17th Herbstakademie

THE IMPLICATIONS OF EMBODIMENT: ENACTIVE · CLINICAL · SOCIAL

OCTOBER 1st – 3rd, 2012
in Heidelberg, Germany

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A copy of the complete conference booklet
will be available for each participant
at the conference.

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PRELIMINARY PROGRAM

Sunday September 30th	Monday October 1st
	8.15 Registration (Foyer) Psychologisches Institut Hauptstr. 47-51, 69117 Heidelberg **9.00-9.15 Welcome address (HS II)** **9.15-10.15 Barsalou (HS II)** 10.15-10.45 Coffee break **10.45-11.45 Topolinski (HS II)** **11.45-12.45 Fuchs, Koch & Summa (HS II)**
from 13.00 Registration Psychologisches Institut Hauptstr. 47-51, 69117 Heidelberg	12.45 – 14.00 *Buffet Lunch*
14.00-18.00 **Pre-conference workshops** **I. Caldwell:** Body narratives that heal (Hall, EG) Institut für Medizinische Psychologie, Bergheimerstr. 20, 69115 Heidelberg **II. Kupper:** Mindfulness and body awareness (A102) Psychologisches Institut Hauptstr. 47-51, 69117 Heidelberg	14.00-15.15 Parallel sessions **Session 1a - Distant, dark & sweet**: Steinmetz & Mussweiler / Steidle et al. / Hellmann & Thoben (HS II) **Session 1b - Clean, moral & rigid**: Melzer & Gollwitzer / Genschow / Nikolaev & Betsch (HS I – Front Building) Coffee break 15.30 – 16.30 **Poster sessions (ÜR B, Foyer)** 16.35-18.15 Parallel sessions **Session 2a - Embodied interaction, body memory & desire**: Summa / Froese / Dibitonto (HS II) **Session 2b - (Dis-)Embodiment in autism & schizophrenia / body schema**: DeJaegher / Kyselo / Sajber / Kita (HS I)
from 20.00 **Informal Get-Together at Sky Lounge Bar "Der Turm"** Alte Glockengießerei 9, 69115 Heidelberg	

Tuesday October 2nd	Wednesday October 3rd
8.15 – 9.00 **Embodied opening** Feldenkrais with Roger Russell (Hall) Institut für Medizinische Psychologie, Bergheimerstr. 20, 69115 Heidelberg	8.15 – 9.00 **Embodied opening** Feldenkrais with Roger Russell (Hall) Institut für Medizinische Psychologie, Bergheimerstr. 20, 69115 Heidelberg
9.15-10.15 Bucci (HS II) 10.15-10.45 Coffee Break **10.45-11.45 Caldwell (HS II)** **11.45-12.45 Michalak (HS II)**	**9.15-10.15 Grammer (HS II)** 10.15-10.45 Coffee break **10.45-11.45 Haken (HS II)**
12.45 – 14.15 *Lunch break*	11.45-13.00 **Session 6 - Dynamic systems:** Portugali & Stolk / Wackermann / Tschacher (HS II)
14.15-15.30 Parallel sessions **Session 3a – Enactive dance therapy, interoception:** Fischman & Koch / Goodill / Herbert (HS II) **Session 3b - Mindfulness meditation, altered states:** Keller / Hunger & Rittner / Zippel (HS I)	**Final discussion**
Coffee break	
16.00-17.15 Parallel sessions **Session 4a - Measuring embodiment:** Boker / Brick & Brandmeier / Löffler (HS II) **Session 4b - Time & interactional synchrony:** Giersch et al. / Kupper et al. / Galbusera et al. (HS I)	
Break	
17.25-18.15 Parallel Sessions **Session 5a - Cultural embodiment:** Hess / Schroeder (HS II) **Session 5b - Enactive demonstrations:** Pieper & Clenin / Dornberg (HS I/ÜR B)	
20.30 Dance (introduction by Eszter Nyuli) and conference party	

ABSTRACTS – PRESENTATIONS

(in alphabetical order)

Lawrence W. BARSALOU, Atlanta (USA)

Situated conceptualization

One way of construing brain organization is as a collection of systems that processes the components of a situation in parallel, including its setting, agents, objects, actions, and internal states. In a given situation, each situational component is conceptualized individually, as when components of eating in a kitchen are conceptualized as *kitchen* (setting), *diner* (agent)*, food* (food)*, chewing* (action)*,* and *hunger* (internal state). In turn, configural concepts integrate these individual conceptualizations into larger structures that conceptualize the larger situation, such as *eating* and *meal*. From this perspective, a situated conceptualization is a distributed record of conceptual processing in a given situation, across all the relevant component systems. On later occasions, a situated conceptualization can become active to simulate the respective situation in its absence (e.g., activating a situated conceptualization to simulate *eating*). From this perspective, the concept that represents a category, such as *kitchen* or *eating*, is the collection of situated conceptualizations that has accumulated from processing the category across situations, similar to exemplar theories. The utility of situated conceptualization as a general theoretical construct is illustrated for situated action, social embodiment, and social mirroring, along with the central role of part-whole inference. Findings from three neuroimaging experiments suggest that situated conceptualization is the mechanism that produces emotion. Findings from a behavioral experiment similarly illustrate the potential of situated conceptualization for understanding stress.

Steven M. BOKER, Charlottesville (USA)

Facial motions and embodied emotions

A basic function of facial expressions is the communication of emotions. Rigid motion of the head, such as head nodding, and non-rigid motions of the face can communicate fluctuations in internal states that are commonly termed as affect or emotion. These movements can provide a kind of emotional prosody as an adjunct to the semantic content of conversation or can be purely

communicative in their own right. This talk presents a theoretic framework for mapping between linguistic representations of emotion and facial movements. Four experiments describe and test a multi-dimensional structure of perceptual mapping between embodied emotional communication during conversation and linguistic constructs that can be used to represent the perceptions. Non-rigid movements of video of the faces of participants engaged in dyadic videoconference conversations are tracked and a small number of components are extracted that account for the faces in these videos. A mapping method is described to allow a factor rotation of the components to map onto the meaningful semantic constructs. Demonstration video is shown in which computer generated avatar faces are manipulated along these dimensions.

Timothy R. BRICK & Andreas M. BRANDMAIER, Berlin (Germany)

Modeling facial expression mirroring in conversation

Humans in conversation exhibit a wide variety of movements including speech acts, gaze fixations, deictic gestures, backchannel feedback gestures, head nods, and facial expressions. In dyadic conversation, there is evidence that movements made by conversants begin to resemble each other; indeed, mirroring of conversational gestures has been shown to increase feelings of rapport and trust. While it seems likely that many conversational movements are semantically driven (for example, in the case of deictic gestures) or provide feedback about the workings of the comprehension system of the actor (for example, so-called backchannel feedback gestures), some part of the movements made in conversation must be independent of these factors in order for mirroring to be possible. This paper proposes that a large portion of the movements made in conversation are the product of a low-level perception-action loop which chooses a set of movements based solely on the movements of the co-conversant, and requires no representation of the actual content of the conversation. Using modern computer vision techniques and a statistical model of facial expressions, we have generated an automatic conversant system that generates seemingly valid movements in response to the movements of a human conversant. Because the system uses no semantic context information, it allows us to explore the extent to which mirroring is sufficient for the generation of human-like movement. In this talk, we introduce the theory and initial implementation of the automatic conversant system and present some preliminary results.

Wilma BUCCI, New York (USA)

Multiple levels of interaction in therapeutic communication

This paper addresses the need for multiple levels and directions of interaction within and between the two participants in therapeutic communication. The therapeutic process may be understood in the context of the theory of multiple coding and the referential process, based on current work in cognitive science and affective neuroscience as well as clinical observations. Emotional information processing in the therapeutic context (and elsewhere) incorporates subsymbolic and symbolic verbal and nonverbal systems that are connected partially and to varying degrees. Some degree of dissociation is inherent and normal; in many circumstances subsymbolic sensory and somatic processes operate systematically in their own modalities without connection to language. Emotional disorders involve avoidant dissociation among systems; the individual wards off attribution of painful experience to its source. Different disorders may be characterized in terms of the varying forms of avoidance and types of attempted repair. Change in dissociated schemas occurs in treatment through the referential process, which involves activation of subsymbolic sensory and bodily experience in the new context of the therapeutic relationship, and connection of the subsymbolic experience to symbolic representations in past experience, fantasies, dreams and in the present experience of the treatment. Bidirectional subsymbolic interactions between patient and therapist as well as 'top-down' and 'bottom-up' connections between subsymbolic and symbolic experience, within both participants and between them, underlie therapeutic change. The claims of the theory including the phases of the referential process will be illustrated with detailed clinical material.

Christine CALDWELL, Boulder (USA)

Mindfulness and bodyfulness: A research-based synthesis of the role of consciousness and movement in healing and intelligence

Both research and clinical experience have been converging on the concept of mindfulness as a core construct of human wellbeing (Siegel, 2007; Stern, 2004; Wallace, 2006). At the same time, both research and clinical experience have been finding that an engaged and moving body predicts not only physical health, but also emotional, psychological, and cognitive wellbeing (Elisha, 2011; Hartley, 2004; Sheets-Johnstone, 1999). Put together, these two forces duplicate the biology of the human organism as it processes experience both from the top down (cognition) and the bottom up (action). This natural process, embodied in the sensorimotor loop, may be what is disturbed in

various forms of illness, as well as being the likely site of many types of healing and general intelligence.

Mindfulness, as a construct, has been well defined, and is increasingly being well researched, particularly in the areas of psychotherapy and wellness (Austin, 1999; Rose, 1998; Wallace, 2007). Likely as a carryover from Western Cartesian biases (named here as somaticism and somatophobia), our understanding of the moving body's role in health and healing has lagged behind. In an effort to help remedy this societal marginalization of the body and to even out this disparity, the author has fancifully coined the term 'bodyfulness'. In fact, many constructs typically associated with mindfulness, such as attention, focus, perception, and intention, are intimately associated with and dependent upon the active participation of the 'awake' body. The term bodyfulness reclaims a deeper and more 'full-bodied' understanding of human experiential processing, including how it can go wrong, and how it can be made right. This speech will attempt to contribute to our ability to define and operationalize this term as well as understand the emerging research that validates it, so that mindfulness and bodyfulness can be promoted as equal partners in the cultivation of wellbeing and natural intelligence.

Hanne De JAEGHER, San Sebastián (Spain)

An enactive approach to autism

On the currently dominant explanatory theories, autism is a combination of social, communicative, and cognitive deficits. Persons with autism are said to lack a theory-of-mind, fail to see the big picture (weak central coherence), or have executive function problems. These approaches tend to treat 'autistic behaviors' as something to be remedied away or to be transformed into 'normality'. An enactive account of autism starts from a different viewpoint. According to enaction, cognizers make sense of their world based on their self-organization (i.e. their autonomy, not to be confused with independence), their embodiment, their history, and their needs. All this gives a cognizer a certain perspective on the world. He perceives and deals with what is meaningful to him in the way he can. On the enactive view, 'autistic behaviors' would not in the first place be seen as flawed behaviors. Instead, they are likely to reflect a different way of sense-making, based on any or all of the following: a different embodiment (e.g. motor capacities, neural structures, perceptual sensitivities), a different history (development), different needs, different self-organization, and different interaction with the world. While not primarily deficient on this view, autism can certainly be difficult to deal with, both for the person who has it and for those around him, mainly because it happens in the context of a world organized by and for non-autistics. To support the idea

of a different sense-making and a different participatory sense-making (intersubjectivity) in autism, I present evidence from neuroscientific and psychological studies. Finally, I illustrate the point with a study in which the apparent echolalia of a young boy with autism was found to have a very specific meaning in his situation (Stribling et al. 05/06), even if it was not picked up by anyone around him.

Daria DIBITONTO, Vercelli (Italy)

Embodied and disembodied desire: A phenomenological perspective

Aim of the present study is to show how the introduction of an enactive approach in phenomenology can offer a coherent perspective on the relation between drives and desire and, through this question, on the role played by the body in thinking. First step towards a phenomenological theory on drives is the consideration of Husserl's drive intentionality as primal, original intentionality in a genetic analysis of the tendency of consciousness, which concurs to give it an embodied quality. Second step is the analysis of the relation between drives and desire mediated through imagination (Phantasie) in a Husserlian perspective, interpreted through Rudolf Bernet: imagination, by constituting "pure possibility", lend desire a structural disembodiment, potentially and ambiguously opened both to a spiritual and creative development and to a disordered relation to the world and to the self. "Embodied desire" means then a desire whose imaginative part can suspend drives in order to orient towards a creative bodily relation of interchange with the world (Umwelt). Consequently thinking, which is influenced by imagination and oriented by desire, will be reinforced in its spiritual force of gathering together – légein – different phenomena in a coherent sense when desire is well embodied. A "disembodied desire", on the contrary, indicates a desiring imagination which is more and more independent from a bodily and practical relation to the world that is more and more detached from drives and from any agency, so reinforcing the splitting potential of thinking in isolating different phenomena. What is highly interesting is but that no embodied desire can exist without passing through disembodiment: if consciousness didn't have the possibility to disembody its own life through imagination in desire, a man couldn't project anything and he finally couldn't be free. In this sense desire, in its ambiguity, can be considered as source of possibilities for the self.

Martin DORNBERG, Freiburg (Germany)

Intercorporality and embodiment: Experiencing the two-handed trim saw

Starting with a real sawing experience of some congress participants, the experiment will be discussed and differentiated with theoretical input about the experiments of the German neurologists and philosophers Christian and Haas (1949) with patients sawing wooden tree trunks. The saw experiment does deliver information about human-human and human-environment interactions, different forms of embodiment and intercorporality, and their specific medial character. It shows how the lived bodies of both participants extend and form a common intercorporality as an interaction and coordination of two embodied agents. The common “third body” wins new and emergent abilities of perception and action. Some implications for philosophy and for psychosomatics/psychotherapy will be made.

Diana FISCHMAN* & Sabine C. KOCH,** *Buenos Aires (Argentina), **Heidelberg (Germany)

Embodied enactive dance/movement therapy

We will present Dance Movement Therapy as an Embodied Enactive approach to psychotherapy. This perspective regards individuals as living systems characterized by plasticity and permeability (moment-to-moment adaptations within the self and toward the environment), autonomy, sense-making, emergence, experience, and striving for balance. Enaction and embodiment emphasize the roles that body motion and sensorimotor experience play in the formation of concepts and abstract thinking. A theoretical framework and a perspective on professional practice in dance/movement therapy are herein offered as influenced by interdisciplinary embodied and enactive approaches deriving from cognitive sciences and phenomenology. In the light of embodiment and enaction, therapy is a situation in which we become aware of the ways in which we affect each other. We explore the available resources or ways of relating, and pursue the cultivation of new abilities through the patient-therapist interaction process. By the time this relationship unfolds, new procedural ways of being with others can be achieved. We do so by unfolding the unique quality of who we are through the moment-to-moment enactment.

Tom FROESE, Tokyo (Japan)

Beyond the 'Social Brain': Intersubjectivity as a complex system

After decades of research about how our social understanding is enabled by the processes inside our 'social brain', there is increasing interest in the role of social interaction and intersubjective experience. Two explanatory approaches can be identified. Orthodox cognitive science insists that relational and transpersonal structures serve as nothing but external scaffolding and/or external input for cognitive processes that are strictly internal to an isolated brain. Alternatively, enactive cognitive science proposes that relational and transpersonal structures can be constitutive of social understanding. The orthodox account has criticized the enactive account for committing the so-called 'coupling-constitution fallacy', a criticism that has been previously used to counter the extended mind debate. I will argue that the enactive approach rests on a relational conception of the mind that makes it immune to this criticism. In addition, by considering a dynamical systems account of embodied interaction and intersubjective experience, I show that the force of this criticism actually runs the other way. The orthodox account is implicitly committed to a 'coupling-reduction fallacy', as epitomized by the idea that our entire life world could be reduced to the operations of an isolated brain in the vat. This impoverished theory of human existence has failed to take the lessons of complex systems and phenomenology into account. Fortunately, there is a growing community of researchers who are developing an alternative account of social understanding to rectify these shortcomings. A crucial test for this enactive approach is whether it can improve clinical practice.

Thomas FUCHS, Sabine KOCH, & Michela SUMMA, Heidelberg (Germany)

Embodied affectivity

The paper starts out from the growing body of research indicating that bodily sensation and behavior strongly influences one's emotional reaction towards certain situations or objects. It develops a framework model of embodied affectivity: Emotions are regarded as resulting from the circular interaction between affective affordances in the environment and the subject's bodily resonance, be it in the form of sensations, postures, expressive movements or movement tendencies. Motion and emotion are thus intrinsically connected: one is moved to move and moved by movement (kinetic-kinesthetic ambiguity of the body). Through its various kinds of resonance, the body functions as a medium of emotional perception, coloring or charging the environment with affective valences while it remains itself in the background of one's awareness. Bodily expression and environmental impression mutually influence each

other. In moods and atmospheres, this refers to the situation as a whole; the body thus conveys a basic attunement to the world as well as an opening toward a general type of possibility of the situation (as for example, being 'in the mood to argue' etc.). In emotions, the directedness is more specific, preparing the subject for different patterns of action with regard to the respective object (e.g., attraction, repulsion, aggression etc.). This model of embodied affectivity will be elaborated on the basis of some paradigmatic moods and emotions, examples from embodiment research and clinical applications.

Laura GALBUSERA*, Heribert SATTEL* & Lisa FELLIN, ***Heidelberg (Germany), **Bergamo (Italy)

Interactional synchrony in psychotherapy: Embodied dynamics of participatory sense-making

The aim of the present study is to gain new insights about the process of psychotherapy applying the new concepts emerging from the embodied and enactive approaches to social cognition. Drawing on De Jaegher and Di Paolo's (2007) concept of participatory sense-making, we considered bodily interactional synchrony between therapist and patient as a constitutive aspect of the meaning-making process. In order to observe the coherence between the participants' embodied interaction and their phenomenological experience, a multi-level, multi-source and multi-method study has been implemented at the psychosomatic ward of the Clinic Rechts der Isar in Munich, Germany; seven therapist-patient couples participated in this pilot study. The Helpful Aspects of Therapy questionnaire (HATq) was used to assess participants' phenomenological experience during significant moments of therapy sessions, which are considered to be the core of the process of change in psychotherapy according to significant events research (Elliott, 2010); interactional synchrony was quantified with an automated objective video analysis algorithm (Motion Energy Analysis; MEA). According to our research hypothesis, the results of this pilot study showed enhanced interactional synchrony in moments identified as helpful by therapists ($p<.02$). Besides, a qualitative analysis of a single case, implemented with Interpretative Phenomenological Analysis (IPA), showed the intertwinement between phenomenological experience and interactional synchrony at the microtemporal level. Suggestions for future research, clinical implications and coherence of the main findings with particular therapeutic approaches will be discussed.

Oliver GENSCHOW*, Simone SCHNALL & Elsa LOISSEL***, ***Mannheim (Germany), **Cambridge (UK) and ***Lyon (France)

A matter of attribution: Cleanliness causes harsher and milder moral judgments

Research on the role of cleanliness on moral judgments has produced conflicting results: Whereas Schnall, Benton and Harvey (2008) showed that priming cleanliness led participants to consider certain moral actions as less wrong, Zhong, Strejcek and Sivanathan (2010) found the exact opposite. Integrating these two sets of findings, we suggest that cleanliness can either be attributed to the self, or to the moral transgression under consideration. When cleanliness is attributed to the self, individuals should feel clean and therefore judge others as dirty and immoral. In contrast, when cleanliness is attributed to the transgression that is being judged, individuals should judge others' action as less morally wrong. Using a method of "free-floating" feelings of cleanliness that are flexible regarding what they are attributed to, Study 1 replicated the previous findings by demonstrating that by using the Zhong et al.'s items the attribution to the self is facilitated and that by using the Schnall et al.'s items the attribution to the judged transgression is facilitated. Interestingly, when making the manner of attribution salient in Study 2, the observed effects disappear. Study 3 tested the idea that environmental factors can facilitate the attribution to the self or to the judged transgression. Using the Schnall et al.'s items only, we demonstrated that cleaning one's hands in front of a blank wall led to less harsher moral judgments than applying lotion in front of a blank wall, and vice versa for participants standing in front of a mirror. These results suggest that the attribution of cleanliness either to the self or to the transgression is a crucial moderator of the relationship between cleanliness and morality.

Anne GIERSCH, Laurence LALANNE, Mitsouko van ASSCHE, Weixin WANG, & Patrick PONCELET, Strasbourg (France)

Temporal event-coding: a way of revealing elementary prediction disturbances in patients with schizophrenia?

Results observed in patients with schizophrenia question the mechanisms underlying temporal event-coding. At a clinical level these patients display a disturbed sense of continuity. Experimentally, they are impaired in duration judgments, and in discriminating between simultaneous and asynchronous events. However, recent studies showed that 'simultaneous' responses are not associated with a fusion of events in time. During the tasks, subjects decided whether two squares were displayed simultaneously or asynchronously, and

gave their response by hitting a left or right response key. We repeatedly showed that when stimuli are asynchronous and displayed on opposite sides, manual responses are biased to the side of either the first or second stimulus. Such a bias allowed us to explore the implicit processing of asynchronies when those were not explicitly detected by subjects. Results (replicated in four studies) show that patients distinguish events in time at an implicit level even when explicitly judging such events to be synchronous. In addition, their implicit responses differ qualitatively from those observed in controls, for asynchronies as short as 8-17 ms. These results have been shown to be independent of spatial information and question the mechanisms underlying the implicit coding of events in time. The results in healthy volunteers have been confirmed with priming studies and suggest that they have a natural bias toward the last event. We discuss these results in terms of elementary time predictions. Forward models that have been proposed in motor control include mechanisms allowing us to predict the next event. Our results further suggest that our brain system may be wired to look sub-consciously for the next occurring event, this naturally leading us to put more emphasis on the last occurring event. This might be impaired in patients, possibly underlying their disturbed sense of continuity.

Sharon W. GOODILL, Philadelphia (USA)

Systems theory and dance/movement therapy: A good fit

Conceptualizing creative arts therapy, clinical work from a systems perspective equips the practitioner with a framework for a context-sensitive practice. Complex systems interact in the lives of patients and systems theory can help the clinician frame and structure clinical work in a way that is realistic, appreciative, and yet not overwhelming. This theoretical paper presents the basic principles and methods of dance/movement therapy, in relation to systems theory. The properties of living systems, from the cellular to the community levels are considered and used as an explanatory model for understanding the mechanisms of dance/movement therapy. Contributions from systems theorists Engel, von Bertalanffy, Scheflen and others will be employed and include the systems concepts of hierarchy, isomorphism, and self-transformation.

Karl GRAMMER, Vienna (Austria)

Move me

Embodiment theory suggests a direct link between gesturing and gesticulation and language production. In growth-point theory the constant interaction between gesturing and language generates thought dynamically. Gestures are thus not only signs but a direct expression of thought and cognition. Consequently, the communicative function of gesturing is not limited to being a signal or message carrier about the outside world, but gestures also convey information about cognitive processes in the sender. In my view this is paramount to the evolution of language. In this talk, I extend this approach to general body motion and theorize that not only gesturing is coupled to language - but language involves the whole body. This results in a theory that speech and cognition per se are a motion process.

Admittedly this approach is not new – the relation between gestures and speech has been under research for a considerable time with highly sophisticated methods. I will argue that the inconsistent results are due to a general misconception on the structure of human behavior.

The multimodal corpus for demonstrating this approach is a video chat situation over the internet where the participants either retold the plot of a short comic movie, or described a building. These videotaped interactions were analyzed with computer methods to detect motion primitives and speech attributes.

The analysis of motion primitives suggests that the receiver understands the sender's story the better the more he/she synchronizes all of his/her body motions with the sound amplitude of the speaker. The results also suggest that the listener generates similar motion primitives as the sender, not only with gesturing alone, but also with the motions of his whole body. The more the whole body of the listener reacts to the speech, the better he/she is understood. Temporal microanalysis showed that there is nothing like a "co-expression" of speech and gestures – in any case whole body motion precedes speech in the speaker.

This means that embodiment concerns the whole body and is not restricted to gesturing, albeit gestures appear to be the most prominent behavior in this respect. This study has far reaching implications for theories on the evolution of language. In my view speech is embodied in the very sense of the word.

Hermann HAKEN, Stuttgart (Germany)

Can synergetics contribute to the concept of embodiment?

Synergetics is an interdisciplinary field of research that deals with complex systems, i.e. systems composed of many components and showing complex behavior. Synergetics focuses its attention on those situations, where the behavior of the system changes dramatically ("emergence of new qualities"). Basic concepts such as control parameters, order parameters, the slaving principle, and instabilities are explained by means of simple examples. The human brain is conceived as a synergetic system and some conclusions are drawn on visual perception (including that of bi- or multi-stable patterns), the role of attention, movement coordination etc. Our approach sheds new light on the interplay between the "world of ideas" and their embodiment – or, to put it differently, on the relation between the brain as physical system and its mental activities with their various manifestations. Some possible consequences on psychotherapy will be discussed.

Jens H. HELLMANN* & Deborah F. THOBEN,** *Münster, **Hamburg (Germany)

Sweet revenge – metaphor-triggered judgments

Our research addresses the idea that bodily states, evoked through gustatory experiences, can have an impact on judgments and decision making (also see Eskine, Kacinik, & Prinz, 2011). We hypothesized that the metaphor of "sweet revenge" reflects a deeply grounded association between the concept of revenge and the physical experience of sweetness. This metaphor exists across many different languages: For example, Dutch people use the phrase "wraak is zoet", for the French revenge is even sweeter than honey ("La vengeance est plus douce que le miel"). In one of our experiments, participants were given a sweet-tasting vs. neutral drink (factor taste). Additionally, we manipulated the factor motive: Participants read a story in which one person harmed another person. For about one half of the participants, the motive for this act was obviously revenge because they read about an initial aggression by the person encountering the subsequent damage. For the other half of participants the motive remained unclear since their vignette did not include the initial aggression. The dependent variable was the evaluation of the action and the avenger based on seven items. Besides a main effect for the factor motive, crucially, we found an interaction effect between motive and taste: Contrast analyses confirmed that only when sweetness and revenge co-occurred, action and avenger were evaluated more positively than in any of the other conditions. Therefore, the present research serves as evidence that "sweet

revenge" is, indeed, a grounded conceptual metaphor and the physical experience of sweetness may lead to more favorable evaluations of a vengeful act. The results will be discussed in the context of metaphor-enriched social cognition and, more specifically, in the context of the influence of taste perceptions on judgments.

Beate M. HERBERT, Ulm (Germany)

The body in our mind: The role of interoceptive awareness for embodiment

Interoceptive awareness (IA) describes the individual sensitivity for one's bodily signals and has been most commonly assessed by focusing on cardiac perception. Based on models on the central representation and integration of bodily feedback affecting human cognitive and affective functions (James, Damasio, Craig), this talk will present data from selected studies a) underscoring the positive association between IA and emotion processing and the relevance of IA for emotional awareness, b) giving insight into psychophysiological mechanisms of embodiment by demonstrating that IA is accompanied and can be manipulated by specific cardiac autonomic-nervous activity and associated cardiodynamic patterns which show morphological brain correlates, and c) that the sensitivity for cardiac perception is positively related to other visceral modalities such as the perception of gastric signals and feelings during specific conditions.

Regina U. HESS, Bournemouth (UK) & Borken (Germany)

Embodied understanding - (re)-connecting with ourselves in the world? Relevance for clinical practice and research

The presentation will address the conference theme of how clinicians could incorporate principles of embodiment into their work. The first section of the paper will outline the concept of ʿembodied understandingʿ of human experiences as a place where being and knowing meet, based on 'Embodied Enquiry' as a scientific approach relevant for practice and research/theory-building. Embodied Enquiry is a body-based hermeneutical phenomenological methodology and method, concerned with an existential tradition assuming a non-dual vision of existence. This embodied phenomenological method employs a pluralistic epistemology, including bodily reactions, imagery, emotions, intuitions, aesthetic sensibilities, cognition, and extraordinary experiences, with the aim of exploring the human experience in as full and transformative a way as possible. An embodied inquiry into human experience

is understood as relational, dialogical, intersubjective, and co-creative. Embodiment is seen as a bodily awareness of 'being and knowing.'
The second part of the paper will present major research findings of my doctoral dissertation based on embodied inquiry and will give examples of my embodied understanding of the research project. To investigate the impact of the 'Capacitar" body-mind-spirit practices training as a potential adjunct complementary treatment for the transformation of individual and community trauma, the experiences of change as a result of the training were explored with a multicultural, multilingual group of women living in the violent U.S.-Mexico borderlands. Examples of findings will show the co-researchers experiences of embodied understanding and transformation. It can be suggested that the women's embodied understanding of their subjective experiences of change is an example of accessing the implicit, the "more than words can say," which nonetheless looks for words to be expressed. This phenomenon can enhance an innate capacity to transform or integrate human experiences in order to (re)-connect with ourselves, and the world. The experiences of change relate to the co-researchers's biographical experiences and cultural context.

Christina HUNGER & Sabine RITTNER, Heidelberg (Germany)

Ritual body postures: State of research and empirical study of a unique altered state of consciousness

Objectives: This study examines Ritual Body Postures (RBPs), a widely unknown technique for the induction of a unique altered state of consciousness (ASC) characterized by a trophotropic and ergotropic trance as found in electro-encephalography (EEG). The objectives were (1) to test the specificity of the trance experiences, (2) to describe their effects on daily life, (3) to analyse whether experts and beginners differ regarding the aforementioned objectives. Additionally, the state of research was reviewed. Methods: A literature search was conducted using PsycINFO, PubMed and in the archive of the Felicitas-Goodman-Institute. The study was conducted during a ten-month period with 19 subjects at the Heidelberg University Hospital, Germany. Participant observation and receptive interviews were conducted, and a questionnaire completed that measured the pre-experiences with RBPs, alternative trance and relaxation techniques. Experienced-focused interviews were conducted with 4 beginners and 4 experts. Results: Twelve studies were found that investigated neurophysiological, neurochemical, psychological and psycho-therapeutic aspects of RBPs. Considering this study, (1) no specificity of the trance experiences was noted. (2) Effects included higher awareness of the body, mind and social interactions that benefitted the participants in their daily

life. They described a better understanding of their biography, increased self-care (physically, psychologically) and self-assertion, higher tolerance and acceptance. (3) Beginners described more tactile and nociceptive sensations, experts more visual-visionary perceptions. No differences between beginners and experts were seen regarding the positive effects on daily life.
Conclusion: This study advises against the application of trance in RBPs as a specific treatment tool for physical and mental disorders. The trance experiences however serve the satisfaction of basic needs that are central to counselling and therapy and positively associated with health. Due to their unique ASC, RBPs open up an independent research field for future psycho-physiological studies on trance states.

Eric KELLER, Lausanne (Switzerland)

Embodiment through meditative interrogation and simulation

Two main fear-based factors interfere with embodiment in cognitive development: infrequency and unfamiliarity. Humans (and animals in general) resist infrequent and unfamiliar experiences or concepts. This tends to limit the embodiment experience to younger populations who are more likely to experiment with unfamiliar behaviors and new concepts. One manner of circumventing this resistance is a meditative experience involving extensive auto-interrogation and embodiment simulations. In our approach, sessions begin with the collection of an extensive set of client questions. Then an extensive guided meditative session is initiated. The meditative part is audio-recorded. Clients are guided towards a space where they encounter their own "Higher Self", a stage which is nearly always reached after about 20-30 minutes. Then the therapist poses the collected questions to the client's "Higher Self", and the client's answers are collected. Finally, some relevant potential experiences are explored in simulation. The entire meditation typically lasts for 3-4 hours. After the meditation, answers from the deep meditative state are discussed, as well as the simulated experiences. At the end, clients receive a copy of their audio recordings for further exploration of their answers and to facilitate transfer to real-life embodiment. Client feedback indicates that they were often surprised by the answers coming from their own "Higher Selves", and that their simulated experiences felt very real. They are generally satisfied with this manner of extending their embodiment experiences within a protected environment. We conclude that deep and extensive meditative experiences are a powerful application of the embodiment concept, particularly for clients who wish to experiment in a fully protected therapeutic environment.

Elli K. KITA, Ioannina (Greece)

Grounding the body-image: A systems approach inspired by P. Schilder

"The laws of identification and communication of body-images make the suffering and pain of the one, the concern of everybody. The same is true of joy" (Schilder, 1935). Schilder's statement, which describes in a simple and clear way how far the ethical and even political implications of embodiment may reach, derives from his body-image theory. Does the "body-image" concept have a place in the context of the embodied-enactive paradigm in Dance Therapy (Koch & Fischman, 2011)? And if yes, how would we understand body-image within this realm of thinking? Contextualizing Schilder's ideas within the frame of Living Systems Theory (J. Miller) reveals that the embodied-enactive paradigm is present and alive in his way of thinking. Based on his formulations it is possible to approach the body-image as a complex, dynamic system, both embodied and enactive in its essence, in terms of organization, structure, process, function and feedback loops. It is of special interest for Dance Therapists the idea that to fully understand the body-image organization we must take in consideration not only Time and Space (process and structure) but also Gravity. If Time=Process and Space=Structure, then what equals Gravity? Is there in the answer any potential to enlarge our vision of LAM and KMP practice in DMT and of the concepts used by those methods? On the other hand, what would have changed if the force of gravity was incorporated with the same intensity as the dimensions of time and space in systems-thinking investigation of human communication and society? A series of cognitive graphics will be presented to visualize the propositions and the questions above will be discussed.

Zeno KUPPER, Fabian RAMSEYER, Holger HOFFMANN & Wolfgang TSCHACHER, Bern (Switzerland)

Disembodiment in schizophrenia: Reduced movement and movement synchrony in social interactions indicate the severity of schizophrenic disorders

Disturbed interpersonal communication can be a core problem in schizophrenia. Patients with schizophrenia can appear disconnected and "out of sync" when interacting with others. This may be understood as an expression of "disembodiment" involving aspects of the self, perception, motor behavior, and nonverbal expressiveness. Although known from clinical observation, mainstream research has neglected this area. Corresponding theoretical concepts, statistical methods, and assessment were missing. In recent research however, it has been shown that objective, video-based measures of nonverbal behavior can be used to reliably quantify nonverbal

behavior in schizophrenia. Newly developed algorithms allow for a calculation of movement synchrony. We have shown that the objective amount of movement of patients with schizophrenia during social interactions can be closely related to the symptom profiles of these patients (Kupper, Ramseyer, Kalbermatten, Hoffmann, & Tschacher, Sz Res, 2010). In addition and above the mere amount of movement, the degree of synchrony between patients and normal interactants may be indicative of various problems in domains underlying interpersonal communication, such as symptoms, cognitive functioning and social cognition.

Based on our earlier study, nonverbal synchrony was assessed objectively (using Motion Energy Analysis, MEA) in 378 brief, videotaped role-play scenes involving 27 stabilized outpatients diagnosed with paranoid-type schizophrenia. Lower nonverbal synchrony was indicative of symptoms (negative symptoms, but also of conceptual disorganization and lack of insight), verbal memory and patients' self-evaluation of competence. These relationships remained significant when correction for the amount of movement of the patients. Results suggested that nonverbal synchrony may be an objective and sensitive indicator of the severity of patients' problems and support the notion of "disembodiment" in schizophrenia.

Miriam KYSELO, San Sebastián (Spain)

An enactive approach to the self and implications for schizophrenia

Parnas and Sass (2010) have recently suggested to account for schizophrenia in terms of a disorder of the "minimal self" (Zahavi, 2005, 2010). The minimal self is a phenomenological concept of an essentially embodied self that consists of three dimensions, self-presence, first-person perspective and phenomenality. Saying that schizophrenia is affecting the minimal self means to interpret symptoms as referring to structural disturbances of these three "orders". A sense of alienation is, e.g. explained as a disturbance of self-presence or "for-me-ness" that normally accompanies experiences.

This approach lacks a developmental perspective that would allow to intelligibly connect the person's present and past state, i.e. before and after the onset of the disorder. The symptoms are assumed to be the exact contrary to what is considered as normal. Unfortunately, this cannot explain why or how schizophrenia is a disorder of the minimal self. Moreover, since the minimal self is based on the self-affective organism, it also remains as it were a fundamentally individualistic self. This does not do justice to the fact that we are not isolated subjects, but deeply embedded in a social environment, constantly having to negotiate our existence in a world of other subjects.

Based on the enactive perspective I suggest an alternative, organizational approach to the minimal self, for which sociality becomes vitally important. The social minimal self is conceived of as an autonomous network of processes that includes socially enacted processes. This transcends the prevalent dichotomy between the individual and other subjects: Humans are not only embodied systems but also primarily social. This socially enacted autonomy is then proposed as the starting point of an explanation for why the human self is vulnerable to disturbances. Using the symptoms of hyperreflexivity and bodily alienation as examples I will show how a conception of self as genuinely social can contribute to a better understanding of schizophrenia.

Davor LOEFFLER, Berlin (Germany)

Technological evolution from the perspective of enactivism and embodiment

Technological evolution is setting a challenge to the paradigms of embodiment and enactivism. The core theorem of embodiment, transparent perception, i.e. the understanding of objects as senso-motorical patterns of the organism, cannot be applied to complex modern technological objects as for example a computer chip. And although less complex tools like spears might be considered as extensions of the body, still the question remains on how their actual usage, i.e. goal oriented action pattern is selected, since objects can be used or action patterns can be triggered to attain many different goals in various contexts. On the other hand, enactivism's basic theorem of self-organization and self-reproduction oriented selection of objects/action patterns cannot model how a perturbational signal can be formed within an inner environment that again can cause an autogenic formation of new action patterns, which furthermore always come with the adaption obstacle of learning costs. Human cultural evolution is based on active change of the environment beyond established organism-environment relations resulting in the formation of new affordances, which are not adapted yet. Therefore, co-emergence cannot be based solely on a relation between solipsistic organism and its material surrounding. The human surplus of contextual reorganisation and invention of new action patterns must be rooted in a mechanism that exceeds the basic statements of enactivism and embodiment. To address this problem a process-philosophical extension of the paradigms is presented. Thus, environmental relations, objects and tools are understood as storages of events. Past situations and associated states of the organism can be condensed in communicative symbols, meaning that events and processes become objectified in reference to states of others or past self, thus making up a new environmental configuration. This semantic recursion of organic states or more

generally, the recursive doubling of event-patterns is discussed as the basic mechanism of technological evolution.

André MELZER* & Mario GOLLLWITZER,** *Luxembourg (Luxemburg), **Marburg (Germany)

The effects of violent media on moral purity and self-regulatory behavior

People feel guilty when they behave against shared moral standards. This includes virtual behavior: Players in violent video games feel guiltier when defending evil compared to fighting for a good cause (Hartmann, Toz, & Brandon, 2010). In Study 1, we tested whether playing violent video games induces moral concerns that trigger acts of physical cleansing aimed at restoring moral purity (Zhong & Liljenquist, 2006). 70 students played one of two violent games and were then asked to choose a gift from 10 products, half of which were hygiene products. Irrespective of their video game expertise, players reported greater moral concerns when the game involved violence against humans compared to violence against objects. However, inexperienced video game players selected more hygiene products in this condition than frequent players. Hence, playing a violent game caused a stronger threat to their moral selves, which evoked self-regulatory behavior (i.e., desire to physically cleanse themselves). On the other hand, frequent video game players may cope differently with game-related moral concerns (e.g., Hartmann & Vorderer, 2010).

In Study 2, we tested whether the effect of moral cleansing may be observed with another entertainment medium, namely music. Participants listened to a "dirty" song that belonged to the Death Metal genre (n=50), whereas a second group listened to a "clean" acoustic song (n=50). After a filler task (rating headphones), they were asked to select between two gifts that were presented simultaneously. Preliminary analyses indicated a substantially greater preference for the hygiene product (soap) compared to the non-hygiene product (eraser).

In line with current theoretical models, both situational factors (media characteristics) and personal factors (individual media preferences and habits, as well as coping strategies) need to be considered to understand the effects of violent media on moral behavior.

Johannes MICHALAK, Hildesheim (Germany)

Mind your body – mindfulness, embodiment, and the treatment of depression

During the past decade, Mindfulness-Based Cognitive Therapy (MBCT) aiming at relapse prevention in depression has been developed and empirically tested. All exercises taught during MBCT are based on the development of a heightened awareness of one's body. The important role of the body is also stressed in the rapidly evolving interdisciplinary field of research termed 'embodiment'. This research program focuses on the interactions between bodily, cognitive, and emotional processes. Based on the obvious role of the body in MBCT and on the theoretical and empirical evidence highlighting the importance of the body in emotional processes, I will argue that considering embodied processes is a useful perspective for research on the etiology of depression and for mechanisms of action in MBCT. A theoretical framework and empirical evidence supporting this position will be presented.

Boris NIKOLAEV & Cornelia BETSCH, Erfurt (Germany)

Political embodiment: The influence of a rigid body position on the perception of Nazi propaganda material

This study tests if a rigid body posture leads to more mental rigidity (embodiment hypothesis). Further, we assess the consequences of the embodiment in a political setting.

Fifty-three college students were exposed to film clips of Nazi propaganda while they stayed in either upright-rigid, upright non-rigid or sitting-relaxed body postures. After the embodiment manipulation a Stroop-test assessed participants' resulting mental rigidity. Further, we collected ratings of the video's political correctness. We expected that a hypertonia in the upright-rigid posture would lead to a less critical rating of the political clip due to the activation of rigid emotional patterns.

Consistent with our hypothesis, participants standing in a rigid position needed significantly more time for the Stroop-test than in the sitting-relaxed posture, indicating more mental rigidity. Moreover, participants in the rigid position were less critical towards the Nazi propaganda than those in a non-rigid body posture.

The data suggests that manipulating the body in a rigid political system may contribute to winning the whole human being.

Barbara PIEPER & Daniel CLENIN*, ***Bern (Switzerland), **Munich (Germany)

Being touched by a touch that touches: How perceptional directions matter for embodied interaction

We will present a practical-phenomenological approach investigating the lived body's participation in embodied interaction. Participants will explore how modalities of perceptions differ each time, depending on the directedness of perception in a spatio-temporal and social frame of reference. In this experimental context we address differing qualities of self- and other-perception – both specifically relevant to embodied interaction. Revealing these often very subtle differences in perceiving – and this necessarily needs lived bodily experiences of investigators – open up ways for researching and enriching practice and theory of embodied interaction. Linked to these explorations we will hint to two theoretical clues: *perceptional references* and the *double aspect of perception.* These concepts are crucial for our "prismatic" approach and for operationalizing our research issues on embodied intersubjectivity.

Juval PORTUGALI* & Egbert STOLK, ***Tel Aviv (Israel), **Delft (Netherlands)

Embodiment, planning and design – a SIRN approach

SIRN (synergetic inter-representation nets) is an approach to cognition, cognitive mapping and urban dynamics developed by Haken and Portugali (1996) as an extension to the embodied cognition view: Whereas embodied cognition suggests action-perception, SIRN suggests action-perception-production. That is to say, that similarly to 'action', the production of artifacts is part of cognition (Portugali, 2011). In developing SIRN Haken and Portugali have devised a general SIRN model from which they have derived three SIRN submodels referring to three scales of artifacts and their production: intra-personal and inter-personal submodels referring to the production of small scale artifacts, and a collective SIRN submodel referring to the production of large scale artifacts – e.g. a city.

In this paper we further elaborate on the production of artifacts. We want to show, first, that their production is implemented by means of humans' planning capabilities as studied in the research domain of 'cognitive planning'. Second, that cognitive planning is one form of humans' mental time travel (MTT) abilities, known also as chronestetic capabilities. Third, that design is another form of MTT. Fourth, that both planning and design evolve as SIRN processes. Five, employing Liberman and Trope's construal level theory (2010), we finally show that while a plan often evolves from the concrete here-and-now and becomes abstract as it "time travels" to the future, a design often

starts as an abstract future and evolves/"travels" back in time to the concrete here-and-now.

Krisztina SAJBER, Heidelberg (Germany)

Revisiting the body-image body-schema distinction

Accounts of the body-image and the body-schema compose a rich history exploring some of the most philosophically vexing registers of embodiment. Contemporary authors proposed a number of ways to distinguish body image from body schema in search of defining the contributions of the enactivist and interactivist approaches to cognitive science. My paper intends to supplement these efforts by returning to a phenomenological theory of the body on the one hand, and to a psychopathological modality of embodiment on the other.

Upon presenting what is at stake in properly distinguishing between body-image and body-schema for a philosophy of mind broadly conceived, I therefore turn to one of the most influential theories of bodily subjectivity, focusing this portion of the paper on Merleau-Ponty's innovative treatment of the body-schema as a virtual body of an "I can."

The subsequent examination of what becomes of the body-image / body-schema distinction in the experiences of schizophrenic individuals demonstrates a further, crucially relevant aspect of the body-image body-schema pairing: that of a close inter-relatedness between the disturbances which come to restructure, separately, both reflective and pre-reflective bodily subjectivity. In view of this, I propose a distinction between body-image and body-schema applicable specifically to the schizophrenic modality of embodiment.

My main concern throughout the paper lies decisively not with determining how not to distinguish body-image and body-schema. The purpose of the paper is to recapture a variety of ways of thinking about body-image and schema for advancing the conceptualization of the emergence of reflectivity from the operative intentionality of the body. Throughout the talk, I will also make references to the therapeutic implications of the distinction, and in particular to the clinical utility of distinguishing between a visually accessible other's body and a more complex understanding of another embodied being.

Marcin J. SCHROEDER, Akita (Japan)

From mind-body dualism to ternary relationship culture-mind-body in study of consciousness

Post-Cartesian study of consciousness focused on the mind-body relationship. In scientific inquiries, the problem is formulated as a question about the role of the brain, or more generally of the organism, in cognitive functions and consciousness without recognition of the assumptions underlying such formulation. It is assumed that we know sufficiently well what it means an organism or a living system, and that we can consider them in separation from the rest of the world. Thus, consciousness is supposed to be naturalized by its reduction to presumably known processes which define life. Second, it is assumed that the role of consciousness and its embodiment in creating what we understand as independently existing reality can be eliminated from the study. Both assumptions are consequences of the reductionistic methodology, and both are subject to strong criticism in the discussions of what life is (Schroeder 2012). In the earlier works of the author (Schroeder 2009, 2011a, 2011b) consciousness has been associated with a concept of information and information integration. Also, these concepts have been employed as a framework for the revised methodology for the study of living systems allowing realization of postulates calling for a more holistic approach (Schroeder 2012).
Mathematical formalism proposed by the author and models of mechanisms involved are still too general to describe any particular cognitive functions. For this purpose, it is necessary to look for characteristics of the human mind in many different perspectives. In particular, it is necessary to extend the study to contexts, which are rarely considered in the scientific study of consciousness, such as social or cultural environment. Actually, the old problem of the relationship between culture and its material form has many similarities to that of mind and body. Thus, the ternary relationship culture-mind-body should replace the mind-body dualism in the attempts to explain consciousness.

Anna STEIDLE*, Lioba WERTH & Markus DENZLER**,** *Stuttgart, **Chemnitz (Germany)

Embodiment of content, procedures and goals: Illuminated by the example of light

In the last decade, the impact of the physical context on cognition and behavior has gained increasing interest and inspired a new approach of theorizing and research: grounded cognition. Up to date, research has hardly made any attempt to qualify the different forms of grounding and hence the very nature of various embodiment phenomena is vastly unknown. The aim of

this presentation will be to fill this gap by differentiating between semantic, procedural and motivational embodiment and illuminating it by the example of light. Most embodiment research – semantic embodiment – refers to the content level (e.g., Williams & Bargh, 2008). For instance, players in black uniforms are perceived as more aggressive and judged more harshly than those in white uniforms (Frank & Gilovich, 1988), because black as the color of evil activates respective semantic contents, which impact judgment like semantic priming. Recently, Förster and Denzler (2012) proposed the existence of procedural embodiment, which affects the processing level. Accordingly, depending on the lighting conditions, individuals adopt a global rood vision or detailed cone vision style. Consequently, Steidle, Hanke, & Werth (2011) showed that this association between light and a perceptual style can be transferred to the conceptual level inasmuch as darkness is associated with high construal-level. Moreover, a recent series of experiments (Steidle, Hanke, Werth, & Denzler, under review) suggests that darkness reduces the goal to possess a high moral reputation and accordingly reputation-maintenance processes because darkness is associated with secrecy and anonymity. Hence, it is time to think of embodiment as corresponding to goal priming as a kind of motivational embodiment – with certain bodily experiences and perceptions eliciting or satisfying a goal. It will be a challenge for future research and theorizing to disentangle the different but overlapping forms of embodiment and their respective consequences for cognition, emotion, and social behavior.

Janina STEINMETZ & Thomas MUSSWEILER, Cologne (Germany)

Hands together: How moving your arms affects self-evaluation

Recent research found that bodily movements and spatial metaphors can induce corresponding psychological phenomena. However, it is unclear whether movements and spatial cues also affect similarity perception and thereby self-evaluation. To investigate this possibility, we use movements with potential symbolic meaning to activate embodied similarity and dissimilarity. As physical closeness and similarity perception are related, we expect a movement that symbolizes increasing closeness to foster similarity perception. We then examine whether these embodied mindsets also influence similarity in social comparison situations. In a first study, we recruited participants in a local gym who were about to use different exercise machines. Through a pretest, we ensured equal difficulty of the exercise machines in question. When using an exercise machine to either pull their arms together or apart, participants responded to a similarity perception scale. As expected, moving one's arms together (apart) led to higher (lower) similarity perception. Next, we created videos of alleged Tai Chi exercises, in which participants either

moved their hands together or apart. We pretested these videos and found that indeed moving their hands together (apart) prompted participants to focus on similarities (dissimilarities). In a subsequent study, participants learned and practiced these exercises and then worked on a social comparison task. Participants compared themselves to an either physically strong or weak looking person and then assessed their own physical strength. After having practiced the similarity exercise of moving their arms together, participants assimilated judgments of their own strength towards the comparison standard. However, after having practiced the dissimilarity exercise, they contrasted away from the standard. Our results demonstrate that physical body movements activate psychological processes of similarity perception and, thereby, social comparison consequences. This finding is in line with other studies on spatial metaphors and also with findings that show contextual influences on social and self evaluation.

Michela SUMMA, Heidelberg (Germany)

Body memory and the traumatized self. A matter of coherence?

In current research concerning the impact of emotions and affects on memory, particular attention is devoted to the study of traumatic memories. Witnessed or personally experienced traumatic events are considered as threats for the integrity of the individual, since they mostly cannot be integrated within a coherent self-image. As the pivotal studies by Pierre Janet show, this leads to dissociating mechanisms: not being part of an integrated and supposedly consistent self-concept, traumatic memories do nevertheless emerge, for instance, in stressful situations. Mostly, the emergence of such memories is accompanied by violent, overwhelming emotions.

In current research in cognitive psychology, the phenomenon of dissociation in traumatic patients is considered in connection with so-called intrusive trauma memories. The latter, however, are considered not only as a cause of impairment, but also as fulfilling potentially adaptive functions. Such functions include aiding emotional processing, preventing future harm and protecting the coherence of the self. Being primarily oriented toward cognitive models of self-experience, however, these studies mostly leave the question as to the relationship between traumatic memories and the lived body unanswered. Accordingly, the very characterization of the traumatized self remains in need of further development.

In my paper, I will discuss some of the studies concerning traumatic memories from a phenomenological perspective. Drawing from the phenomenology of temporality and the lived body, I will argue that traumata and traumatic memories allow us to shed light on the vulnerability of the bodily subject.

Consistently, the very understanding of “self-coherence” will be questioned and refined. Rather than insisting on “coherence” as a supposedly given self-structure, we will understand the process of coping with emerging traumatic body memories as a dynamic response of the bodily self to the affordances of the situation. The self, thus, shall not be taken as a pre-given and enclosed entity, rather as being dynamically constituted in a constant process of embodied and situated negotiation.

Sascha TOPOLINSKI, Würzburg (Germany)

The embodied heart of preference and memory

Embodiment research has shown that sensorimotor processes, such as meaning-related covert enactment, contribute to higher cognition that has been conceived before as being amodal and independent from motor-perceptual representations. Concerning the causal role of these sensorimotor processes for cognition, it is mostly found that they contribute to, but not ultimately constitute cognitive acts. For instance, interfering with meaning-related enactment does not prevent, but only impair semantic processing of that meaning, such as, for instance, executing counter-clockwise manual rotations while reading a sentence implying a clockwise movement ("She turns up the volume") does not prevent but only slightly delay sentence comprehension.

Further advancing this thrust of embodiment, current research steers into the inner causal structure of the emergence of preference and memory and shows that in this realm sensorimotor processes do not only contribute to, but actually form the causal basis of attitudes and remembering. Across several experimental lines, it is shown that the fluency of covert stimulus-related motor-simulations (such as covert pronouncing simulations when reading a word silently) mediate implicit memory such as the mere exposure effect or word fragment completion, the explicit memory form of feeling familiarity, and aesthetic appreciation. It is shown that if these stimulus-related simulations are interfered with, the deriving psychological phenomena (e.g., implicit memory) are substantially reduced or even completely neutralized. For instance, chewing gum during reading words completely neutralizes mere exposure effects.

Wolfgang TSCHACHER & Fabian RAMSEYER, Bern (Switzerland)

Embodied systems of two

In an initial study, we recently quantified nonverbal synchrony – the coordination of two people's movement – in a random sample of same-sex psychotherapy dyads. We contrasted synchrony in these dyads with a control condition and assessed its association with psychotherapy outcome. Using an automated objective video-analysis algorithm (Motion Energy Analysis, MEA), we calculated nonverbal synchrony of 104 patients treated at an outpatient psychotherapy clinic. The sample was randomly drawn from an archive of routinely videotaped psychotherapies. We found that nonverbal synchrony was higher in genuine interactions than in pseudo-interactions of the control condition generated by a specifically designed shuffling procedure. Furthermore, nonverbal synchrony was associated with social interaction variables as well as with therapy outcome: It was increased in sessions manifesting high relationship quality, and in patients experiencing high self-efficacy. Higher nonverbal synchrony characterized psychotherapies with higher symptom reduction. The results suggested that nonverbal synchrony embodies the quality of the relationship and further variables of therapy process.

Using MEA in a second, experimental study, we replicated several of the findings in non-therapeutic, "normal" dyads. 84 dyads were formed of individuals who did not know each other previously. They were instructed to discuss topics of general interest. In such themed conversations, the occurrence of synchrony was again corroborated by tests against shuffled pseudo-interactions. Synchrony was positively correlated with the content of the conversations and with the individuals' positive affect.

Further steps will include the closer investigation of temporal processes. For instance, we computed the duration of synchronization by assessing how long the dyads' synchronies exceeded the synchrony of pseudo-interactions. In this way, a quantification of a dyad's embodied presence (a dyadic "Now") may be defined and investigated.

Jiří WACKERMANN, Freiburg (Germany)

Perceiving is acting: Subjective time and models of inner time representation

My talk is intended to be a critical reflexion of our understanding of 'subjective time', not an argument pro or contra a specific model. First, I will recapitulate the basic ideas and assumptions underlying the 'klepsydraic' model of inner time representation, and I will emphasize its non-computational character. Then I will critically examine the idea of 'internal clock' dominating most of the current work on time perception and timing, and focus on the problem of

'modeling realism'. Finally, I will argue for the notion of time as being created by the organism's activity, in contrast to the common notion of time being 'perceived' or 'internally represented' in the neural substrate.

Nicola ZIPPEL, Rome (Italy)

Embodiment and dreaming. A phenomenological reading of empirical findings

The dream state represents a very peculiar condition of bodily experience: while during the NREM sleep one experiences a muscular-skeletal relaxation, in the REM sleep one lives the paralysis of her own body, to which a vivid mental process triggered by the ponto-geniculo-occipital (PGO) waves corresponds. During this phase of the sleep, dreaming takes the shape of a bizarre narration that, despite its incongruity, uncertainty, and discontinuity, inserts itself in the network of neural connections already in place, and for this reason it is another way of performing personal emotions, thoughts, and associations. Precisely by the inability to move, the embodied Ego experiences such a rich mental performance as an alienating dimension of herself, since the body becomes an inactive though often invoked part of the dream (e.g. one tries to escape or to jump in dream without succeeding in doing it). On the other hand, being the motionless counterpart of the frantic activity of the dreaming mind, the body, as it were, is outside the dream events.

This complex neurophysiological situation is extremely interesting from a phenomenological perspective, for it offers the opportunity to consider the condition of the embodied subject as regards the unaware mental process of dreaming. The paper aims at phenomenologically understanding the features of the relationship between the dreaming self and her own body in the light of the most significant empirical dream research findings. In order to do this, the analysis will be based on some marks of dreaming state highlighted by both phenomenology and neuroscience such as engrossedness, entanglement, Ego-splitting, transformed relation between the subject and her space/time.

POSTER SESSIONS

Monday October 1st, 15.30 – 16.30

Session A (ÜR B)

A1. Katharina **ROHDE**, Niko F. TROJE, & Johannes MICHALAK: Gait feedback and memory bias

A2. Sanneke **DE HAAN**: An enactive approach to psychiatry

A3. Elina **AHO**: Corporealities: Action, trace, gesture

A4. Claudia **BÖGER**: Motor learning in groups - a case of intersubjectivity

A5. Elli K. **KITA**, Angie M. PALEOLOGOU, Vassiliki PAPADIOTI, & Kostas TZANAS: Inner and outer engendered space: A research by the use of the "Relational-Body Grid"

A6. Juliane **APPEL-OPPER**: Relational aspects of embodiment in psychotherapy

A7. Ulla **GÖDDE-ICKING**: Embodiment techniques for everyday life: "Vital Energy in Balance"

Session B (Foyer)

B1. Sander L. **KOOLE** & Mandy Tjew A. SIN: Of terror and teddy bears: (Simulated) interpersonal touch facilitates coping with existential concerns among individuals with low self-esteem

B2. Rémi L. **CAPA**, Yvonne DELAVOYE-TURELL, Laurent MADELAIN, & Anne GIERSCH: Eye movements-action induced modulation of perception

B3. Thomas **BLIESENER**: Interacting in company of a mirror – embodiment under Skype

B4. Sabine **KOCH**: Psychology of the embrace

B5. Sabine **KOCH**: Body memory, movement and meaning

B6. Johanna **SÄNGER**, Viktor MÜLLER, & Ulman LINDENBERGER: Intra- and interbrain synchronization and hyperbrain networks in guitar duets

B7. Iris K. **SCHNEIDER**: One way and the other: The bi-directional relationship between ambivalence and body movement

POSTER – ABSTRACTS

(in alphabetical order)

Elina AHO, Glasgow (UK)

Corporealities: Action, trace, gesture

An artistic research project on embodiment and the physicality of drawing and painting, currently undertaken at postgraduate level at the Glasgow School of Art, is presented here. The approach presented emphasizes the process nature of artistic work, the lived experience of the body, and the themes of body image, feminine body, staged bodies, performativity, movement, and sensory corporeality. Central to the approach is embodied self-awareness.
The importance of the artist´s own body as a tool in exploring the questions of corporeality is highlighted in the research process. Research methods such as developing special tools/body-extensions for drawing are presented. The approach presented here is influenced by interdisciplinary theoretical frame-works from fine art practices (plastic arts, dance/physical theatre, live art/ performance) to psychology of sensation and perception, and psychoanalytic concepts. The working method presented here derives from oscillation between intuitive and rational. Working from the 'hysteric position' (Lacan), from 'not knowing', from one´s own body is also presented as a method. Drawing as language resembles the corporeal language, with its immediacy and physicality of the perception, creating raw, instant, direct energy.

Juliane APPEL-OPPER, Berlin (Germany)

Relational aspects of embodiment in psychotherapy

The relational turn in psychotherapy has widened the perspective to focus on two bodies relating to and regulating each other. With an awareness of a client's bodily sensations the therapist can sense the stories the client's body is broadcasting. The way a client looks, sits, breathes and gestures tells the stories of their pre-verbal implicit relational experiences. However, this attunement is not intraphysical, but interphysical. The therapist also physically reacts for example with tiny movements. This ongoing subsymbolic body-to-body-communication sends messages in both directions.
Based on her experiences as psychotherapist and trainer, Julianne likes to show how this rich and often unnoticed communication can be brought into awareness in the therapeutic space. The therapist's bodily attunement to the language of the client's body together with an awareness of own physical

resonances opens possibilities for embodied interventions and experiments. The various clinical vignettes will demonstrate how these are developed, verbally announced and then mindfully in a step-by-step process bridged to the client's body. Embodied interventions are for example therapist's self touch or tiny movements presented to the client's body, thus acknowledging and validating the broadcasted messages of the client's body. Julianne's long clinical experience has convinced her that such a way of working body-oriented (not physically touching) is positively transformative.

Thomas BLIESENER, Duisburg-Essen (Germany)

Interacting in company of a mirror – embodiment under Skype

A connecting piece between verbal expression and embodiment, between consciousness and body awareness, is the mirror. It serves as common allegory of recursiveness as well as an auxiliary means for accomplishing complex actions. With the spread of audiovisual telecommunication, a kind of mirror became pervasive in everyday interactions: the webcam preview or „control image“. Its original purpose was to enable users to align to the camera angle, but de facto it has more functions, depending on camera object and spatial reference. This was analyzed in 200 hours of recorded Skype sessions of children in a ward for bone marrow transplantation.

1. Local reference, not through connection.

1.1. As far as the environment in the background is a camera object, the control image functions like a rear mirror. The user’s visual surveillance is extended to 360°. Example: while running Skype, a mother admonishes a child in her rear to mind the lamp.

1.2. As for body and face, camera preview functions like a traditional front mirror for reassurance of appearance, imitation of others, rehearsal; additionally for checks of image quality. Example: in the preview, a patient examines views of herself.

2. Remote reference through video connection.

2.1. Users can share their environment by hiding/revealing or pointing to it - monitored in the preview. Example: a patient sophisticatedly focuses on a background object by fingers between object and camera.

2.2. Users often play with concealing/revealing their remote appearance of body/ face, by grimacing, clowning, zooming and video effects - monitored in the preview. Example: spoof of video tests.

Control images are utilized as a resource for embodied dramatization compensating technologically induced restrictions.

Claudia BÖGER, München (Germany)

Motor learning in groups - a case of intersubjectivity

Experienced situations and actions are bodily grounded (Fuchs, 2008; Koch, 2011) and generate a structure that enables a current action. Not only everyday interactions but also actions of sport and repeated actions are reflected in the experiential structures of embodiment. If we consider this fact in the context of sports practice, the main consequence is that the athletes involved in movement not only refer to embodied processes but also generate new structures in movement.

But in which way is body memory involved when learning a movement? Semantic meaning generated from repeated patterns of bodily activity play a crucial role for the generation of action-guiding structures.

On the one hand, this semantic meaning can be made visible when using metaphors (Panhofer, 2011); on the other hand, metaphors in metaphorical instructions generate meaning in the acting person (Böger, 2012). There are significant links between movement and language (in the sense of representation of meaning); this is crucial not only in respect to the roots of meaning but also in respect to the ways how humans use and understand language (Gibbs, 2006, Glenberg & Kaschak, 2002). Semantic patterns underlying metaphorical instruction as dynamic invariants change action. This enables us to conclude that language and movement have joint roots (Skilters & Böger, 2008).

Related questions are: to what extent is meaning (as action-guiding) recognizable within groups and can be further differentiated (Barsalou, 2003)? Do the semantic patterns involved in movement execution by an individual change if executed in groups? Is development of a group language necessary or supportive of movement learning in sports?

Rémi L. CAPA*, Yvonne DELAVOYE-TURELL, Laurent MADELAIN**, & Anne GIERSCH*,** *Strasbourg, **Lille (France)

Eye movements-action induced modulation of perception

Motor learning has a direct and highly selective influence on visual action recognition that is not mediated by visual learning (Calvo et al., 2005; Casile & Giese, 2006; Catmur et al., 2007; Cross et al., 2006). However, little is known about the influence of motor experience of eye movements on perception and the question of whether a motor practice of eye movements could increase performance in a perceptual task is still open. To test this issue, we first measured performance of two groups of participants who were required to identify two identical figures embedded in a global structure made of

connectors, which linked figures by pairs. The two identical figures belonged to either the same perceptual group (linked by a connector) or two different pairs (not linked by a connector). Just after this perceptual task, one group received a brief visuo-motor practice with the task to fixate each individual figure of the stimuli, from the left to the right following a rhythmic beat. The free-visual scanning group was simply required to look at the stimuli. Finally, the two groups performed the perceptual task again. Results showed that in this second perceptual task, participants of the visuo-motor practice group obtained better performance than the free visual group for unconnected pairs during several minutes, suggesting that sequential movements of the eye scan help to structure visual elements. These results suggest that the deficit reported in schizophrenia (van Assche & Giersch, 2011) during perceptual task might be regulated by a motor practice of eye movements.

Sanneke DE HAAN, Amsterdam (Netherlands)

An Enactive Approach to Psychiatry

Psychiatrists face a split situation. On the one hand, psychiatrists are immersed in the idea that mental illnesses are, eventually, brain diseases. On the other hand, they are confronted with real persons with various problems. Caught between 'brain-chauvinism' and diagnostic manuals, the psychiatrist tries to alleviate the suffering of her patients.

An adequate theoretical model of psychiatric disorders is not only indispensable for guiding research, but it is also useful as a means for guiding practical decisions of treatment while at the same time providing an explanation and justification of these decisions. However, whereas the psychiatric practice is both complex and diverse, theories on psychiatry only come in three basic flavours (reductionist-materialist, dualist, integrative) – each of which has severe limitations. Either these models leave out important dimensions or they lack internal coherence.

The problem with these models is that the broadness of their scope comes at the cost of a decrease in coherency. What we would need is a model that is 1) coherent without being reductionist; and 2) encompassing without being vague. To be valuable to the psychiatric practice, a model would have to take into account at least the biological, experiential, social-cultural, and existential dimensions of psychiatric disorders. Moreover, it should be internally coherent; so not just stack aspects or dimensions, but explain how these four dimensions relate.

I will argue that enactivist theories provide a good foundation to develop such a comprehensive model. Enactivism has been developed as an alternative to the narrow approach to cognition and cognitive neuroscience: it puts the brain

back in the body and the body back in the social environment. Instead of looking at static conditions or aspects, enactivist theories have a strong focus on the dynamic interactions between dimensions, drawing on dynamical systems theory. Regarding the mind-body problem, enactivists advocate the so-called 'life-mind continuity thesis': life itself already entails a basic form of cognition, and cognition is fundamentally tied to its biological basis. It is argued that the organisation of matter can give rise to qualitatively new properties, which allows for a non-reductionist form of naturalism. Although this has not yet been developed properly, the enactive framework could be augmented by adding the existential dimension to the different forms of feedback loops.

Applied to psychiatry, the enactive framework encourages a thoroughly interactional approach to psychiatric disorders. This will show that many of the conceptual difficulties of theories on psychiatry result from the tendency to isolate and reify aspects that are better understood as moments in an interactional process. On the one hand, an enactive approach allows us to model the four different dimensions and their connections, thus providing a model that is both more encompassing and more coherent than currently available models. On the other hand, the enactive framework encourages a fundamentally interactional take on psychopathology as well. Psychiatric disorders can be regarded as disturbances of one or several forms of relatedness, on one or several qualities of this relation. Both from a phenomenological and from a clinical perspective, such an enactive account of psychopathology has the potential to provide more insights than current diagnostic manuals.

Ulla GÖDDE-ICKING, Nußloch (Germany)

Embodiment techniques for everyday life: "Vital Energy in Balance"

I will present my concept for improving vitality and joy of living by psychomotor self-regulation of mood, thoughts and body in individual everyday situations.

This psychomotor concept for embodiment is based on neuroscientific insights in medicine and psychology combined with pedagogy and sports science. Theoretical background of this concept is the energy regulation model of the Traditional Chinese Medicine, which can be used individually for personal self-management in daily life in combination with hypno-systemic methods.

In practice, the concept is a unique combination of physical and mental methods – the essence of various techniques from eastern and western culture. All these focus on the interacting processes of perception, experience, thinking and behavior.

Leveraging the natural body intelligence a combination of basic physical patterns like breathing, muscle tone, body coordination in static and dynamic situations with specific, energy-regulating metaphors, words and sentences is applied. By such practice, clients can deliberately extend and self-control individual postural and movement patterns as well as mood and thought patterns that can be related to situations and/or personality. Clients can directly experience positive effects on all related micro- and macro-systems and thus facilitate sustaining changes.
Under the motto “Less pressure – more energy” the concept enables offerings like individual and group trainings targeting energy balance. Typical contents are: Body-sensitization and sensory awareness, handling of own and external energies, body language and communication.

Elli K. KITA*, Angie M. PALEOLOGOU*, Vassiliki PAPADIOTI*, & Kostas TZANAS,** *Ioannina, **Thessaloniki (Greece)

Inner and outer engendered space: A research by the use of the “Relational-Body Grid”

This work presents partial results of a PhD thesis in progress. Our objective is to explore the subjective space, created by interactions between inner body representations (body-images) of the self and those of the persons with whom he/she relates. A research with healthy young adults has been conducted (N=317, Men= 80, Women =237, average age= 21). Research plan focuses on the body-images of Self (S), Mother (M), Father (F) and Ideal Self (IS) and questions their interrelation as “core representational structure” of the person’s own body-image having the potential to influence his/her behaviors on different levels.
Spatial dimensions and dynamic variations of the (S-M-F-IS) structure are both examined in the context of emotional relations between the person and his/her parents, by the use of our “Relational-Body Grid”. Eight relational-body aspects (ex. Gaze, Embrace), related in turn to (S), (M), (F), (IS) generate 32 elements as “my own voice”, “my mother’s gaze”, etc. Participants were asked to rate each one, in terms of 14 construct dimensions such as “very tense….very relaxed” (five-point scale). They were also asked, by an independent question, to estimate the emotional closeness/farness of (S-M), (S-F) and (M-F) on a seven-point scale.
Statistical processing through PCA and Euclidian Distances Estimation reveals male and female patterns, in terms of space organization within the (S-M-F-IS) structure (extent of distances between elements, configurations, similarities - differences, construct intensity). In contrast, variability of the above spatial dimensions related to emotional distances (control of correlations) reveals

common patterns, for both sexes, in terms of dynamic relations between body representations and emotional environment.
We discuss the consensus observed between sex differences in body-image's inner-space organization (results of this study) with sex differences in outer-space perception (external references). The emphasis is on relating methodological steps and corresponding areas of consensus, indicating directions that may reveal interconnections between perceptual phenomena and interpersonal relations, or, between mind and body. Implications for DMT practice and research are also discussed.

Sabine KOCH, Heidelberg (Germany)

Psychology of the Embrace

In this study, we experimentally investigated the communicative meaning of body rhythms, particularly of signals of separation, as defined and hypothesized in the Kestenberg Movement Profile (KMP; Kestenberg, 1995). 61 persons were either embraced in a round-round-sharp sequence of body rhythms (condition 1) or in a round-sharp-round sequence of body rhythms (condition 2) by a confederate while they were holding a handkerchief. They were instructed to let go off the handkerchief when they perceived that the person embracing them wanted to terminate the embrace. Results suggest that participants were sensitive to these rhythm changes with significantly more persons letting go of the handkerchief in the according sharp rhythm phase in each condition. The study validates KMP theory and opens important ways to investigate implicit bodily communication via the haptic channel.

Sabine KOCH, Heidelberg (Germany)

Body memory, movement and meaning

Drawing on the theory of body memory by Fuchs (2012), we investigated possibilities to operationalize body memory for further testing of the theory. In a first step, we conducted interviews on body memory with expert and lay movers, which basically yielded the six categories put forth by Fuchs (Koch, 2012): procedural, situational, incorporative, intercorporeal, pain and traumatic body memory. In addition, we conducted two experiments with the aim to investigate body memory as an outcome measure. We focused on the effects of strong vs. light movement on affect and memory with 66 expert movers (study 1) and 90 lay movers (study 2). Participants were asked to either move in a strong or a light manner for 3 minutes (with an additional control group of participants listening to the same instructions but merely meditating

for 3 minutes in study 2). Results suggest that participants in the light condition reported more positive affect (on the brief KMP-affect-scale; Koch & Müller, 2008) and more life-event memories of positive valence than participants in the strong condition.
Study 3 investigated spatial bias, i.e. the fact that different movement directions are connected to different kinaesthetic sensations (as building blocks for different concepts, cf. Lakoff & Johnson, 1999). The method used was to investigate the combined effects of directional movement and "directional" words on reaction times and memory with a colour Stroop-task. Results suggest that body memory plays a role in motor congruency effects as well as in body feedback effects.

Sander L. KOOLE* & Mandy Tjew A. SIN**, *Amsterdam, **Leiden (Netherlands)

Of terror and teddy bears: (Simulated) interpersonal touch facilitates coping with existential concerns among individuals with low self-esteem

The human awareness of the finitude of existence poses a daunting psychological problem, because of its potential for arousing overwhelming anxiety. Prior work has suggested that people primarily use symbolic meaning strictures to manage existential angst (Greenberg, Solomon, & Pyszynski, 1997). However, not everyone may be able to sustain such symbolic meanings, and therefore people may look for alternative ways of managing existential concerns. In the present research, we examined whether people may deal with existential concerns through brief experiences of soft interpersonal touch. Because soft touch may be comforting even when it has little symbolic meaning, we reasoned that it would be especially helpful to individuals with low self-esteem (who have difficulties in sustaining a meaningful existence). In line with this, Study 1 showed that individuals with low self-esteem displayed less death anxiety when they were briefly touched on the shoulder by a female experimenter. Study 2 found that individuals with low self-esteem felt more connected to close others when they were briefly touched on their shoulder, particularly after they had been reminded of death. Studies 3 and 4 found that even simulated interpersonal touch may reduce existential concerns among individuals with low self-esteem. In Study 3, individuals with low self-esteem displayed reduced defensive reactions (i.e., prejudice towards Muslims) to death reminders when they could touch (rather than merely look at) a teddy bear. Finally, Study 4 found that death reminders led individuals with low self-esteem to offer more money for a teddy bear, particularly when they had not been able to touch the teddy bear. Throughout Studies 1-4, individuals with high self-esteem were less affected by (simulated) interpersonal touch. Taken

together, these findings suggest that embodied touch experiences may have an important existential significance, particularly among individuals who are struggling to find meaning in life.

Katharina ROHDE*, Niko F. TROJE, & Johannes MICHALAK***, *Hildesheim (Germany), **Kingston (Canada)

Gait feedback and memory bias

Embodiment theories suggest a reciprocal relationship between bodily expression and the way in which emotions are processed (Niedenthal, 2007). Investigations focusing on the role of the body in the area of clinical psychology are rare. A central assumption of the embodiment framework is that changes in the motoric system affect emotional (e.g., depressive) processing. In the present research, we employed online feedback on the participants' gait characteristics in a sample of 39 students by using a motion capture technology (Troje, 2008, 2002). Participants received gait feedback based on a discriminant function (Michalak et al., 2009), which changed their gait in either a healthier or a more depressive manner. The Self-Referent Encoding Task (SRET; Ramel, Golding, Eyler, Brown, Gotlib, &McQuaid, 2007) was implemented in order to measure the effects of gait feedback on the memory of emotional material. While participants received online gait feedback, a list with 40 different positive and negative words was presented. After eight minutes of continued gait feedback the participants were asked to recall as many words as possible. Participants who received depressive gait feedback recalled significant more negative words in comparison to participants who received happy gait feedback. Moreover, we could show that the degree of the changes in gait correlated highly (r = .48) with the memory bias: The more participants changed their gait towards a depressive gait, the more negative words were recalled. The results of this study suggest that memory bias, an important maintaining factor in depressive disorders, can be changes by alterations in motoric patterns.

Johanna SÄNGER, Viktor MÜLLER, & Ulman LINDENBERGER, Berlin (Germany)

Intra- and interbrain synchronization and hyperbrain networks in guitar duets

Synchronous oscillatory brain activity has been associated with interpersonally coordinated behavior (Astolfi et al., 2010; Cui, Bryant & Reiss, 2011; Dumas et al., 2010; Lindenberger et al., 2009; Yun et al., 2008). To further test and explore this finding, the brain signals from the brains of each of 12 guitar duets repeatedly playing a modified Rondo in two voices by C. G. Scheidler were

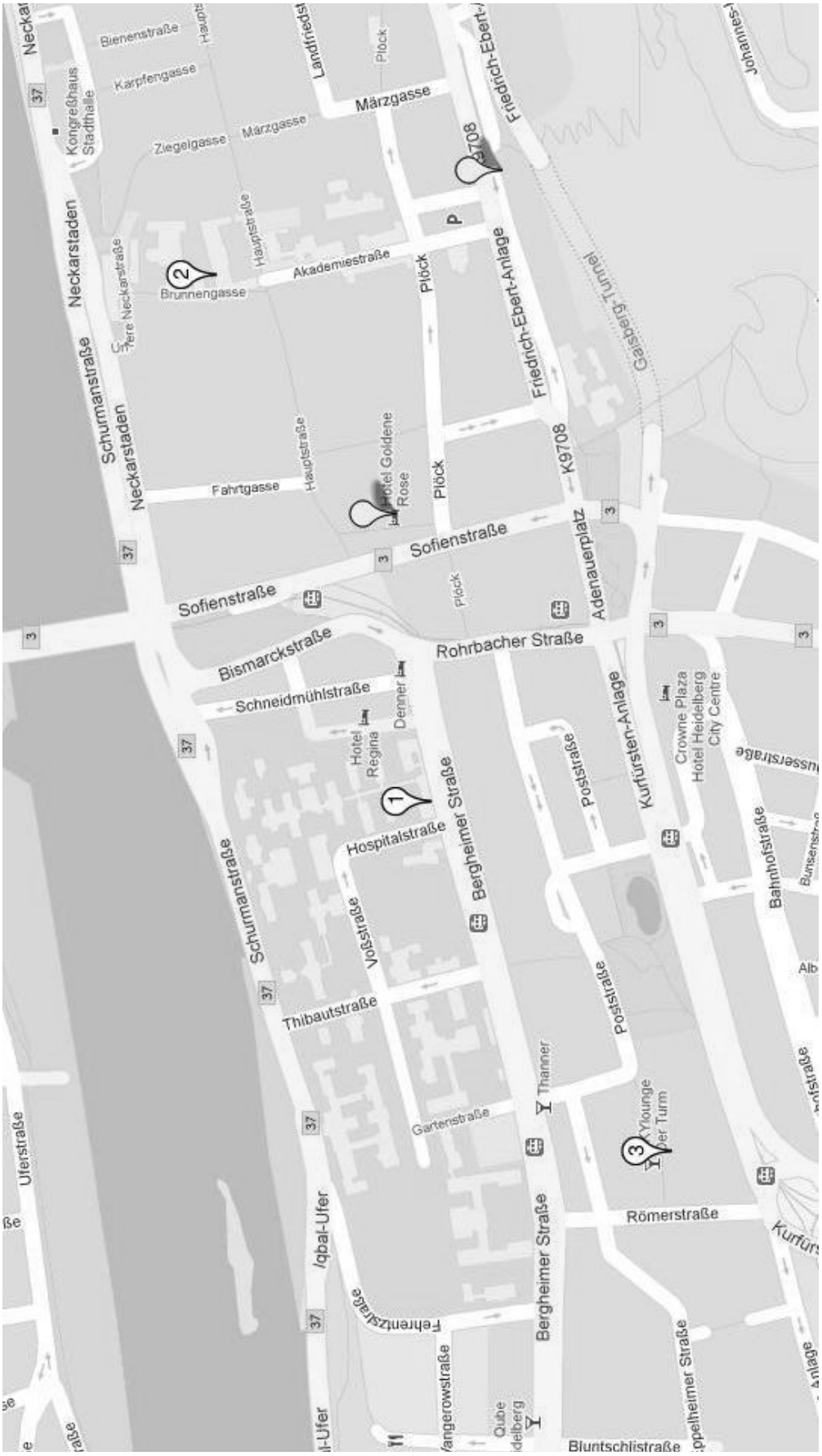
recorded in an EEG-hyperscanning study. Indicators of within-brain and between-brain phase coherence were obtained from complex time-frequency signals based on the Gabor transform. Highest coherence values were found in the delta (1-4 Hz) and theta (4-8 Hz) frequency bands. A graph analytical evaluation of these phase coherence values revealed that (a) within- and between-brain connection strengths were enhanced at frontal and central electrodes during periods that put particularly high demands on musical coordination, (b) within-brain and hyperbrain networks showed small-worldness properties that were enhanced during musical coordination periods, (c) community structures included so called hyperbrain modules, i.e. groups of strongly interconnected electrodes from both brains (hyperbrain modules). Accordingly, non-random hyperbrain networks built up by within- and between brain phase coherence are suggested as one neural mechanism of interpersonal action coordination. As additional preliminary results, patterns of directed phase coupling associated with the different musical roles of leader and follower, as well as single-trial coupling analyses relating the degree of neural synchronization to the quality of behavioral synchronization will be presented.

Iris K. SCHNEIDER, Amsterdam (Netherlands)

One way and the other: The bi-directional relationship between ambivalence and body movement

So far, research exploring the relationship between evaluations and body movements has focused on one-sided evaluations. People regularly encounter objects or situations, however, about which they simultaneously hold both positive and negative evaluations, resulting in the experience of ambivalence. In language, these experiences are often expressed in a physical manner, such as being “torn” or “wavering” between two sides of an issue. Building on this, we explored the relationship between the experience of ambivalence and side-to-side movement (or, wavering) in two studies. In Study 1 we used a WII Balance Board™ to measure movement and show that when people experience ambivalence they move from side to side more than people who do not experience ambivalence. In Study 2 we induced body movement in order explore the reverse relationship and reveal that when people are made to move from side to side, experiences of ambivalence are enhanced.

LOCATION PLAN: HEIDELBERG – BERGHEIM AND OLD CITY



1 = Institute of Medical Psychology, Bergheimer Str. 20: Hall (Ground floor)

2 = Department of Psychology, Hauptstraße 47-51: **A102, HS I & II, ÜR B, Foyer**

3 = Sky Lounge “Der Turm”, Alte Glockengießerei 9