CO-ALIGN CONFERENCE 2023

THE POSITIVE AND NEGATIVE EFFECTS OF INTERPERSONAL ALIGNMENT

May 16th, 2023

Venue: Faculty of Behavioral and Social Sciences

Leiden University

Wassernaarseweg 52, 2333AK Leiden, The Netherlands

This event is sponsored by the Leiden University Fund (LUF), the Cognitive Psychology Unit of Leiden University and Artinis Medical Systems.

Contents

Introduction

Welcome to the first edition of the Co-Align Conference. This meeting takes place at the Faculty of Behavioral and Social Sciences of Leiden University. Studies on interpersonal alignment have become a “hot” topic in research across multiple disciplines in recent years. We hope that this day will be a great opportunity to discuss some of the latest developments in the field and inspire avenues for future research.

Throughout the day we have an exciting mix of keynote lectures, flash talks and poster presentations. As a small and specialized conference, we aim to create an informal environment to exchange and advance ideas. Therefore, we do not have any special requirements regarding poster or presentation formats. Research proposals are also very welcome.

We are excited to welcome a diverse audience from researchers in the Netherlands and abroad and are looking forward to seeing everyone in person in Leiden. Do not hesitate to reach out to us should you have any questions.

Kind Regards,

Christopher Riddell & Julia Folz (Organizing Committee Co-Align 2023)

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Keynote Speakers

Antonia Hamilton: Synchrony in the brain and the real world

People often synchronise during spontaneous interactions and this may be related to social bonding or social coordination. This talk will review research on neural mechanisms of interpersonal synchrony, presenting a mutual prediction model which has the potential to account for a wide range of findings.

In particular, fNIRS studies show that people engaged in a face-to-face task show coordinated brain activation patterns which are consistent with the mutual prediction model. Building on the insight that mutual prediction depends on motoric social interactions, the second part of the talk will consider how interaction can best be measured in real-world contexts outside the lab. Using wearable sensors, we have collected motion data from autistic and neurotypical children in their classrooms to quantify their engagement with teachers and with each other. These methods have promise for taking synchrony research out of the lab and into the real world.

Leonhard Schilbach

Social neuroscience studies the neurobiology of how people make sense of people. Due to conceptual and methodological limitations, the field has only more recently begun to study social interaction rather

than social observation, which has become known as the development of a "second-person neuroscience" or an "interactive turn" in social neuroscience. These developments have helped to elucidate the behavioural and neural mechanisms of social interactions. Findings to date suggest that the neural mechanisms supporting social interaction differ from those involved in social observation and highlight a role of the so- called 'mentalizing network' as important in this distinction. Taking social interaction seriously may also be particularly important for the advancement of the scientific study of different psychiatric conditions, which are ubiquitously characterized by social impairments.

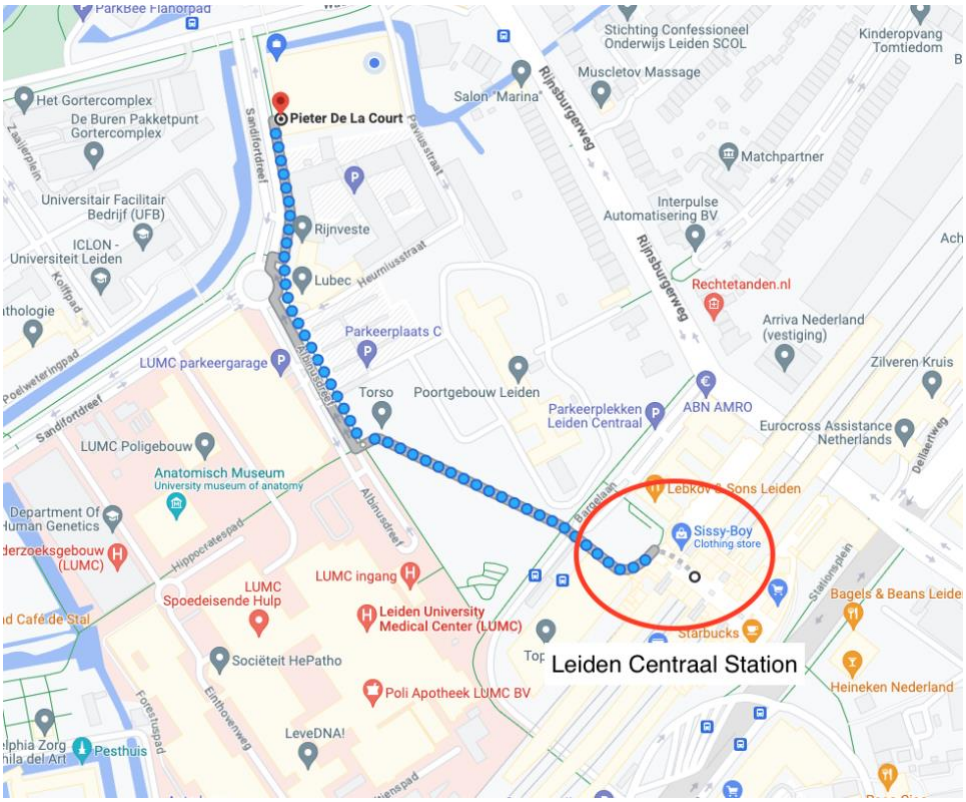
Victoria Leong

Victoria Leong is a developmental cognitive neuroscientist who has pioneered the use of dyadic-EEG to

study parent-infant neural synchrony during naturalistic social interactions. Victoria Leong is a developmental cognitive neuroscientist who has pioneered the use of dyadic-EEG to study parent-infant neural synchrony during naturalistic social interactions.

Conference Location and Traveling

The conference will be held at the Pieter de la Court Building at the Leiden University Faculty of Social Sciences, Wassenaarseweg 52, 2333AK, Leiden, the Netherlands. The building is a short (6 minute) walk from Leiden Central Station.



Leiden itself is easily accessible via train from Amsterdam Schiphol Airport, as well as Amsterdam Central Station (with trains leaving every 10 minutes).

Registration, coffee breaks and the poster session will be held in the main hall of the building, whereas keynotes, flash talks and panel discussions will be held in lecture hall SA49.

Program Overview

9:00: Registration (Main Hall)

9:30: Opening remarks (SA49)

9:45: Keynote 1: Antonia Hamilton (SA49)

10:45: Coffee Break (Main Hall)

11:15: Flash talks 1 (SA49)

11:45: Keynote 2: Leonhard Schilbach (SA49)

12:45: Lunch (Main Hall)

13:45: Poster session + Coffee Break

15:15: Keynote 3: Victoria Leong (SA49)

16:15: Flash talks 2 (SA49)

16:45: Panel Discussion (SA49)

17:15: Reception (Main Hall)

18:00: End

Flash Talks – Abstracts

Approximately 5 minutes per talk

Session 1 – When faces meet: Eye contact and mimicry

Golden gazes: Gaze direction and emotional context promote prosocial behavior by increasing attributions of empathy and perspective-taking

Leticia Micheli, Leiden University - Social, Economic and Organisational Psychology

Prosocial behavior is fundamental to societies. But when and towards whom do humans act generously? We investigate the impact of a conversation partner's gaze direction and the emotional context on (i) perceptions of their social cognition skills and (ii) prosocial decisions towards them. In three experiments (two preregistered, N = 486), participants witnessed pre-recorded video conversations between a listener (visible) and a speaker (audible, not visible). The listener either established eye contact, averted gaze or showed a mixed gaze pattern (gaze direction) while the speaker told a neutral or negatively-valenced autobiographic episode (emotional context). Participants rated the listener's empathy and perspective-taking after each video and played the Trust Game (study 1) or the Dictator Game (study 2) with the listener. Replicating previous findings, occasional gaze avoidance, especially during negative narrations, increased attributions of social understanding to the listener. Critically, mediation analyses revealed that listeners perceived as empathic and taking perspective were ultimately treated with more trust and generosity in strategic and non-strategic economic games, suggesting that social signals and contextual cues can serve as an indication of another's reputation, thereby promoting indirect reciprocity. Lastly, in study 3, we show that emotional context, but not listeners' gaze behavior, promoted the spread of generosity towards anonymous, previously unobserved individuals in a Dictator Game, driven by social cognition skills attributed to the listener. We conclude that social signals and contextual cues can be important drivers of cooperation in societies via mechanisms such as indirect reciprocity and social contagion of generosity.

Mirjam Wever, Leiden University, Clinical Psychology

Background
Eye contact improves mood, facilitates connectedness, and is assumed to strengthen the parent-child bond. Adolescent depression is linked to general difficulties in social interactions, the parent-child bond included. We aim to elucidate adolescents' responses to prolonged eye contact with one's parent and how these responses are affected by adolescent depression.
Methods
While in the scanner, 59 non-depressed (HC) and 19 depressed adolescents were asked to make eye contact with their parent, an unfamiliar peer, an unfamiliar adult, and themselves using videos of prolonged (16-38s) direct and averted gaze. Adolescents' mood, feelings of connectedness, eye movements, and BOLD-responses were measured.
Results
Eye contact boosted adolescents' mood and feelings of connectedness and increased activity in inferior frontal gyrus (IFG), temporal pole and superior frontal gyrus. Unlike HCs, eye contact did not boost the mood of depressed adolescents. While HCs reported increased mood and feelings of connectedness to their parent relative to others, depressed adolescents did not. Depressed adolescents exhibited blunted activity in IFG, potentially reflecting a blunted response to the prolonged presentation of faces.
Conclusions
This study indicates that eye contact is less rewarding for depressed adolescents, particularly with parents, whereas the blunted IFG may reflect a general sense of detachment.

Kristina Nikic, University of Duisburg-Essen, Germany

Integral parts of prosocial behavior, such as trust, were found to be related to the ability to mirror emotional signals ("mimicry"). Often without being aware of it, mimicking expressions relates to how well emotions are recognized, how intense they are perceived and how much another person is trusted. While, in healthy individuals, mimicry informs social decisions and promotes social behavior, decreased contagion might explain social interaction deficits in patients with ASD. In the current project, 40 patients with ASD are being compared with matched, healthy controls. In the first two tasks, participants are presented with videos or pictures of facial expressions while mimicry patterns are assessed through facial electromyography (EMG) and autonomic arousal (pupillometry, blush and tears). Participants are asked to label the expressions, rate the intensity of the displayed emotions and indicate their confidence levels. In a third task, mimicry of an embodied virtual agent is assessed. Afterwards, an economic game is played with the avatar to measure trust and distrust. Results are not yet available due to the ongoing data collection which is expected to be completed within the next months. ASD patients are expected to show heightened physiological arousal, avoid eye contact and, as a consequence, miss out on eye signals compared to controls and mimic less. However, as autonomic mimicry is an ancient bonding mechanism, this is expected to be intact in patients and foster trust. The project primarily intends to test a new theory and disentangle the distinct components but also has applied relevance for patient care.

Session 2 – Synchrony in natural settings and its consequences

Hayley Hung, Delft University of Technology

Through my work on social and affective computing, I have been using measures of synchrony and convergence as relevant features for machine learning models of romantic and social attraction, team cohesion, and perceptions of conversation quality. These approaches have involved measuring behaviour from a smart ID badge detecting torso acceleration, vocal prosody, or visually observable movement. I would like to discuss issues related to representation and how we assign meaning to behaviours, particularly when the same metric is being used to predict multiple related but different constructs. This is important when considering the role that social and affective computing can play in progressing our understanding of important social constructs or theories, particularly if we want to understand social cognitions in out of the lab ecologically valid in the wild settings. Using 3 of my past research papers, I would like to discuss what has been successfully captured by the proposed approaches in these papers and what cannot or has not been captured.

Qili Lan, Utrecht University, Peking University

Young children develop within the context of mother-child interaction. Recent studies have shown that mother-infant interaction unfolds not only on the behavioral level but also on the physiological level, which can be measured by physiological synchrony (within-dyad dynamic temporal coordination of mother and child physiology). Higher mother-child physiological synchrony has shown associations with fewer children's behavioral problems. Yet, it is less known what factors will shape physiological synchrony. This study examined whether infant affect was associated with mother-infant physiological synchrony, with respect to the parasympathetic nervous system given its role in supporting emotion regulation. Mother-infant dyads (N = 166) completed a free-play task at 6 months. Infant negative and positive affect were observed and mother-infant ECG signals were continuously recorded during the free play. From ECG signals, parasympathetic regulation indicator (Respiratory Sinus Arrythmia; RSA) was calculated. Multilevel analysis showed that there was a significant overall mother-infant RSA synchrony such that mother RSA could positively predict infant RSA moment-by-moment. Furthermore, higher levels of infant positive affect were significantly associated with higher mother-infant RSA synchrony. No significant effect emerged for infant negative affect. Our findings indicates that infant positive emotional display is related to how dyadic physiology unfolds coordinately over time throughout an interaction and suggests that infants play an active role in interaction with their mothers.

Mother-infant Bonding in the Brain: Promoting Maternal Mental Health and High-quality Mother-infant Interactions Via a Mindfulness-based Intervention

Marion I. van den Heuvel[1], Lianne P Hulsbosch[1,2,3], Eva S Potharst[4,5], Myrthe GBM Boekhorst[2],

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2 Center of Research in Psychological and Somatic disorders (CoRPS), Department of Medical and Clinical Psychology, Tilburg University, Warandelaan 2, Tilburg, the Netherlands
3 Department of Developmental Psychology, Tilburg University, Tilburg, the Netherlands
4 UvA minds, academic outpatient (child and adolescent) treatment center of the University of Amsterdam, Amsterdam, the Netherlands
5 Research Institute of Child Development and Education, University of Amsterdam, Nieuwe Achtergracht 127, Amsterdam, the Netherlands

Introduction

Poor maternal mental health, such as heightened levels of postpartum depression, anxiety or parental stress can negatively affect the mother-infant interaction, which can lead to poorer infant developmental outcomes. The mindfulness-based intervention "Mindful with your Baby" may effectively improve maternal mental health. The current study examines the effectiveness of a group-based "Mindful with your Baby" intervention delivered via internet. It is hypothesized that the "Mindful with your Baby" intervention will reduce levels of postpartum depression, anxiety and parental stress, and improve mother-infant behavioral interaction and increase neural synchrony between mother and infant brains.

Methods

We will screen mothers (N=64) for elevated levels of postpartum depression (Edinburgh Postnatal Depression Scale (EPDS)), anxiety (anxiety subscale of the Symptom Checklist (SCL-90)) or parental stress (Parental Stress Questionnaire (PSQ)) at 8-10 weeks postpartum. Included mothers will be randomized into an intervention group or waitlist control group. The intervention group receives an 8-week group-based “Mindful with your Baby” intervention, whereas the waitlist control group receives an 8-week online “Mindful with your Baby” intervention after a waiting period of 10 weeks. Primary outcomes are improvements in EPDS, SCL-90 and PSQ scores at post-intervention and improvements in mother-infant bonding and neural synchrony, assessed with video coding in mother-infant interactions and dual-EEG, respectively. Secondary outcomes include change in mindfulness skills, self-compassion, self-reported bonding, infant temperament, mindful parenting, parenting self-efficacy, and personal goal at post-intervention.

Results and conclusions

First results are expected at the beginning of 2024.

Poster Session – Abstracts

1. Investigating stress physiology, self-regulation and co-regulation among prematurely born toddlers and their mothers

Lisa Gistelinck, Rowena Van den Broeck, Gunnar Naulaers, Maarten De Vos, Sam Wass & Bart Boets
Center for Developmental Psychiatry, KU Leuven, Belgium

While prematurely born infants generally show increasing survival chances in high-income countries, they remain at risk of poor (mental) health outcomes and neurodevelopmental disorders, such as cognitive and affective difficulties, ADHD, autism, etc., jointly referred to as the "preterm behavioural phenotype". This long-term maladaptive outcome may partly be due to the higher levels of stress and pain (e.g. skin breaking procedures) that they experienced during the vulnerable neonatal period. This may further impact the caregiver-child attachment process, which lays the foundation of future social functioning and general development. Building on the pioneering biobehavioural synchrony framework, we aim to study the development of stress regulation within its social context. We will focus on a cohort of prematurely born preschool children and their mothers. This cohort has been recruited at birth and studied until the age of 2 years, yielding a unique longitudinal database of medical, physiological, psychological and endocrinological parameters of both child and parents. At the age of five, biobehavioural synchrony (dual EEG, stress physiology, eye-tracking, mimicry and behaviour) will be assessed across multiple contexts and multiple interaction constellations (including mother-child and experimenter-child synchrony). We will focus on stress physiology measurements such as heart rate (variability), skin conductance and pupillometry. We will examine the individual arousal signals of the child and the mother, their co-fluctuation over time (i.e., synchrony), the extent to which this synchrony is determined by individual arousal levels and the extent to which this physiological synchrony relates to the quality of the behavioural and socio-affective relationship.

2. The subtle art of seduction: Mimicry of coy smiles enhances interpersonal attraction

Iliana Samara, Leiden University

Although choosing a romantic partner is one of the most important decisions of our life, the mechanisms involved in this decision remain unclear. Previous studies suggested that mimicry plays an essential role in developing social bonds, but this notion has lately been contested. To examine this further, we conducted a real-life speed-dating experiment and micro-coded the behaviors of 49 couples, 25 of whom showed mutual interest in their partner and 24 of whom did not. We coded behaviors associated with attraction, including coy smiles, eyebrow flushes, genuine smiles, and polite smiles, and examined whether these expressions and their mimicry predict attraction to a partner. As expected, we found that mimicking coy smiles predicted attraction. Interestingly, we discovered that genuine smiles were linked to decreased attraction to a partner. Our findings imply that dating success could be related to mimicking expressions that are associated with attraction.

3. Real-life dyadic eye gaze and mimicry to assess social attunement between prematurely born preschoolers and their mother

Rowena Van den Broeck, Lisa Gistelinck, dr. Bieke Bollen, prof. Sam Wass, prof. Gunnar Naelears, prof. Els Ortibus, dr. Roy Hessels and prof. Bart Boets,
Center for Developmental Psychiatry, KU Leuven, Belgium

During social contact, coordination of behavioral and biological processes between interaction partners occurs. This is referred to as biobehavioral synchrony, a process that already takes form in the earliest stages of life. Recent technological advances allow the quantification of this social attunement in real-life interactions, by simultaneously recording multiple biobehavioral signals from interacting partners and investigating how these co-fluctuate. In this project, eye tracking and facial mimicry will be used to assess possible atypical socio-emotional development of prematurely born children during live interactions with either their mother or a stranger. This cohort has been recruited at birth and is currently being studied at the age of 5 years, yielding a unique longitudinal database of medical, physiological and psychological parameters of both child and parents. Given that social deficits are part of the preterm phenotype, it might be that social attunement is affected in prematurely born children. Alterations in dyadic biobehavioral synchrony may be present as a result of atypical early raising at the Neonatal Intensive Care Unit (NICU) with more limited social and bodily interactions. Assessing gaze behaviors and facial mimicry in real-life interactions could help us understand the socio-emotional and communicative development of preterm children and possibly help identify those children at risk of psychopathology or subclinical socio-emotional difficulties. The dual interaction paradigms and their hypotheses will be presented at the poster session, since data collection is still ongoing.

4. Can oxytocin and/or sensorimotor synchronization therapy boost social attunement in autism?

*Laura Tibermont[*1,3], Stephanie Van der Donck[*1,3,4], Kaat Alaerts[2,3], Jean Steyaert[1,3], Bart Boets[1,3]*
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4 Research Foundation - Flanders (FWO), Belgium
**Shared first author*

During social interaction, emotions, thoughts and even physiological processes (including heart rate and arousal) are transmitted back and forth between the interacting partners. Paradoxically, however, previous neuro-affective research approaches investigating human interaction have focussed on examining human individuals in isolation. As social interaction is intrinsically dynamic and interactive, there is a pressing need to step away from artificial study set-ups. In the current project, we will compare the social attunement of 8-to-12-year old children with autism spectrum disorder (ASD) with that of matched neurotypical controls, using dual multimodal biobehavioral measurements in a series of real-life dyadic interaction paradigms. More specifically, we will collect dual neurophysiological and behavioral synchrony measures, including EEG responses, heart rate, skin conductance, eye-contact, pupillometry, and saliva samples for endogenous hormone analysis. Furthermore, we will investigate the effect of single-dose intranasal oxytocin administration combined with visual sensorimotor

synchronization training on this biobehavioral attunement, on sociability, and on endogenous oxytocin levels. With this innovative combined intervention approach, we aim to restore the underlying oxytocin system, enhancing dyadic attunement and reciprocity, and therefore target the core social difficulties in ASD.

5.

Noha Yassen, Radboud University

The working alliance (WA) is a core element of the client-therapist relationship, and a reliable predictor of treatment outcomes across different psychological treatments. WA has often been narrowed down to the client's self-reported perceptions which do not contribute to our understanding of the process formation of the WA. Interpersonal synchrony (IS) is the temporal coordination between people during an interaction, observed across modalities (e.g., movement and physiological). Research suggests IS to be a promising embodied marker for the procedural dynamics (i.e., moment-to-moment formation) of the WA. This deeper look into the process formation is currently needed to expand on WA's theoretical framework by including implicit and bodily processes. Despite the evidence linking IS with the WA, little is still known about how different modalities and facets of IS relate to different parts of the WA (i.e., emotional bond and collaborative set), and what drives this relation. The aim of this project is to disentangle and explain the relation between IS and the WA using a multimodal approach (i.e., measuring both movement and physiological IS).

6.

Hannah De Laet, Ghent University

Having social interaction difficulties is one of the main criteria for the diagnosis of autism. However, according to the double empathy theory, these social interaction difficulties do not only stem from the individual with autism, but are rather due to a mismatch between neurologically different interaction partners. This would mean that in addition to individuals with autism finding it difficult to interact with neurotypical individuals, neurotypical individuals also find it difficult to communicate with and interpret the behavior of individuals with autism. According to the theory, individuals with autism are also expected to find it easier to communicate with other individuals with autism. The research on this topic is however limited and mainly based on anecdotal evidence. The goal of this study is to gain insight into the experiences of a large sample of adults with autism of their communication with adults with and without autism. An online questionnaire was constructed and 415 individuals with an autism diagnosis from Belgium and the Netherlands filled out the questionnaire. The questionnaire consisted of demographic questions, 14 closed questions, in which they directly compared the communication of adults with and without autism and 6 open-ended questions where they were asked to mention a particular person with or without autism they know, and what makes interaction more difficult or easier with that person. Our findings indicate that adults with autism experience verbal communication to be easier with other adults with autism than with adults without autism.

7. Emotional Synchronization Across Socialization Contexts in Adolescence: Comparing Parent–Child and Peer Interactions

David Renjaän[1], Leentje Vervoort[1], Thao Ha[2], Fred Hasselman[1], & Roy Otten[1]
1 Behavioural Science Institute, Radboud University, Nijmegen, The Netherlands
2 Department of Psychology, Arizona State University, Tempe, AZ, United States

People spontaneously adjust their emotions with others when they interact. This temporal coupling of emotions is referred to as emotional synchrony (ES), and has been important for adaptive social development. The current study compared ES during parent–child versus peer interactions in adolescence, as this period is characterized by a shift in social relationship dynamics. We hypothesized that peer dyads would show stronger ES than parent–child dyads. A total of 612 adolescents (age 16) took part in two video-taped interaction tasks: one with a parent and one with a peer. Each task included several topic discussions to elicit both positive and negative emotions. Affect in both partners was coded in real time, yielding two timeseries per dyad. Timeseries were subjected to cross recurrence quantification analyses to obtain measures of ES, which were subsequently used in mixed-effects modeling to test the main hypothesis. Preliminary analyses using global measures of ES across each discussion suggest that both parent–child and peer dyads seem to show higher levels of ES of positive compared to negative affect. Moreover, peer dyads seem to increase in ES of positive affect when discussing a negative compared to a positive topic. Our initial findings might reflect the developmental transition adolescents go through where peers become an important social relationship. We are currently running our main analyses using dynamic measures of ES.

8.

Joyce Snijdewint, Leiden University; Social, Economic, and Organizational Psychology

Previous work has shown the role of flow in groups on performance and experience, but the physiological correlates of these relations are largely unknown. In this study we addressed the physiology of flow in a group context. We examined the relation between cardiovascular synchronization, self-reported flow, and performance in a three-person online gaming task. We included measures of Heart Rate (HR), Pre-Ejection Period (PEP), and Cardiac Output (CO) as indices of task engagement and challenge (vs. threat) motivation. Group members were identifiable (i.e., visible) or anonymous during the game. Results indicated that PEP (as a marker of task engagement) and within-group synchronization in PEP, predicted flow, and that synchronization in PEP mediated the relation between group performance and experienced flow. The anonymity vs. identifiability of group members did not play a role in these effects. These results suggest that when the force with which the heart pumps becomes more similar between group members, it predicts better group performance, higher flow and stronger group cohesion.

9. Audience-tuning effects on communicators' memory: Exploring the role of communicators' own initial target judgment

Ullrich Wagner, University of Münster

In the „saying-is-believing"(SIB) effect (Higgins & Rholes, 1978; Echterhoff et al., 2005), episodic memory retrieval of a communicator is biased in the service of shared reality creation with his/her audience. Specifically, memory of behaviors of a target person is evaluatively biased in the direction of a communication partner (audience) who allegedly likes or dislikes the target person. The extent of this memory bias (recall tuning) depends on the degree of the communicator's epistemic trust in and perceived shared reality with the audience. What remains unknown so far from all previous SIB studies is the role of the communicator's own initial judgment about the target person (judgment of the communicator, JC). The present study addresses this issue. Drawing on the "mere thinking" literature (Tesser, 1978), we aimed to consolidate participants' own initial judgment (JC) about the target by different instructions to think about the target person (with four different thinking instructions: free thinking. supporting own views during thinking, questioning own views during thinking, pro&con thinking). This consolidation should result in reduced subjective need to rely on external social sources of information (most pronounced with supportive thinking), and hence, a reduced recall tuning in comparison with a control condition without thinking. Across experimental conditions, there was a substantial recall tuning. This, however, did not differ between experimental conditions. The aim to experimentally manipulate the SIB effect might have been unsuccessful because confidence in the own judgment was generally very high and could not easily be further strengthened by additional manipulations.

10. Investigating inter-brain synchrony during (un-)successful face-to-face communication

Sara Mazzini, Max Planck Institute for Psycholinguistics, Nijmegen, the Netherlands

Human communication requires interlocutors to mutually understand each other. Previous research has suggested inter-brain synchrony as an important feature of social interaction, since it has been observed during joint attention, speech interactions and cooperative tasks. Nonetheless, it is still unknown whether inter-brain synchrony is actually related to successful face-to-face communication. Here, we use dual-EEG to study if inter-brain synchrony is modulated during episodes of successful and unsuccessful communication in clear and noisy communication settings. Dyads performed a tangram-based referential communication task with and without background noise, while both their EEG and audiovisual behavior was recorded. Other-initiated repairs were annotated in the audiovisual data and were used as indexes of unsuccessful and successful communication. More specifically, we compared inter-brain synchrony during episodes of miscommunication (repair initiations) and episodes of mutual understanding (repair solutions and acceptance phases) in the clear and the noise condition. We expect that when communication is successful, inter-brain synchrony will be stronger than when communication is unsuccessful, and we expect that these patterns will be most pronounced in the noise condition. Results are currently being analyzed and will be presented and discussed with respect to the inter-brain neural signatures underlying the process of mutual understanding in face-to-face conversation.

11. Exploring the effects of clinicians' communication

Lisa Führer, Anna Karl, & Liesbeth van Vliet, Leiden University

Background: Clinicians' communication affects patients' psychological (anxiety) and cognitive (information-recall) outcomes. It is unknown whether communication also influences neurobiological outcomes.
Aims: This project aims to disentangle the neurobiological basis of communication.
Methods: In the setting of advanced cancer, we explore how clinician's helpful and harmful communication affect brain activity and brain connectivity. Healthy participants (n=25-30, watch videos of helpful, harmful, and neutral communication while lying in an MR scanner. The effect of the different communication on brain activity and brain connectivity, and self-reported evaluations is assessed.
Conclusion: This study opens a new research paradigm, integrating the words of communication and neurobiology, building communication's evidence-base.

12. "It takes two": facilitating social interactions in autism – non-autism dyads. A concept poster

Magdalena Matyjek, Universitat Pompeu Fabra, Barcelona, Spain

Autism is a condition characterised by persisting social difficulties, which may have vast negative consequences for a person's health and quality of life. However, social difficulties are a function of one's own competence as well as that of the social environment, which is predominantly non-autistic. Indeed, interactions between persons of different neurotype (one autistic and one not) have been shown to be less successful than between persons sharing a neurotype, whether both non-autistic or both autistic. Thus, social difficulties in autism seem to be a matter of communication "mismatch" with the non-autistic environment rather than autism-specific social impairments. The key then is to understand the factors governing social communication and interactions in same-neurotype (SN) and mixed-neurotype (MN) dyads. The first aim of this project is to create research tools for (1) assessment of individual social communication characteristics and, (2) quantification of the success of social interaction. The second aim is to test the hypotheses that explicit knowledge improves MN dyad interactions. For this, the tools developed in the previous stages will be combined in an experiment in which SN and MN dyads will interact with or without prior learning about the communication characteristics of the partner. At the Conference, a Concept Poster will be presented to put forward the research idea and the planned methodology of the project, with the aim to acquire early feedback and incorporate improvements to the research plan.

13.

Angelika Bracher, Leipzig University, MPI CBS

Caregiver-child relationships are crucial for developing children's emotion regulation capacities and subsequent psychosocial functioning. However, experiencing childhood maltreatment, including abuse and neglect, increases the risk of psychopathology. Dyadic synchrony has been proposed as a key mechanism impacting that development, and previous studies have shown that parent-child dyads with maltreatment experience display distinct patterns of cardiac co-regulation during stress (Lunkenheimer et al., 2018). Yet, little is known about how cardiac synchrony behaves during adolescence. To fill this research gap, we will investigate cardiac synchrony during an adapted Trust Game in adolescent-caregiver dyads with and without experiences of childhood maltreatment. The study will include ~150 dyads from a large-scale longitudinal study in Germany. We will assess maltreatment subtypes, chronicity, and severity through the Maltreatment Classification Interview and System (Barnett, Manly & Cicchetti, 1993). During the adapted Trust Game, adolescents will interact in alternating rounds with a peer and their respective caregiver, with the peer being a pre-programmed algorithm that cooperates little to induce stress. Cardiac synchrony will be calculated using Local Power (Bornemann et al., 2016), a short-term estimate of high-frequency Heart Rate Variability (hf-HRV) that allows for investigation of hf-HRV shifts within seconds.

14.

Rayka Zavaro Dalva, Leiden University

Social anxiety disorder (SAD) is a disorder characterized by impairments in interpersonal functioning such as experiencing difficulties in forming and maintaining relationships. These impairments have negative intrapersonal consequences for individuals with SAD on different levels such as the physiological, behavioral, and psychological level. A newer perspective on SAD has suggested that it also negatively impacts the interaction partner (i.e. interpersonal consequences of the disorder). According to this perspective, certain verbal and nonverbal behaviors and thought or feeling content of the healthy interaction partner are affected while interacting with an individual who have SAD. The current study investigated the intra- and interpersonal consequences of SAD on the physiological, behavioral, and psychological level during initial interactions. Participants played a dyadic trust game (23 same-gender dyads) while their electrodermal activity (EDA) was continuously measured and filled in self-report measures during and after the game. The dyads consisted either of one participant scoring high on social anxiety (SA) and one low on SA (i.e. SA dyads) or two participants scoring low on SA (i.e. control dyads). EDA was used as the measure on the physiological level, participants' trust ratings were the measure on the behavioral level, and the discrepancy between self and partner reports on positive/negative personal attributes to explore cognitive biases was the measure on the psychological level. We expected to observe higher EDA synchrony, lower trust ratings, and higher discrepancy between self and partner reports in SA dyads compared to control dyads. Results showed no difference between dyads on all levels indicating that we were not able to observe the predicted effect of finding intra- and interpersonal consequences of SAD in SA dyads. The most important implication of the current study is that, it included three different levels of SAD, in contrast to earlier studies that mainly focused on one level. This provides a useful example for how future studies might be designed and conducted.

15. Copying hand movements and art choices - what behavioural and cognitive mechanisms are involved?

Paula Wicher, Institute of Cognitive Neuroscience, UCL, London

It is widely believed that being mimicked makes us like the person more (Chartrand and Bargh, 1999). Recent results from our lab showed that there is a difference in mimicry social benefits depending on the mimicry type. We compared the social consequences of copying choices and copying hand movements in the context of making art choices. The participants liked 'confederates' on video clips who mimicked their art choices more than the ones who mimicked their hand movements. These results suggest copying choices seem to be a stronger driving factor in likability judgments than copying motor movements. Now, we will run the study paradigm with an improved design, and we will use fNIRS with live confederates. Participants will be assigned to one of the groups: either motor or choice mimicry. They will complete an in-lab live mimicry art task with 2 different confederates who either mimicked or did not. Then they will complete measures of perceived warmth and competence to assess first impressions. This will show us if liveness changes the previous study results and what neural mechanisms are involved in the choice vs motor mimicry. I will present our initial data from the pilot study.

16. Benefits of collaborative remembering in older and younger couples: the role of conversation dynamics and gender

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Communicators adjust their memory information to align with their audience's attitudes, a phenomenon known as the "saying is believing" (SIB) effect. However, the impact of romantic relationships on the SIB effect is not well understood. The current study, based on shared reality theory, aimed to examine the influence of romantic relationships on the SIB effect and its underlying processes in heterosexual couples. In the main experiment, 23 pairs of heterosexual romantic partners were recruited, and asked to communicate with their partners and with opposite-sex strangers separately. To ensure the reliability of the results, a replication study was conducted with 22 additional pairs of heterosexual romantic partners. The results consistently showed that: a) the SIB effect occurred in the group of heterosexual romantic partners but not in the group of strangers; b) relational motivation played a mediating role between romantic relationship and SIB effect (recall bias). These results indicate

that under these real-life conditions shared reality is created when romantic partners, rather than strangers, are the audience, and that the strong relational motivation for one's partner appears to play a major role in the SIB effect. These findings have important implications for understanding communication in romantic relationships and the impact that romantic partners can have on one’s own opinions and memories.