

International Conference and Workshop

ChimpFACS

The Chimpanzee Facial Action Coding System

17 - 20 March 2005
Centre for the Study of Emotion
Department of Psychology
University of Portsmouth

Based on a Research Interchange grant funded by The Leverhulme Trust, F/00 678/E, entitled 'Chimpanzee emotions: Development of a facial action coding system'.

**ChimpFACS
International Workshop
17 - 20 March 2005**

It is a pleasure to welcome you to this international conference to introduce ChimpFACS. This project was conceived by the research partners during an international conference on emotion in Amsterdam, based on a growing interest in emotion in primates, and the special combination of our own research interests. The proposal was to develop an objective and standardized tool for the study of facial expression in chimpanzees by adapting the FACS (Ekman & Friesen, 1978). We also planned on sharing our work, the development process, and the result, the ChimpFACS manual, with interested researchers by holding this small conference and workshop. In 2002, the grant was awarded, and now in 2005 it is our great pleasure to share the fruits of our labours. We hope that comparative researchers will find the ChimpFACS a useful method in support of studies of socio-emotional communication, of emotion, and of facial expression.

Grant partners:

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The Leverhulme Trust
Centre for the Study of Emotion
Department of Psychology, University of Portsmouth

We thank Chester Zoo, Charlie Menzel of the Language Research Center, GSU, and Bill Hopkins & Samuel Fernandez-Carriba of the Yerkes Research Center, Emory University for providing videotaped close-up images of chimpanzee faces. We thank Andrew Fuglevand, Kati Gothard and Susanne Kaiser for helpful discussions in development of the ChimpFACS. We thank the administrative support of the Department of Psychology, Imogen Jeffery, Lyuda Wade, Joanna Kingsley-Smith, and especially, Frances Hayes for their assistance in making arrangements; Dr. Volker Sommer, Dr. Frans de Waal, and especially, Dr. Paul Ekman for their considerable support of this project.

Thursday 17 March

17.30 – 19.30 Opening Reception (drinks and buffet) at the IBIS hotel

Friday 18 March - Meeting Room, Guildhall (9.00 to 18.00)

Opening remarks

- 9:00 Tea & Coffee
- 9:10 Welcome by Head of Psychology, Vasu Reddy
- 9:20 Welcome by the ChimpFACS team (Kim Bard, Marcia Smith Pasqualini, Lisa Parr, Sarah-Jane Vick, Bridget Waller)
- 9:35 Welcome by Paul Ekman (on tape)
- 9:50 Sarah-Jane Vick - *The ChimpFACS*

~ 11:00 to 11:45, Tea & Coffee ~

Session 1: Development and applications of ChimpFACS

- 11:45 Bridget Waller
Exploring facial musculature in chimpanzees and humans: Duchenne revisited
- 12:00 Anne Burrows
The faces of chimpanzees and humans: What lies beneath the skin?
- 12:15 Lisa Parr
Using ChimpFACS to categorize chimp facial expressions
- 12:30 Kim Bard
ChimpFACS & beyond – Emotional development in chimpanzees

~ 13:00 to 15:00, Lunch ~

Session 2: Human facial expression – applications of FACS

- 15:15 Harriet Oster
BabyFACS: The adaptation of FACS to babies
- 15:30 Susanne Kaiser
Studying facial expressions in emotional episodes
- 15:45 Gwenda Simons
Facial expression in social interactions

~ 16:00 to 16:30 Tea & Coffee ~

Session 3: Primate facial expression

- 16:30 Augusta Gaspar
Facial action descriptors, Contexts and individual qualities in bonobos, chimpanzees and human children
- 16:45 Samuel Fernandez-Carriba
Human assessment of similarities between chimpanzee and human facial expressions
- 17:00 Discussion

~ Dinner at Rosie's Vineyard in the heart of Southsea, 19:00 ~

Saturday 19 March 2005 – Meeting Room, Guildhall (9:30 to 18:00)

~ 9:30 to 10:00, Tea & Coffee ~

Session 3: Chimpanzees

- 10:00** Tetsuro Matsuzawa
tba
- 10:15** Sarah Boysen
Rapid acquisition of representations for emotion with chimpanzee facial images
- 10:30** William Hopkins
Facial asymmetries in emotional expressions and vocalisations in chimpanzees

~ 10:45 to 11:30, Tea & coffee ~

Session 4: Primate Cognition

- 11:30** Josep Call
Gestures as a window into ape social cognition
- 11:45** Charles Menzel
Expressive behaviors shown during a chimpanzee's recall and reporting of hidden objects
- 12:00** Claudia Uller
Goal detection in infants and chimps
- 12:15** Deborah Custance
Attentional style during demonstrations of an artificial fruit in pig-tailed macaques, chimpanzees and humans
- 12:30** Francine Dolins
tba

~ 13:00 to 15:00, Lunch ~

Session 5: Emotion & Behaviour

- 15:00** Filippo Aureli
Self-directed behaviour and emotional mediation of social relationships
- 15:15** Vasu Reddy
Affective engagements in infancy
- 15:30** Andrew Lawrence
tba

~ 16:00 – 16:30, Tea & coffee ~

16:45 – 17:30 Vick, Waller, Parr, Bard, Smith Pasqualini – Discussion and closing remarks

~ Dinner at Still & West in Old Portsmouth, 19.00 ~

Sunday 20th March –Workshop, King Henry Building

For those who are interested we will have a small and very informal workshop on Sunday 20th March from 10:00 to 12:00. The purpose will be to illustrate the usability of ChimpFACS. We will have videoclips and expert instruction, along with the first draft of ChimpFACS Manual. All participants in the conference are welcome to have a go at using ChimpFACS. The building may otherwise be closed, so please inform the organizers if you wish to attend.

Abstracts

Filippo Aureli

Self-directed behaviour and emotional mediation of social relationships

We pioneered the use of self-directed behaviour (e.g. scratching) as an indicator of emotion related to uncertainty in non-human primates. We then used such indicators to study emotional responses to social interactions. Based on evidence from these studies, we proposed a framework to explain how monkeys and apes behave with other group members taking into account the quality of their social relationships with them. Emotions may mediate such a process by functioning as “integrated summaries” of previous social interactions between two partners.

Dr. Filippo Aureli is a Reader in Animal Behaviour at the Department of Biological Anthropology, Liverpool John Moores University, Liverpool, UK.

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Kim Bard

ChimpFACS & beyond – Emotional development in chimpanzees

One of the longterm goals of ChimpFACS is to strengthen the study of emotion in nonhuman primates, focusing on both how the expression looks (morphology) and the emotional meaningfulness of the expression. As an example, I will present the findings of a small study on emotional expressions of newborn chimpanzees in interaction with their biological mothers. Newborn chimpanzees exhibit a mouth opening expression, which is emotionally and morphologically similar to the play face, and a pout face, which has been interpreted to be a signal to nurse, because of the morphological similarity of the protruding lips. The emotional meaningfulness of the pout face, however, is distress. Preliminary data suggest that it is the open mouth expression, play face, which is strongly associated with nursing in chimpanzees in the first week of life. The pout face was rarely followed by nursing. Therefore, interpretation of the ‘meaning ‘ or signal value of the pout face needs revision.

Dr. Kim A. Bard is a Reader in Comparative Developmental Psychology, Department of Psychology, University of Portsmouth (UK), and Director, Centre for the Study of Emotion, University of Portsmouth, Portsmouth (UK).

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Annie Burrows

The faces of chimpanzees and humans: What lies beneath the skin?

Despite much interest in the variation of facial musculature within the primate order, full detailed dissection reports of chimpanzee faces are relatively scarce in the literature. Here, we present gross (and histologic?) structure of facial musculature in chimpanzees from two facial dissections and compare to humans. Main differences were found not in the structure of specific muscle groups, but in amount of connective tissue: the chimpanzee faces seemed to have increased fascia in comparison to human faces – a factor which may affect facial movement.

Dr. Anne Burrows is an Associate Professor in the Department of Physical Therapy at Duquesne University, Pittsburgh, PA (USA).

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Sally Boysen

Rapid acquisition of representations for emotion with chimpanzee facial images

Nine chimpanzees were taught symbolic representations for facial photographs of chimpanzee emotions. All subjects acquired very rapid associations between the emotion labels and facial expressions, suggesting that the biological significance of facial communication may be highly prepared in chimpanzees.

Dr. Sarah T. Boysen is a Professor in the Department of Psychology and Director, Comparative Cognition Project at The Ohio State University, Columbus, OH (USA).

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Josep Call

Gestures as a window into ape social cognition

Fixedness and emotional-boundedness were thought to be prominent features of animal communication. However, recent research on vocal and gestural communication has challenged this traditional view. I will show that the gestural communication of apes is above all flexible. Apes use single gestures in multiple contexts and a single context is served by multiple gestures, combine gestures into sequences, acquire novel gestures to request things from others, and adjust the modality of their gestures to the attentional state of the recipient.

Dr. Josep Call is co-director of the Wolfgang Kohler Primate Research Center, at the Max Planck Institute for Evolutionary Anthropology, Leipzig (Germany).

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Francine Dolins

tba

Dr. Francine Dolins is a Senior Lecturer in Psychology at University College, Winchester (UK).

Samuel Fernandez-Carriba

Human assessment of similarities between chimpanzee and human facial expressions

The question about the homology of primate facial expressions will be reviewed under the light of new unpublished data. A recent study shows how humans who have no systematic experience with chimpanzees reach significant levels of agreement assigning human emotional categories to some chimpanzee facial expressions. These chimpanzee-human pairings are in fact close to those ones found in the primate literature, which suggests that there are similarities in the human and chimpanzee facial repertoire that may be detected by both experts and inexperienced subjects and could have a common evolutionary origin.

Dr. Samuel Fernandez-Carriba is a Postdoctoral Research Associate with the Emory Autism Centre at Emory University School of Medicine, Atlanta GA (USA).

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Deborah Custance

Attentional style during demonstrations of an artificial fruit in pig-tailed macaques, chimpanzees and humans

Relatively few studies on social learning have collected data on the extent to which subjects watch the demonstrator. Eleven pig-tailed macaques, 7 chimpanzees and 10 human children were presented with the same artificial fruit. They were video taped as they watched a demonstrator open the fruit. The videotaped trials were then analysed in terms of the overall amount of time and pattern of observation evident in the three species. The chimpanzees and children watched the demonstrations at almost ceiling levels. The pig-tailed monkeys' pattern of observation was markedly different. They watched significantly less and showed a sporadic and relatively unorganised pattern of observation. The results are discussed in relation to the subsequent effects on social learning and the possible social factors that might affect attentional styles in different species.

Dr. Deborah Custance is a Lecturer in the Psychology Department, Goldsmiths College, University of London, London (UK).

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Augusta Gaspar

Facial action descriptors, contexts and individual qualities in bonobos, chimpanzees and human children

Preliminary facial behavior ethograms of chimpanzees and bonobos will briefly be presented based on action unit descriptors system. Most of the descriptors and Ekman & Friesen's (1978) FACS overlap. Some of these action units are being investigated as to their predictive value of some social interactive qualities in both Pan species and human children.

Dr. Augusta Gaspar is a Professor in the Department of Psychology at Lusofona University, Lisbon (Portugal).

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Bill Hopkins

Facial asymmetries in emotional expressions and vocalizations in chimpanzees

Several studies on asymmetries in the perception and production of facial expressions in non human primates have been conducted as a means of inferring hemispheric specialization for emotions. A review of these studies will be followed by the presentation of some recent data on asymmetries in the production of facial expressions and vocalizations in chimpanzees and the perceptual implications of an asymmetrical communicative signal. Continuity and discontinuity between species in these emotional processes will be discussed.

Dr. William D. Hopkins is an Associate Professor in the Department of Psychology, Berry University, Rome GA (USA) and a Research Scientist at Yerkes National Primate Research Center, Emory University, Atlanta GA (USA).

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Susanne Kaiser

Studying facial expressions in emotional episodes

Facial expressions are multifunctional, meaning that they can be indicators of other processes than emotions, e.g., cognitive processes and communicative signals. Our research topics are: Can we find indicators in the dynamic structure and/or the situational context to differentiate between these different functions? Do we find differences in the timing and the symmetry of facial expressions? Can we exploit other verbal and nonverbal indicators as well as context information to interpret the ongoing facial behavior?

Dr. Susanne Kaiser is a Professor of Psychology at the Geneva Emotion Research Group, University of Geneva, Geneva (Switzerland).

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Andrew Lawrence

tba

Dr. Andrew Lawrence is a Research Scientist within the MRC Cognition and Brain Science Unit, University of Cambridge.

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Charlie Menzel

Expressive behaviors shown by a chimpanzee during her recall and reporting of hidden objects

A female lexigram-competent chimpanzee recalls and transmits fairly detailed information about hidden objects after long retention intervals. Behaviors shown by this chimpanzee in the context of recruiting a person's assistance and directing them to distant hidden objects are diverse and include arm and hand gestures, directed locomotion, vocalizations, and facial movements. Assuming that NTSC-to-PAL video conversion can be accomplished, film of the chimpanzee's direction giving will be shown. Direction giving is interactive and involves changes in the level of excitement, flexible use of gesture and vocalization, and almost continuous adjustment of behavior to the activity and position of the searcher.

Dr. Charles Menzel, Language Research Center, Georgia State University, Atlanta, GA (USA).

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Harriet Oster

Baby FACS: The adaptation of FACS to Human Infants

The Baby FACS manual describes in detail infant-adult differences in the appearance changes produced by facial muscle actions and specifies the best cues to FACS AUs and combinations in pre-term and full-term infants. Baby FACS does not provide formulas based on prototypical adult expressions. Instead, Baby FACS can be used to describe the repertoire of *infant* facial expressions and to trace developmental changes and continuities in emotional expressions. It can also be used to describe responses related to sensory stimulation and cognitive information processing. The advantages of an ethological approach to studying infant facial expressions are illustrated by examples from a cross-cultural study of infants in China, Japan, and the United States, and a study of infants with craniofacial anomalies.

Dr. Harriet Oster is the Co-ordinator for Psychology, School of Continuing and Professional Studies, New York University, NY (USA).

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Lisa Parr

Using FACS to categorize chimp facial expressions

Our group has shown that the human FACS can be successfully applied to the study of chimpanzee facial movements-the ChimpFACS. However, it has yet to be determined whether facial muscle movements can meaningfully identify categories of chimpanzee facial expressions. Using a discriminant functions analysis, we compared category assignments for an assortment of chimpanzee facial displays coded from photographs using FACS and those identified using traditional ethograms. Results will be discussed in the context of graded and blended facial displays.

Dr. Lisa Parr is an Assistant Research Professor at The Center for Behavioural Neuroscience, Yerkes National Primate Research Center, Emory University, Atlanta, GA (USA).

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Vasu Reddy

Affective engagements in infancy

I will present a view of complex affective engagements between human infants and their social partners. Dominant theories of emotion and emotional development give insufficient consideration to these types of affective engagements. This view of affective engagement, occurring very early in life, raises a challenge to current theory.

Dr. Vasudevi Reddy is a Reader in Developmental and Cultural Psychology, Co-director of the Centre for the Study of Emotion, and Head of Department of Psychology, University of Portsmouth, Portsmouth (UK).

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Gwenda Simons & Marcia Smith Pasqualini

Facial expression in social interactions

During my talk I'll give a short introduction to the ESRC funded research project I am currently working on in collaboration with Dr. Brian Parkinson which looks at the role of interpersonal affect in risk-taking, taking into account nonverbal behaviour. I'll further talk about how we can measure facial expression in interaction and the effect of reduced expressivity using FACS (giving some specific examples from research).

Dr. Gwenda Simons is a Postdoctoral Research Fellow at the Department of Psychology, University of Oxford, Oxford (UK).

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Claudia Uller

Goal detection in infants and chimps

Human developmental research shows that infants as young as 9 months detect a goal of an actor. This capacity has been taken as evidence for a precursory system of theory of mind. A replication of an infant study (Gergely et al. 1995) with infant chimps was performed using a closely-matched paradigm. Results suggest that infant chimps detect goals the same way human infants do. Entailments of these results are discussed.

Dr. Claudia Uller is a Lecturer in the Psychology Department at the University of Essex, Colchester (UK).

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Sarah-Jane Vick

An Overview of the ChimpFACS

The aim of the ChimpFACS project is to develop a coding system, which can describe facial movements in detail and allow for the more systematic study of facial expressions both within and also between species. The methodology underlying the development of the ChimpFACS will be illustrated and preliminary observations on chimpanzee facial behaviour will be described.

Dr. Sarah-Jane Vick is a Lecturer in the Department of Psychology at the University of Stirling, Stirling, Scotland (UK).

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Bridget Waller

Exploring facial musculature in chimpanzees and humans: Duchenne revisited and extended

Duchenne (1862) electrically stimulated facial muscles to capture emotional expression and document the function of individual muscle structures. His findings are still used today - by anatomists as well as psychologists - and are the basis for the Facial Action Coding System (FACS; Ekman and Friesen, 1978). To investigate homology of facial muscle structure between humans and chimpanzees, and in part to modify the FACS for chimpanzees, we evaluated the evidence for morphological similarity between chimpanzee and human facial muscles. The stimulation studies of Duchenne were replicated in humans (using intramuscular electrical stimulation) confirming many of the original findings and thereby verifying the assumptions of FACS. The study was expanded to chimpanzees. These documented movements allow identification of the muscle substrate underlying chimpanzee facial expressions, and direct comparison to human facial movements - information that strengthens the assessment of morphological similarity (and perhaps homology) in comparative evolutionary studies of communicative and emotional facial expression.

Bridget Waller is a PhD student in the Department of Psychology, University of Portsmouth, Portsmouth (UK).

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Other attendees:

Emily Bethell, PhD student, Roehampton, University of Surrey

Myrke Nieweg, Cardiff

Sophie Bulbrook, MSc, UCL

Kirsty Brown, MSc student, University of Reading

Marc Mehu, PhD student, Liverpool

Vanessa Maguire, PhD student, University of Portsmouth

Lisa Lane, PhD student, University of Portsmouth

Isobel Scott, PhD student, University of Portsmouth