#### CL-4

##### **Psychological themes in genetic counseling. -from the viewpoint of classifying the psychological chief complaints**

Yamamoto, Y.<sup>1</sup>, Kawano, N.<sup>1</sup>, Kuwabara, H.<sup>1</sup>, Suruji, M.<sup>1</sup>, Umimoto, R.<sup>1</sup>, Fujimoto, M.<sup>1</sup>, Tanaka, S.<sup>1</sup>, Furuno, Y.<sup>1</sup>, Inoue, Y.<sup>1</sup>, Fukuda, I.<sup>1</sup>, Itoh, Y.<sup>1</sup>, Kosugi, S.<sup>2</sup>, Fujimura, S.<sup>2</sup>, Tomiwa, K.<sup>2</sup>, Yorifuji, T.<sup>2</sup> and Fujita, J.<sup>2</sup>

<sup>1</sup>Graduate School of Education, Kyoto University, <sup>2</sup>Genetics Clinic Division, Kyoto University Hospital

In the Genetics Clinic Division of Kyoto University Hospital, the psychologists have been participating in genetic counseling since 2000. In the interviews, the psychologists often heard clients' psychological complaints that were never told to doctors. We investigated each case precisely, considering what kind of psychological chief complaints the clients have in their backgrounds and what are the psychological themes in genetic counseling. We classified the psychological chief complaints that were extracted from all cases. In this presentation we will show the essence of psychological themes in genetic counseling and what kind of care is needed in genetic counseling.

#### CL-5

##### **The dreams of students who have somatic tendency**

Tomoe Toriu, Noriko Matsukawa and Ayumi Abe  
Graduate School of Education, Kyoto University

In this study we investigated the dreams of students who have somatic tendency. The subjects consist of 6 female students; three have somatic tendency (Group A) and the other three who do not (Group B). We individually asked them to talk about their most impressive dream. Furthermore we asked about the most impressive part, the association brought up from the dream, the emotion and feeling of body in the dream, etc. The dreams of Group A students have impersonal contents and go beyond the daily level. On the contrary, the dreams of Group B are personal and can be guessed from their daily lives. Group A students described their dreams with few words, while Group B described fluently.



## “Neural Systems”

### N-1

#### **Emotional or Motivational Feedback effects on the learning process**

Naho Ichikawa

JSPS / Department of Psychology, Nagoya University

Error-related negativity (ERN) is a negative scalp potential which is observed when participants commit an error or receive a negative feedback. The purpose of this study was to examine the relationship between the performance and the ERN amplitude which was caused by motivationally different feedbacks. 24 right-handed participants were required to learn by trial and error the appropriate associations of pictures and corresponding keys through feedback indicating rewards and punishments. As a result, different trends were not observed in the performance data but in the ERN activity, especially after the feedback presentation.

### N-2

#### **Activations in Broca's area for face and finger imitation: A NIRS imaging study**

Rie Fukumoto, Takeo Kondo, Yuri Saito, Shiori Aoyama and Tamotsu Toshima

Graduate School of Education, Hiroshima University

The purpose of this study is to examine the hemodynamic changes over time in Broca's area while participants were observing and imitating face and finger movements of others by using multichannel near infrared spectroscopy. Broca's area, its contralateral region, and their vicinity activated while participants were observing and imitating the finger movement. On the other hand, the activation of Broca's area for the face imitation was stronger than for the finger imitation and their vicinity deactivated from the baseline. These results suggest that the face imitation might induce a unique activation in Broca's area and its vicinity.

### **N-3**

#### **Neural processes for decision of saccade direction in the prefrontal cortex**

Kei Watanabe, Saori Igaki and Shintaro Funahashi

Graduate school of Human and Environmental Studies, Kyoto University

To examine prefrontal contributions in the decision of saccade direction, neuron activity was recorded while two monkeys performed two ODR tasks. In ODR, monkeys make a memory-guided saccade to the direction where a visual cue was presented. In SODR, four identical visual cues were presented during the cue period and monkeys make a saccade to any one of four directions after the delay. We found that the temporal change of the strength of directional selectivity during the saccadic period was similar in both tasks and that the motor preparation process could be dissociable from the decision process of saccade direction.

### **N-4**

#### **Roles of estrogen receptors in the regulation of emotional behaviors in mice**

Sonoko Ogawa

Kansei and Cognitive Brain Science, Graduate School of Comprehensive Human Sciences / University of Tsukuba and Laboratory of Neurobiology and Behavior, The Rockefeller University

The gonadal steroid estrogen plays a major role in the regulation not only of female sexual behavior but also an array of social and emotional behaviors in both sexes, by acting through intracellular estrogen receptors (ERs). Recent studies using knockout mice for the two types of ERs (ER-a or ER-b), have advanced our knowledge of how ERs are involved in the control of these behaviors. We will present the data showing the differential regulation of emotional behaviors by activation of ER-a and ER-b, by particularly focusing on modulatory roles played by ER-b in the hypothalamic and limbic brain areas.

N-5

**Affective appraisal of avatar postures: a fMRI study**

Luc Berthouze<sup>1</sup> and Nadia Berthouze<sup>2</sup>

<sup>1</sup>AIST Neuroscience Research Institute, <sup>2</sup>University of Aizu

This study focuses on the processing of emotional expressiveness of postural information. An event-related fMRI study was realized in which eighteen subjects rated the emotional expressiveness of 30 postures displayed in the form of an anthropomorphic avatar with no facial features. Cerebral activation was analyzed by regressing the ratings of expressiveness for each stimulus with hemodynamic responses (parametric random-effect analysis,  $p < .05$  FWE). The study shows the contribution of fusiform face-responsive areas to processing of expressiveness of postures, even when the stimulus is only a coarse approximation of a human body, and no facial cues are available.

**“Cognition and Language”**

C-1

**Intrinsic Attention to Trigger the Orienting Reflex in Language Understanding**

Takao Kanasugi

Taisei Gakuin University

The present research is to clarify a connection between wh-questions with sentence-final prepositions and intrinsic attention which triggers the orienting reflex of human nervous systems. When a verb phrase conveys attentional information which is resistant to spreading activation, the wh-question is not acceptable, i.e.; Which opera did you buy a ticket to? vs. \*Which opera did you lose/burn a ticket to? The contrast can be attributed to intrinsic stimulus of lose/burn a ticket. Unentrenched, or unexpected information placed in focus by reflex plays a critical role during the language processing.

## **C-2**

### **Object substitution masking with emotional words**

Ken Kihara and Naoyuki Osaka

Graduate School of Letters, Kyoto University

We investigated the reentrant processing model of object substitution masking (OSM). The model explains reentrant processing matches hypothetical object formed in higher-level processing with visual information brought from lower-level perception, and target can be reported only when the hypothesis is consistent with the input information. If higher-level processing include meaning information, emotional stimuli should affect OSM. The results of Experiment 1 showed OSM was smaller when target was negative word. In Experiment 2, OSM disappeared at shorter ISI between target and mask in negative target condition. These results indicated that OSM occur due to reentrant processing with higher-level meaning information.

## **C-3**

### **False memory of facial expression of feeling of decision**

Hideya Kitamura

Toyo University

To investigate the similarity of facial expressions among feelings of anger, unpleasant, and decision, an experiment was conducted. First, Fourteen photos of various facial expressions were presented to fifty-seven participants and they rated the feeling states of each facial expression on twenty-one items of affection scale. Then, recognition task was conducted, and the results indicated that false memories were found among the similar facial expressions including those of unpleasant and decision. The interrelation among positive affect such as hope and pride and feeling of decision would be also discussed.

## C-4

### **The relative importance of upper/lower part of the face in recognizing facial expressions of emotion**

Mika Itoh<sup>1</sup> and Sakiko Yoshikawa<sup>2</sup>

<sup>1</sup>Kyoto Koka Women's University, <sup>2</sup>Kyoto University

When we read someone's facial expressions, which part of the face is more important, upper part or lower part? This study examined the relative importance of facial parts (upper vs. lower) in emotional ratings of facial expressions. As stimulus materials, composed facial expressions were created by combining the upper and the lower parts of the pictures expressing six emotions: anger, fear, surprise, disgust, sadness, and happiness. The participants were asked to evaluate emotions represented by each picture. The results showed that the upper areas of the face were more strongly associated with anger, fear, surprise, and sadness. On the contrary, the lower areas were more important in recognizing disgust and happiness.

## C-5

### **The effect of the recall of the character on person memory and impression evaluation**

Saea Iida

Graduate School of Environmental Studies, Nagoya University

The purpose of this study is to evaluate the temporal sequence of person memory and impression evaluation. Participants were initially received positive and negative mood induction by music. To examine impression changes by the recall bias, the second phase of impression evaluation task was set originally, in addition to Forgas and Bower (1987)'s paradigm. In a control condition, a recall phase was replaced by a puzzle task phase. As a result, in the experimental condition, initial mood-congruent impressions were improved after the recall phase, although no significant differences were observed in the control condition.

## **C-6**

### **Determinants of a subjective evaluation of metaphoric statements**

Keiko Nakamoto and Takashi Kusumi

Graduate School of Education, Kyoto University

The purpose of this study was to explore determinants of aptness of metaphoric statements as one of the most important subjective impressions. In the study, 120 metaphors were rated by university students on four psychological scales: Comprehensibility, similarity of constituent terms, originality and aptness. Different participants were assigned to four different scales. A path analysis revealed that similarity between the constituents had a positive effect on comprehensibility, and a negative effect on originality. In addition, both variables had positive effects on the aptness of metaphors. The results support the dual path model proposed by Kusumi (1987).

## **C-7**

### **The effects of emotion-eliciting films in a Japanese sample**

Motoko Noguchi, Wataru Sato and Sakiko Yoshikawa

Graduate School of Education, Kyoto University

It has been proposed that films have strong capacity to elicit emotions in the laboratory, and a previous study (Gross & Levenson, 1995) reported that a set of films induced discrete emotions in a Western sample. In this study, we examined whether these films could have a similar capacity to elicit emotion in a Japanese sample. The 8 films designed for particular emotions were presented and the subjects rated their emotional experiences using self-report inventories. Most films elicited the target emotions distinctively. These results suggest that the set of films has universal capacity for emotion elicitation.

## C-8

### **How Feelings Are Represented in Design Process**

Yuuka Takeuchi<sup>1</sup>, Yukari Nagai<sup>1</sup> and Toshiharu Taura<sup>2</sup>

<sup>1</sup>Japan Advanced Institute of Science and Technology, <sup>2</sup>Kobe University

Design process was observed in order to extract characteristics of thinking that produce creative design and to investigate the role of drawings in creating new images. Design tasks for experiments were unique, such as 'designing a chair that evokes sadness' and 'designing a passionate camera'. Behavior, protocols and sketches were monitored. Results identified the structure of design process to consist of a conceptual blending process and transforming process from linguistic expression into images. For representation images, reminding of feelings by drawing demeanor was significant. Through analysis of meaning hierarchy, metaphors were efficacious for transforming concepts into images. Essential elements of creative design for blending different ideas in mental spaces are described.

## C-9

### **How can writing essays or drawing maps invoke feeling?**

Yohei Fukushi and Yukari Nagai

Japan Advanced Institute of Science and Technology

The author conveyed the research to find out if an essay theme gives influence on how feeling which is invoked by an essay theme is expressed in their writing. Twelve subjects wrote an essay, remembering "what there were between primary school and home." They also drew a map between their school and home to recall their memory. Each subject was able to describe their way home from school in detail, and expressed their feeling by saying "they feel nostalgic" when they read aloud their essay. Characteristically on this theme, most of them show the maps to the others when they read aloud their writing, and add their explanation about their experience which was not originally included in their essays.

## **C-10**

### **The effect of induced emotional state on high-level cognitive task**

Yosuke Sekiguchi and Muneyoshi Hyodo

Chuo university

There are some researchers who give attention to relationship between emotion and cognitive processing. J. R. Gray(2001), one of those researchers, suggested that emotion influenced high-level cognitive processing selectively(double dissociation). That is, the study showed improvement in verbal working memory(WM) and impairment in spatial WM when induced into approach emotional state(enjoy), and improvement in spatial WM and impairment in verbal WM when induced into withdrawal emotional state(fear). The purpose of our study is to examine the effect of emotional state. But we couldn't replicate the result. In other words, our study indicated emotion played a degenerative role in spatial WM, but not verbal WM.

## **C-11**

### **The effect of a protagonist's emotional shift during normal reading process**

Hidetsugu Komeda and Takashi Kusumi

Graduate School of Education, Kyoto University

We examined whether readers monitored protagonists' emotional shifts and whether the readers' involvement influenced situation model construction. Participants were instructed to read narratives normally as if they were reading novels. The narratives were included an emotional shift in the middle of the story. We introduced the ego-involvement and evaluation scale in narrative comprehension to investigate the relationship between reading time and a reader's impressions after reading. The results from the experiment suggest that readers monitored the protagonist's emotional shifts and demonstrated that higher ego-involvement was associated with easier construction of situation models.



## **C-12**

### **A generalization of emotion and the J-curve effect influences the advertising judgments**

Ken Matsuda and Takashi Kusumi

Graduate School of Education, Kyoto University

How does the emotional valence of a picture influence the effectiveness of an advertisement? Participants were shown advertisements with pictures that varied in emotional valence from negative to positive. Five minutes or one week later, the participants then rated old and new products on a liking and purchase intention basis. The ratings at the 5-minute delay showed a monotonic increase from negative to positive valence for both liking and purchase intention. However, the ratings at the one-week delay showed a J-curve effect; liking and purchase intention each received higher ratings at both ends of the valence, relative to the middle.

## **C-13**

### **Conversation System and the Emotional Computation**

Koichiro Hajiri

Graduate School of Science & Engineering, Waseda University / Tama Art University

To make chatter bots like Eliza or ALICE, we should pay much attention to the user's emotional state or emotional phase of conversation itself. However, we do not have the concrete method to program EMOTIONAL CONVERSATION SYSTEM. Here, I propose a way to put emotional computation skill to conversational system construction.

## **C-14**

### **Nature of Autobiographical memory that facilitates improvement of negative moods**

Michiko Sakaki

Japan Society for the Promotion of Science / Graduate School of Education, University of Tokyo

While in negative moods, persons often recall their positive experiences to alleviate their affective states. This study investigated the nature of autobiographical memory that facilitates improvement of negative moods. After 67 participants were induced either negative or neutral moods, they were asked to recall five positive experiences and to rate their affective states. It was investigated, then, the relations between participants' subjective moods and the three natures of recalled memories (the current positivity, the past positivity, and the importance). Results indicated that the more important memories participants recalled, the more positive moods they reported after recollection, and that these effects of the importance of autobiographical memories were observed in both negative and neutral moods. In contrast, neither the current positivity of memories nor the past positivity of memories significantly influenced participants' moods in both negative and neutral moods. The mechanism by which the importance of autobiographical memory affects moods was discussed.

## **C-15**

### **Cross-modality priming for adjectivized people's names**

Akira Mukai

Cognitive Psychology Unit, University of Liege, Belgium

The experiment discussed in this paper tested a prediction derived from Hollis and Valentine's (2001) adjectivization hypothesis, that having an adjectival form is the key factor that makes certain classes of proper names (i.e., country names) exhibit a common name-like pattern of long term priming. The hypothesis predicted that, when adjectivized historical celebrity names (e.g. William Shakespeare / Shakespearean) were compared with nonadjectivized historical celebrity names (e.g. Emile Zola), cross-modality long term priming in a familiarity decision task would occur only for nonadjectivized name stimuli and not for adjectivized name stimuli. Contrary to the hypothesis, cross-modality priming was observed regardless of the adjectivization of name stimuli. The findings of the present experiment did not support the adjectivization hypothesis.

## **“Evolution and Development”**

### **D-1**

#### **The effect of other-recognition on embarrassment and empathy (prosocial behaviors) in toddlers**

Takahiro Hisazaki

Graduate School of Human-Environment Studies, Kyushu University

How does other-recognition affect embarrassment and empathy in toddlers? Subjects were 46 toddlers and their mothers. The toddlers were observed in shopping cart task to assess self-recognition and in self-other differentiation task to measure the level of other-recognition. The mothers provided information on embarrassment and empathy of their own child in daily life. The toddlers who showed self-recognition and recognized others as an recipient of self's action expressed more embarrassment when compared to those who showed self-recognition, but who recognized others as an autonomous agent gratifying its own desires. The toddlers who recognized others as an autonomous agent were likely to exhibit more empathic reactions than those who recognized others as an recipient of self's action, but empathic reactions were related to self-recognition. These results suggested that embarrassment was not well self-other differentiated emotion and that empathy was somewhat fully self-other differentiated emotion and not necessarily based on simulation theory.

### **D-2**

#### **The effect of emotion on infants' looking behavior**

Misa Kuroki

Graduate School of Human-Environment Studies, Kyushu University

In previous studies, the effect of adults' emotion on infants' looking behaviors were examined. But the relation between infants' emotion and their looking behavior was still up in the air. In this study, the effect of infants' positive emotion on frequency of gaze shift in 6-, 9-, 12-month-olds infants was examined. The results showed that arousal of positive emotion disengaged infants' gaze from the toy, which they were looking. And also, positive emotion turned infants' gaze especially to caregivers than any other things in 12-month-olds. These findings suggest that arousal of positive emotion could drive infants' gaze shift from object.

### D-3

#### **The recognition of affective values of the music in infants**

Tasuku Sugimoto<sup>1</sup>, Hiromi Kobayashi<sup>2</sup> and Kazuhide Hashiya<sup>1</sup>

<sup>1</sup>Kyushu University, <sup>2</sup>Seika Women's Junior College

We investigated whether responses of human infants differ depending on the affective values of the music, which can easily be recognized by adults (even across culture in parts) but the developmental course of acquiring such ability is still unclear. Eighteen Japanese infants (6-10 months old) were exposed to “happy” or “sad” music (2 stimuli for each affective value; a classical peace and the music composed for the experiment). We coded the infant’s head and body movement while being exposed to the stimuli. As results, the frequency of movement (FM) in the “happy” condition was significantly higher than that in BL (non-listening) condition. However, in the “sad” condition, FM did not differ from the BL condition. These results indicated that the recognition of affective values of music emerges from early on.

### D-4

#### **Affective responses to taste stimuli in newborn rhesus macaques (*Macaca mulatta*) and chimpanzees (*Pan troglodytes*)**

Ari Ueno<sup>1</sup>, Yoshikazu Ueno<sup>1</sup> and Masaki Tomonaga<sup>2</sup>

<sup>1</sup>Primate Research Institute, Kyoto University, <sup>2</sup>Primate Research Institute, Kyoto University

Newborn humans are known to show specific facial expressions in response to various kinds of taste stimuli and some of such responses are presumed to reflect the affective impact of stimuli. In the present study, we investigated the facial expressions elicited in response to four basic taste stimuli, sweet, salty, sour and bitter, in the newborns of rhesus macaques and chimpanzee. Both species expressed presumable affective responses to sweet and bitter stimuli differentially. In particular, chimpanzee response patterns to the bitter stimulus resembled to those of humans (Steiner, et al., 2001) rather than rhesus macaques. Rhesus macaques and chimpanzees responded differently to the same kind of taste, presumably reflecting differences in their food selection habits.

## **D-5**

### **Young Children in Asian cultures Say Yes to Yes-No question: Common and Cultural difference between Vietnamese and Japanese Children**

Mako Okanda and Shoji Itakura

Graduate School of Letters, Kyoto University

We investigate whether children's response tendency toward yes-no questions, which was found in North American children (e.g. Fritzley & Lee, 2003), is common in worldwide. Vietnamese and Japanese 2- to 5-year-olds were tested. A response tendency of children in two Asian countries and its developmental pattern were very similar to those of North American children. Vietnamese and Japanese 2- and 3-year-olds showed a strong yes bias. Japanese showed different response patterns: 2- and some 3-year olds had a tendency not to respond interviewer's questions, and "I don't know" response was most frequently occurred at 4- and 5- year-olds. We will discuss about these cultural differences.

## **D-6**

### **"Crying" in infants and mother-infant interactions in chimpanzees**

Yuu Mizuno<sup>1</sup>, Hideko Takeshita<sup>2</sup> and Masaki Tomonaga<sup>1</sup>

<sup>1</sup>Primate Research Institute, Kyoto University, <sup>2</sup>The University of Shiga Prefecture

We might say that some species of nonhuman primate infants emit pain cries and discomfort cries, much like human infants. We conducted observations to clarify 1) when "crying" occurs in chimpanzee infants, 2) how their mother respond to "crying" in three mother-infant pairs. As a result, All subjects emitted crying upon separation from their mother, or upon physical discomfort, a lack of physical contact. Mothers were sensitive to crying of her baby, maternal soothing was immediate response to infant's cry and immediately resulted in the cessation of crying. The Infant's crying have function elicits mother's adequate parenting behaviors.

## Memo