

ESF Exploratory Workshop on
**Non-verbal Intentions: The Emergence of The Emotional
Embodied Mind**

London (UK), 22-25 September, 2011

Convened by:
**Dana Shai, Jonathan Delafield-Butt
and Peter Fonagy**

SCIENTIFIC REPORT

1. Executive summary

The ESF exploratory workshop 'nonverbal Intentions: The Emergence of the Emotional Embodied Mind' was held at the Anna Freud Centre, London, on September 22-25, 2011. On September 22nd, 2011, the attendees met in the evening for informal drinks to get to know each other in a relaxed and friendly atmosphere. September 23rd and 24th were two full days of presentations, Q & A sessions, and discussions. There were several coffee breaks and a lunch break that allowed attendees to continue conversations, to socialize, and to discuss mutual research interests in the lovely outdoor garden the Anna Freud Center offers. Additionally, the organizers made sure all participants will stay at the same hotel, which allowed attendees to further their professional interactions and discussions on the way to/from the hotel and/or over breakfast. On September 23rd all attendees went to dinner in a nearby restaurant and enjoyed an informal and lively time together. Attendees were also invited to visit the nearby Freud Museum waiving the entrance fee on their lunch break on September 24th. Some attendees left on September 24th and some on September 25th, 2011.

The 18 attendees (including two rapporteurs) came from 8 European countries (UK, Denmark, Netherlands, Italy, France, Belgium, Germany, and Israel); one participant came from the United States. There were 8 male participants and 8 female. Positions of participants ranged from junior research associates to senior professors directing institutions and departments. Fields of expertise were diverse, including from movement analysis (3), philosophy of mind (1), neuroscience (4), psychoanalysis and clinical psychology (2), and developmental psychology (6).

The general atmosphere was very positive, enthusiastic and engaged. Some attendees already knew each other and were delighted to have an opportunity to meet again. Others were excited to meet colleagues of whom their work they were familiar with, but have never had the chance to meet prior to the workshop. The surrounding of the Anna Freud centre is particularly pleasant and the food offered by the centre were splendid and in abundance.

Main scientific objectives and agenda of the meeting and the overall conclusions

The main objective of the workshop was to further the scrutiny and understanding of the emergence of the *emotional embodied self* through early nonverbal social interactions. Importantly, the workshop aimed to bring together a wide range of professionals from *diverse disciplines* in order to illuminate the emergence of the emotional embodied self. An important facet of this workshop was the emphasis on examining whole-body dynamic movements and their links with mental and emotional processes, in contrast to an empirical tendency to scrutinize embodiment and nonverbal communication (primarily in infancy) via head or hand movements, facial expressions, or vocalizations. Thus, the workshop was aimed to explore the notion of emotional embodiment and its importance to the development of the subjective experience of the infant through his/her whole-body interactions with parent and others. This involved addressing several topics:

(i) how are affective intentions conveyed through whole body actions in early nonverbal social exchanges and how can these be measured?

- (ii) What are the relations between whole-body communicative signals with other nonverbal communicative modalities such as vocal and facial?
- (iii) What are the basic units of embodied emotional expression and how are these assembled to convey meaningful communicative messages?
- (iv) What is the spatio-temporal organisation of these embodied affective intentions in terms of changes in body movements and posture?
- (v) How are emotional kinaesthetic patterns of expression shared in parent-infant interactions?
- (vi) What, if any, impact does the parent-infant early embodied interaction have on the infant's cognitive, emotional, and social development?
- (vii) What can be learnt about the emotional embodied mind from neurodevelopmental and psychiatric conditions?

This workshop aims at bringing together neuroscientists alongside movement analysts, developmental psychologists alongside experts in informatics, distinguished researchers alongside young scholars, to advance a truly interdisciplinary discourse about the importance of early emotional somatic and kinaesthetic social experiences to the emergence of a coherent and meaningful embodied mind.

Through presentations and discussions it became evident that: (a) The field of the emergence of the emotional embodied self This is a very exciting field of work that has mostly remained unraveled yet holds significant empirical and theoretical implications; (b) the group of people participating in the workshop have real potential in contributing and furthering this understanding by working together and sharing knowledge; (c) further work and meetings are needed in order to develop a common language; to further clarify the questions at hand and the methodologies available to address them; to clearly define what embodiment is, and no less importantly, what it is not.

2. Scientific Content of the Event

Colwyn Trevarthen: “Infant Imagination: Moving with Feeling in Narrative Time, to Share Artificial Projects and Practices” – discussed the intentionality and meaning that is inherent in infants’ movement, in their rhythmic movement and innate ability to create and respond to musicality. Emphasized how parents naturally interpret infants’ movement as a narrative.

Nivedita Gangopadhyay: “The Self in Action: Unity of consciousness, experiential self and the sense of agency” – discussed the shift in philosophy of mind and demonstrated the shift in thinking and approach towards embodiment, whereby there is increasing appreciation of the body as a central feature of subjectivity and consciousness.

Sabine Koch: “Affective Intentions and Reciprocity in Movement” – presented the Kestenberg Movement Profile and demonstrated how movement analysis paradigms are useful in the research of parents and infants, as well as of adult interactions.

Jonathan Delafield-Butt: “Coming Together: Creating Shared Joy in Embodied Intersubjective Narratives” – presented work done with parents and infants and how the analysis units identified were defined as narratives, meaningful units in the parent-infant interaction.

Mette Væver: “Automated Measurement of Co-Regulation of Relational Space in Mother-Infant Interaction: A Pilot Study” – presented preliminary findings from her recent research in which the relational space between mothers and infants were measured. Discussed the relational space as being both physical and psychological space, and having interpersonal ramifications.

Mark Sossin: “Co-regulated Sequential Patterns of Tension- and Shape-Flow in Parent-Infant Interaction: Affect Sharing and Affect Transmission” - introduced the Kestenberg Movement Profile and presented his recent work on parent-infant facial expressions using this analysis paradigm to reveal emotional processes in the dyadic encounter.

Dana Shai: “The Origins of the Embodied Self: Parental Embodied Mentalising” – presented her theory of parental embodied mentalising and her recent research in which parental embodied mentalising measured at 6-months-of-age predicted infant attachment security at 15 months.

Susanne Harder: “Embodied Multimodal Emotional Communication Through Gestural and Vocal Mother-Infant Interaction at 4 Months” – interested in embodied affect, Harder presented recent work investigating the co-regulation of embodied emotional expressiveness in mother-infants dyads and particularly to synchrony of arm movements to vocal rhythms.

Beatrice De Gelder: “Neural Evidence for Whole-Body Movements Conveying Distinct Emotions” – in this talk, evidence was presented showing that whole-body movements, in contrast to facial expressions, can convey distinct emotions that can reliably be interpreted by others.

Corrado Sinigaglia: “Enactive Understanding and Motor Intentionality” – presented recent work demonstrating how one’s assessment of their own ability to perform an action will impact the activation of the mirror neuron system when observing intentional movement of others.

Peter Fonagy: “The Foundation of Embodiment Self” – presented the fundamental premises of mentalizing theory and how these emerge and take shape in the early parent-infant interaction. Prof. Fonagy also discussed the possible links but also independence of verbal and nonverbal emotional processes.

Julie Grèzes: “Neural Bases Underlying the Appraisal of Others' Affective and Intentional Disposition Toward the Self” – in this presentation, data was presented that supports the proposition that motor and emotional movement are interpreted in independent brain regions and pathways, and vary as a function of the individual’s involvement in the interpersonal interaction, of the movement being dynamic or static, and being emotional or neutral in nature.

Elisabeth Hill: “Exploring the Social World: The Impact of Motor Development on Typical and Atypical Social Cognition” – Dr. Hill’s presentation emphasized how motor development is associated with cognitive achievements in school years, and how Atypical sensorimotor processing leads to different engagement in the world.

Jacques Van Hoof: “The Neuronal Correlate of Mentalization and a Shortcut in the Route to Satisfaction and “Self” Awareness: Addiction” – in this talk, Dr. van Hoof presented his theory as to how addictive neural dysfunction and behavioural symptoms can be explained in terms of impaired mentalizing.

Patrick Luyten: “Functional Somatic Disorders and (Embodied) Mentalization: A Mentalization-Based Approach to the Understanding and Treatment of Functional Somatic Complaints” – in his talk, Dr. Luyten presented his clinical work with somatoform patients and the mentalization-based approach he has developed to address the specific needs and difficulties of such patients.

3. Assessment of the results, contribution to the future direction of the field, outcome

Many topics and issues were identified during the workshop as particular importance to the field of research and the attendees investigating it. These include:

- a. Clearly defining what embodiment means and entails, and what it does not.
- b. What are the links between verbal and nonverbal communication and can we even truly examine these as separate, different phenomena?
- c. What role does emotional embodied communication play in adulthood – in the everyday life and among clinical patients.
- d. What are the most appropriate analysis units when investigating parent0infant interactions?
- e. What are the relations between whole-body dynamic movement sand auditory communications?
- f. How can neuroscience further inform developmental research with regards to emotional embodiment?

Several paths of action were identified as useful and realistic in order to promote the scrutiny of these issues. The immediate path of action was to build a website that will host all presentations (recorded on video and in writing) presented at the workshop, with designated space for other participants to comment and continue their thoughts on the presentation after the termination of the workshop. The website will also include a ‘wiki’ forum, where each member could offer a definition to a term, thus creating a common language among all professionals. The website will also host all the written papers written and circulated among the participants prior to the workshop. The hope is that this website will offer a stimulating and direct platform to continue and deepen discussions, and create a community of researchers interested in promoting this exciting field of research.

Additionally, it was agreed that there is interest and desire to apply for funding to hold a conference on developmental embodied emotionality. The organizer of the workshop, Dr. Dana Shai, will apply for this scheme once a call for this action will be released by the ESF. Finally, some discussions were made among participants to submit a proposal for an ESF Research Networking Programme.

4. FINAL PROGRAMME

Thursday 22 September 2011

- 18:00 **Arrival**
19:00 **Informal get-together at a local restaurant nearby the Anna Freud Centre**

Friday 23 September 2011

- 09.00-09.20 **Welcome and introduction by Convenor**
Peter Fonagy (University College London, UK)
- 09.20-09.40 **Presentation of the European Science Foundation (ESF)**
Hanne Ruus, Standing Committee for the Humanities (SCH) and
Javier Esparcia Perez, Standing Committee for Social Sciences (SCSS)
- 09.40-10.40 Module 1: Embodiment Across the Life Span**
- 09.40-10.10 **“Infant Imagination: Moving with Feeling in Narrative Time, to Share Artificial Projects and Practices”**
Colwyn Trevarthen, (University of Edinburgh, UK)
- 10.10-10.40 **“The Self in Action: Unity of consciousness, experiential self and the sense of agency”**
Nivedita Gangopadhyay, (University of Copenhagen, Denmark)
- 10.40-11.00 *Coffee / Tea Break*
- 11.00-16.10 Module 2 – Movement Analysis and Relational Embodiment**
- 11:00-11:30 **“Affective Intentions and Reciprocity in Movement”**
Sabine Koch (University of Heidelberg, Germany)
- 11:30-12:00 **“Coming Together: Creating Shared Joy in Embodied Intersubjective Narratives”**
Jonathan Delafield-Butt (University of Copenhagen, Denmark)
- 12:00-12:30 **“Automated Measurement of Co-Regulation of Relational Space in Mother-Infant Interaction: A Pilot Study”**
Mette Væver (University of Copenhagen, Denmark)
- 12:30-13:30 **Large Group Discussion**
Chair: Patrick Luyten (University of Leuven, Belgium)
- 13:30-14.40 *Lunch*
- 14:40-15:10 **“Co-regulated Sequential Patterns of Tension- and Shape-Flow in Parent-Infant Interaction: Affect Sharing and Affect Transmission”**
Mark Sossin (Pace University, USA)
- 15:10-15:40 **“The Origins of the Embodied Self: Parental Embodied Mentalising”**
Dana Shai (Birkbeck University of London, UK)
- 15:40-16:10 **“Embodied Multimodal Emotional Communication Through Gestural and Vocal Mother-Infant Interaction at 4 Months”**
Susanne Harder (University of Copenhagen, Denmark)
- 16:10-16.30 *Coffee / Tea Break*
- 16:30-17:30 Module 3 – Neurosocial View of Embodied intentions**
- 16:30-17:00 **“Neural Evidence for Whole-Body Movements Conveying Distinct Emotions”**
Beatrice De Gelder, (Tilburg University, the Netherlands)
- 17:10-17:30 **“Enactive Understanding and Motor Intentionality”**
Corrado Sinigaglia, (University of Milan, Italy)
- 17:30-19:00 **Free Time**

19:00	Dinner
Saturday 24 September 2011	
09:30-13:00	Module 4 – Underlying Mechanisms of Nonverbal Intentions
09:30-10:00	“The Foundation of Embodiment Self” Peter Fonagy (University College London, UK)
10:00-10:30	“Neural Bases Underlying the Appraisal of Others' Affective and Intentional Disposition Toward the Self” Julie Grèzes , (Ecole Normale Supérieure, France)
10:30-11:00	<i>Coffee / Tea break</i>
11:00-11:30	“Exploring the Social World: The Impact of Motor Development on Typical and Atypical Social Cognition” Elisabeth Hill , (Goldsmith University of London, UK)
11:30-13:00	Large Group Discussion Chair: Beatrice De Gelder (Tilburg University, the Netherlands)
13:00-14:30	<i>Lunch</i>
14:30-18:00	Module 5 – Clinical Insights into Embodied Intentions
14:30-15:10	“The Neuronal Correlate of Mentalization and a Shortcut in the Route to Satisfaction and “Self” Awareness: Addiction” Jacques Van Hoof (the Netherlands)
15:10-15:40	“Functional Somatic Disorders and (Embodied) Mentalization: A Mentalization-Based Approach to the Understanding and Treatment of Functional Somatic Complaints” Patrick Luyten (University of Leuven, Belgium)
15:40-16:00	<i>Coffee / Tea Break</i>
16:00-17:00	Small Group Discussion: Planning Future Collaborations and Research Projects Chairs: Colwyn Trevarthen (University of Edinburgh, UK) and Mette Væver (University of Copenhagen, DK)
17:00-17.50	Workshop Round Up by Discussion Leaders
17:50-18.00	Final Closing Remarks by Peter Fonagy
18:00	<i>End of Workshop</i>

5. Final list of participants

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6. Statistical information on participants

The 18 participants (including two rapporteurs) came from 8 European countries (UK, Denmark, Netherlands, Italy, France, Belgium, Germany, and Israel); one participant came from the United States.

There were 8 male participants and 8 female.

Positions of participants ranged from junior research associates to senior professors directing institutions and departments.

Fields of expertise were diverse, including from movement analysis (3), philosophy of mind (1), neuroscience (4), psychoanalysis and clinical psychology (2), and developmental psychology (6).