

## ***Papers V: MOVING CHILDREN***

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### **Body representation and spatial memory in very preterm children**

Current research suggests that preterm birth and the intensive care with tactile and kinaesthetic deprivation, in and of itself, can have important consequences for the development of different levels of body representation, especially the emerging of sensorimotor body knowledge as well as the development of spatial cognition.

The research presents here investigated the relationship between body representation and spatial memory in children at ages 3 and 4 who were low birth weight ( $<1000\text{g}$ ) preterm infants (gestational age of 24-29 weeks) and typically developing full-term children (gestational age of 36-40 weeks) who were matched for IQ and chronological age. We investigated three levels of human body representation: sensorimotor, visuospatial and lexical-semantic and we also used spatial memory task.

Qualitative and quantitative data analysis indicated that children born prematurely without neurological deficit have specific difficulty in visuospatial processing and planning sensorimotor actions that are bases of different levels of body representations. The results showed significant relationship between performance of spatial memory and body representation and the duration of spending time in the incubator has impact the sensor-motor body representation. Our finding is relevant for understanding the development of bodily actions, that can integrate internal and external processes and it is crucial to creation of higher order mental functions.

**Mikko Kahri**  
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### **On the production of shared rhythm in the interaction between a four to six months old baby and her mother**

The presentation investigates the relations between the rhythm of the movements of a four to six months old baby and the speech of her mother during a few short sequences of interaction (all together about one minute in length).

First it is noted that changes in the baby's movements are, like W.S. Condon and his associates (e.g., Condon and Sander 1974) claimed in the 1970's, often quite simultaneous with the changes in the speech of her mother. (However, the baby's movements are continuous, which makes defining the exact moments of their change impossible; see Dowd and Tronick 1986). Then it is noted that the mother, too, moves in rhythm with her own speech, and that the baby's movements, that are synchronous with her mothers' speech, at times trace patterns that are similar to the patterns produced by the movements of her mother. Also, the mothers' hands move and tap the baby rhythmically – in synchrony with her speech. This too may help to transmit the mother's speech rhythm to the movements of the baby.

Finally it is noted that the mother probably also adjusts her speech rhythm to the rhythm of her baby's movements. If this is so, it produces a problem for Condon's approach to the study of the relation between the rhythm of the speech of the speaker and the rhythm of the movements of the hearer (see Fogel 1993, 54–60). The mothers' speech rhythm, to which the baby is supposed to be adjusting her movements, is actually adjusting to the rhythm of the baby's movements. Would it make sense to assume that a new, more successful attempt at studying the phenomena would be possible from a 'fogelian' dynamic systems point of view? What tasks does this phenomenon serve?

Condon, William and Sander, Louis (1974): Neonate movement is synchronized with adult speech: interactional participation and language acquisition. *Science* 183, 99-101. Dowd, John and Tronick, Edward (1986): Temporal Coordination of Arm Movements in Early Infancy: Do Infants Move in Synchrony with Adult Speech? *Child Development* 57, 762–776. Fogel, Alan (1993): *Developing Through Relationships. Origins of Communication, self and Culture*. London: Harvester Wheatsheaf.

**Elina Paju**  
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## **Children's movements in the space of a day care centre**

I am conducting an ethnographic research on children's action and agency in day care as my Ph.D. study in sociology. I employ an embodied and materialist view on children's actions and the context of day care. I have produced my data during the school year 2003-2004 in two day care groups, in which the children were aged from 3 to 5, and 5 to 6 respectively. Both of the day care groups were open 24/7. My data consists of fieldnotes, video-material, photographs and interviews with both the children and the staff.

In my research I analyse the movements of children in day care from various angles, i.e. movement as a form non-verbal communication among the children, movement as a way of dominating space, movement as an acquired body technique in the every day order of the day care. In my presentation I will concentrate on children's movements in the material space of the day care centre, i.e. in relation to building materials of the space, the placing and design of doorways, furniture etc. In the everyday life of the children in day care, both the material setting and the (pedagogically structured) order of the day care shape the space in which children move. From this point, children's movements can partly be seen as ways of reacting and also contesting the space, the order and the spatial order of the day care. I argue that even if movement and the material surroundings of a moving body can be at times seen as quite routinely intertwined in a way that suggests that the body inhabits space on a pre-reflective level, the movements of children also take space up and grab the materiality of space in a far more active way.