Department of Psychology "Renzo Canestrari", University of Bologna
Aula Magna, January 22nd 2025
Viale Carlo Berti Pichat 5 Bologna

9:10-9:15	**WELCOME**	Elvira Cicognani, Head of the Department
9:15-9:20	**INTRODUCTION**	Alessandra Sansavini, Research Committee Coordinator

SESSION 1

SOCIAL AND DEVELOPMENTAL PSYCHOLOGY
CHAIRS: ALESSANDRA SANSAVINI, ALESSIA TESSARI, ALBERTO MASSIMILIANO UMILTÀ

9:20-9:40   LAURA MENABÒ

New Perspectives In Developmental Psychology: Challenges and Opportunities in Using Technologies

Tutor: Annalisa Guarini. Discussant: Alessandra Sansavini, U. Bologna; Francesco Valentini, Centro Territoriale Scolastico, Bologna

Integrating technology into developmental psychology fulfills crucial roles, advancing both research and practical applications. This dual capacity underscores the transformative potential of technology to deepen our understanding of complex behaviors and foster developmental growth. However, it also introduces methodological and contextual challenges that demand careful consideration. In my first postdoc year, we examined how 72 Italian middle students with varied bullying experiences, as assessed with a questionnaire, observed bullying vignettes by using eye-tracking technology. The findings revealed that bully-victims focused more on aggressive characters, suggesting personal experiences influence visual processing and offering insights for tailored interventions. Thus, as a research tool, technology enables the exploration of cognitive processes, such as visual attention, highlighting how tools like eye-tracking—typically employed in other fields—can be valuable for studying social phenomena within developmental psychology. In my second postdoc year, I helped implement an app for parents to support children's language development. Using a co-participatory approach, we engaged parents, pediatricians, and educators to gather diverse insights through questionnaires and focus groups. A total of 637 questionnaires were collected from these groups, along with 12 focus groups. Questionnaire results showed no significant differences in opinions about technology across the groups. Focus group discussions highlighted that, while the risk of excessive exposure for children is a concern, the app offers valuable support opportunities. Therefore, technology can provide enrichment and enable personalized interventions.
In sum, these studies illustrate technology's capacity to enhance our understanding of behaviors like bullying and to provide valuable resources for parents, pediatricians, and educators. They also emphasize the importance of a critical approach to maximize benefits while managing perceived challenges effectively.

9:40-10:00   VALERIA BACARO

Night Owls and Early Birds: The Role Of Adolescents' Chronotype on Educational Identity Trajectories

Tutor: Elisabetta Crocetti. Discussant: Lorenzo Tonetti, U. Bologna; Silvia Casaroli, Associazione AS.SO.FA, Piacenza

Adolescents experience psychophysiological changes impacting their sleep/wake cycle. School represents a pivotal context where adolescents tackle a primary challenge: building their identity. This study aims to investigate if

adolescents' chronotypes (i.e., morning, intermediate, and evening) can be associated with trajectories of educational identity processes (i.e., educational commitment, in-depth exploration, and reconsideration of commitment). A total of 1,156 adolescents (*M*age = 15.69, *SD*age = 1.20; 51.65% females) were followed for four assessments across one year. Multigroup analyses showed that adolescents with an evening chronotype reported lower initial levels of educational commitment and in-depth exploration, coupled with higher reconsideration of commitment, than adolescents with a morning chronotype. Results highlighted the importance of considering individual differences that can foster adolescents' psychosocial adjustment.

10:00-10:20   BEATRICE BOBBA
Explaining Trajectories of National Identification: The Role of Classroom Ethnic Diversity, Peers, And Teachers
Tutor: Elisabetta Crocetti. Discussant: Francesca Prati, U. Bologna; Silvia Casaroli, Associazione AS.SO.FA, Piacenza

National identification plays a crucial role in supporting the adjustment and well-being of ethnic majority and minority youth and the cohesion of societies. However, it is not clear whether and how national identification changes throughout adolescence as a result of the dynamic interplay between individuals and their contexts and what its implications are for youth's participation in society. The current research aimed to unravel: (a) how does national identification develop in adolescence; (b) whether adolescents' ethnic background and school-contextual (i.e., classroom ethnic diversity, identification with classmates, perceived teacher support, school belonging) factors lead to different developmental trajectories of national identification; and (c) whether developmental trajectories of national identification can influence changes in youth's social well-being. A total of 1,136 adolescents (M_{age} = 15.69, SD_{age} = 1.20; 51.59% females; 81.51% ethnic majority) completed online questionnaires at seven time points between January/February 2022 and January/February 2024, as part of the longitudinal ERC-funded project IDENTITIES. Adolescents reported average initial levels of identification with the national group, which remained stable over time. Significant variability in growth parameters could be traced back to the existence of three groups of youth, characterized by high and stable (27%), average and decreasing (59%), and low and stable (14%) national identification. Results of multinomial logistic regression highlighted that ethnic background did not play a role while all school factors significantly influenced the chances of adolescents being in one or another national identification group. Last, high national identifiers displayed the highest increase in social well-being, followed by the moderate identifiers. Overall, these findings highlight the crucial role of the school and classroom contexts as social laboratory sustaining adolescents' national identification and, in turn, their adjustment and participation to the larger society.

10:20-10:40 FRANCESCA GOLFIERI
Adolescents' well-being: Developmental trajectories.
Tutor: Elisabetta Crocetti. Discussant: Lorenzo Tonetti, U. Bologna; Silvia Casaroli, Associazione AS.SO.FA, Piacenza
Promoting the well-being of adolescents is a main societal goal. In line with it and within the scope of the IDENTITIES project, the aim of the current longitudinal study was to tackle the developmental trajectories of adolescents' well-being. A multidimensional perspective was adopted in order to uncover changes in adolescents' physical health (general health perception and sleep problems), subjective well-being (life satisfaction and emotional well-being), psychological and social well-being. Furthermore, a second goal was to examine differences between boys and girls and between Italian adolescents and their peers with a migrant background. Participants were 1,555 students (46.9% females) from two cohorts (49.4% were attending the first year of high school and 50.6% were attending the third year) who completed a questionnaire at seven time points (January/February 2022, April/May2022, September/October 2022, January/February 2023, April/May2023, September/October 2023, January/February 2024). Results of Latent Growth Curve Analyses showed that physical health perception slightly decreased, while life satisfaction, social and psychological well-being, and sleep problems increased. Also, emotional well-being showed a non-linear trend over time. In addition, differences between boys and girls and between Italian adolescents and their peers with a migrant background were detected. Boys and Italian adolescents generally reported higher well-being than

girls and adolescents with a migrant background. Overall, this evidence suggests the importance of developing interventions to promote adolescents' well-being.

10:40-11:00 CHRISTIAN COMPARE

Social Justice Youth Development in The Educational Context: Perspectives from Trans And Non-Binary Activists.

Tutor: Cinzia Albanesi. Discussant: Francesca Esposito, U. Bologna; Michela Mariotto, Genderlens.

Abstract: In educational research and policy, youth development approaches have traditionally focused on either addressing young people as sources of problems to be solved or as resources for societal improvement. However, a social justice youth development (SJYD) perspective shifts this view, emphasizing the recognition of diverse youth identities and their potential to contribute to a fairer society. Rooted in socio-historical, cultural, and political contexts, social justice in youth development is defined as the equitable distribution of burdens, power, resources, and rights, aligned with individuals' needs and capacities for self-expression. This study applies the SJYD framework to investigate the lived experiences of trans and non-binary (TNB) youth activists in Italian secondary schools. Through in-depth interviews with 15 TNB activists, aged 23.8 on average, we explore the structural barriers, discrimination, and social exclusion faced in educational settings. Reflexive thematic analysis highlights significant shortcomings, such as prevalent micro- and macro-aggressions, a lack of supportive knowledge among school staff, and the systematic exclusion of LGBTQIA+ perspectives from the curriculum. These insights underscore the need for educational reform to support gender-expansive identities and foster inclusivity. The findings illustrate how TNB youth activists engage in individual and collective advocacy to transform educational spaces into supportive environments for gender identity exploration. This activism reflects their commitment to enhancing visibility, well-being, and equitable recognition for the TNB community. Implications for educational policy, teacher training, and community psychology are discussed, with a view to advancing socially just educational practices that embrace the diverse identities of all young people.

SESSION 2

COGNITIVE PSYCHOLOGY AND PSYCHOPHYSIOLOGY

CHAIRS: FRANCESCA AGOSTINI, ALESSIA TESSARI, THOMAS QUETTIER

11:00-11:20 PERI BENEDETTA

Home learning environment and screen time differentially mediate the relationship between socioeconomic status and preschoolers' learning and behavioural profiles

Tutor: Paola Bonifacci. Discussants: Annalisa Guarini, U. Bologna; Valeria Dondoli, Comune di Bologna

Environmental variables related to the home context, including home literacy and numeracy, screen exposure and Socioeconomic Status (SES) are potential predictors of cognitive and socio-emotional skills. The present multi-informant study investigates the direct and indirect relationships of SES in early learning and behavioural skills. A community sample of 1660 children attending the 2nd and 3rd year of preschools was involved in the study. One parent and one teacher completed questionnaires to assess children's SES, home learning activities, screen use and cognitive and behavioral skills.

Results of the analysis showed that time spent on the tablet and the home learning environment mediated the effect of SES on early learning. Implications of these findings and educational policy are discussed.

11:20-11:40 CANGELOSI MARTINA

Language skills and literacy outcomes: a comparison between bilingual and monolingual children

Tutor: Paola Bonifacci. Discussants: Annalisa Guarini, U. Bologna; Valeria Dondoli, Comune di Bologna

Main aim of the project is to investigate the relationship between language skills and literacy outcomes by comparing bilingual and monolingual children in primary education. Previous studies suggested that bilingual children, particularly those from language minority backgrounds, often experience challenges in literacy acquisition in the language of

schooling, possibly due to limited early exposure and lower socio-economic status (SES). The Simple View of Reading (SVR) may help framing reading comprehension skills in bilingual and monolingual children, together with additional factors—decoding, listening comprehension, non-verbal IQ, and working memory. Results from a first study suggest there may be a predictive role of morphosyntactic skills and phonological short-term memory for reading and spelling in children acquiring languages with different orthographic depths, such as Italian and French. More in detail, literacy predictors, including verbal knowledge, decoding accuracy, and SES, have been considered across bilingual and monolingual groups. Our findings suggest that while listening comprehension strongly influences reading accuracy, spelling skills are more impacted by linguistic background. These results underscore the importance of SES and foundational language skills in shaping literacy trajectories, offering insights into personalized educational approaches for bilingual learners.

11:40-12:00   AFFRANTI ALEXANDRA

Use of technology, well-being and learning in preschoolers

Tutor: Paola Bonifacci. Discussants: Lorenzo Tonetti, U. Bologna; Valeria Dondoli, Comune di Bologna

The present study aimed at exploring how screen exposure may impact preschoolers' well-being and emergent literacy and numeracy skills, in particular considering the relationship among time amount of screen exposure, content type and parents' involvement and mediation, also considering Socio-Economic Status. Many studies partially explored relationships among these factors (Axelsson et al., 2022; Duch et al., 2013; Gago-Galvagno et al., 2023; Linebarger & Vaala, 2010; Swider-Cios, Vermeij & Sitskoorn, 2023), however there is a lack of evidence that consider multiple factors simultaneously and the relationship among them. Parents completed the SDQ questionnaire and a questionnaire was developed to investigate variables related to the family environment. Teachers completed a questionnaire reporting their observations of the children's competences. Children were given a naming task to test their vocabulary skills. The sample comprises 261 preschool children, their parents and teachers within the LOGOS Project, in collaboration between the Department of Psychology and the Municipality of Bologna. Linear regressions were ran including as independent variables parents' educational level, frequency of home literacy/numeracy practices and variables related to the use of technology: frequency, multiple use, age of exposure, educational content, parental support and control, parental use. Dependent variables were children's lexical skills, SDQ mean score and teachers' questionnaire mean score. Overall, this multi-informant and multi-method study highlights a multifaceted relationship between environmental variables and children's linguistic and psychological outcomes, confirming previous evidence for parents' educational level and home literacy/numeracy practice as predictors of children's linguistic skills and psychological well-being. Also, results depict a negative relationship between use of technological devices and children's outcomes.

12:00-12:20   UMILTA' ALBERTO MASSIMILIANO
Spatial orientation and cognitive maps in virtual environments
Tutor: Alessia Tessari. Discussants: Giovanni Ottoboni, U. Bologna; Konstantios Priftis, U. Padova

This study aims to validate the Virtual Spatial Configuration Task (VSCT), a novel virtual reality (VR)-based tool designed to assess cognitive map formation and spatial orientation abilities. The VSCT addresses limitations of traditional spatial assessments by offering an immersive 3D environment that facilitates active exploration and proprioceptive feedback, enabling more realistic and dynamic spatial cognition assessment (Plancher et al., 2012). To evaluate the VSCT's validity, we compare it to the existing Spatial Configuration Task (SCT) in a randomized experimental design with two groups: an experimental group using the VSCT in VR and a control group completing a non-spatial auditory memory task (Ekstrom & Isham, 2017). All participants will initially complete baseline assessments, including the SCT, the Santa Barbara Sense of Direction Scale (SBSOD) (Hegarty et al., 2002), the Backward Corsi Task (to assess working memory) (Piccardi et al., 2011), and the Rey Auditory Verbal Learning Test (RAVLT) to measure verbal memory (Schmidt, 1996). The SCT and Backward Corsi Task allow us to examine spatial and working memory relationships, while the RAVLT differentiates spatial cognition from unrelated verbal memory processes. Participants will complete the SCT post-intervention to assess any gains in spatial cognition, while simulator sickness will be evaluated in the experimental group with the Simulator Sickness Questionnaire (SSQ) (Kennedy et al., 1993). We hypothesize a strong positive correlation between

VSCT and SCT performance, indicating that both tasks measure cognitive map formation (Richardson et al., 1999). We also expect correlations with the Backward Corsi Task, given the role of working memory in spatial cognition (Piccardi et al., 2011), but no significant relationship with RAVLT scores, isolating the VSCT as a specific measure of spatial ability (Schmidt, 1996). This validation study provides critical insights into the VSCT's potential as an accessible tool for spatial cognition assessment, with applications in cognitive training and neurorehabilitation (Plancher et al., 2012).

12:20-12:40 FRANCESCO DI GRUTTOLA
Reaching and Grasping in a Virtual Reality Environment in Patients with Stroke: an AI Approach
Tutor: Giovanni Ottoboni. Discussants: Alessia Tessari, U. Bologna; Lugli Luisa, U. Bologna

Reaching and grasping are fundamental motor skills essential for effective interaction with the environment. This study utilized virtual reality (VR) to explore the neural mechanisms underlying these actions, providing a controlled, immersive platform for precise manipulation of experimental conditions. The primary aim was to develop machine learning models capable of predicting the intention behind grasping actions, specifically distinguishing between functionally using an object (ventral-dorsal stream) and spatially moving it (dorsal-dorsal stream). Nineteen healthy participants performed grasping tasks in a VR environment, where multicomponent data—including movement times, eye-tracking, and electromyography (EMG) signals—were collected across 120 trials per participant. Key features, such as time to hand movement onset, gaze behavior, and muscle activation, were extracted to analyze the cognitive processes driving action planning. Machine learning algorithms, particularly Random Forest, XGBoost, and SVC, demonstrated high accuracy in classifying action intentions. The analysis identified "time to onset" and "gaze on object" as the most significant predictors, underscoring the critical role of motor preparation and visual attention in shaping grasping intentions. While progress was achieved with healthy participants, the phase involving neurological patients at the IRCCS Istituto delle Scienze Neurologiche in Bologna was delayed due to postponed acquisition of EEG equipment. The inclusion of EEG data is expected to enhance model precision by offering deeper insights into the neural circuits involved in action planning. In upcoming phases, data from neurological patients will be compared with that of healthy participants, advancing potential applications for assistive and rehabilitative technologies

12:40- 13:00 AIELLO MARILENA
Orthorexia Nervosa and Attentional bias to healthy food
Tutor: Alessia Tessari. Discussants: Giovanni Ottoboni U. Bologna; Lugli Luisa, U. Bologna

Orthorexia nervosa (ON) is characterised by an obsessive concern with consuming healthy foods. To date, no study has investigated reward responsiveness and attentional bias toward pictorial food cues in individuals with ON. The present research aimed at addressing this gap through two studies. In an online study (Study 1), participants (n =166 adults, mean age = 24.8 years, SD = 7.6 years, 48.8% female) reported liking, wanting, and frequency of intake of 20 healthy and 20 unhealthy foods. Additionally, they completed the Dusseldorf Orthorexia Scale, while BMI, hunger level, and risk of eating disorders were collected. In Study 2, participants (n=73 adults, mean age = 23.4 years, SD = 3.5 years, 37% female) completed questionnaires on ON and the risk of eating disorders, as well as a visual probe task with images of healthy and unhealthy foods. Eye movements were also recorded for a subset of participants in the laboratory. The results indicated that high ON tendencies were associated with increased wanting and frequency of consumption of healthy foods and diminished hedonic pleasure of unhealthy foods. Furthermore, they were correlated with a pattern of attentional avoidance of unhealthy foods. These results underscore the importance of elucidating the role of attentional and motivational mechanisms in ON and their clinical implications.

13:00-14:00   LUNCH BREAK

SESSION 3

NEUROSCIENCE AND SOCIAL PSYCHOLOGY
CHAIRS: DANILO CARROZZINO, MARIAGRAZIA BENASSI, SOFIA MORANDINI

14:00-14:20   FRISONI MATTEO
Fine-grained time perception is associated with the Individual Alpha Frequency
Tutor: Vincenzo Romei. Discussant: Sara Borgomaneri U. Bologna; Marcello Constantini, U. Chieti

The perception of time is a key component of human cognition. Traditionally, a clock-like model has been proposed to explain this ability, and in one of its major declinations, the pulse rate of the internal pacemaker would be driven by alpha oscillations. However, this relationship has never been clearly established. The present EEG study investigated whether a higher Individual Alpha Frequency (IAF) measured at rest is associated with a higher sensitivity in time perception. Fifty volunteers performed three tasks with a two-alternative forced choice paradigm. Specifically, they were asked to judge which of two sub-second stimuli lasted longer (temporal tasks) or had more contrast (visual task). Sensitivity was calculated using Signal Detection Theory (SDT) and difference limen (DL) measures. Two independent analyses/approaches yielded the same results, showing that the frequency of the alpha rhythm in frontocentral areas was associated with sensitivity at discriminating temporal intervals on the sub-second scale: the faster the clock, the more sensitive people are. Taken together, these results provide one of the few lines of evidence for the existence of an alpha-clock mechanism in cortical areas previously implicated in time perception.

14:20-14:40   THOMAS QUETTIER
A Individual differences in intracortical inhibition predict action control when facing emotional and neutral stimuli
Tutor: Sara Borgomaneri. Discussants: Vincenzo Romei, U. Bologna; Anita Ghislandi, U. Padova

Efficient inhibitory control in the context of prepotent actions is vital. However, such action inhibition may be profoundly influenced by affective states. Interestingly, research indicates that action control can be either impaired or improved by emotional stimuli. Thus, a great deal of confusion surrounds our knowledge of the complex dynamics subtending emotions and action control. Here, we aimed to investigate whether negative stimuli, even when non-consciously presented and task-irrelevant, can affect action control relative to neutral stimuli. Additionally, we tested whether individual differences in intracortical excitability may predict action control capabilities. To address these issues, we asked participants to complete a modified version of the Stop Signal Task (SST) in which fearful or neutral stimuli were subliminally presented before the go signals as primes. Moreover, we assessed participants' resting-state corticospinal excitability, short intracortical inhibition (SICI), and intracortical facilitation (ICF). Results demonstrated better action control capabilities when fearful stimuli were subliminally presented and interindividual SICI predicted stronger action inhibition capabilities. Taken together, these results shed new light on the intricate dynamics between action, consciousness, and motor control, suggesting that intracortical measures can be used as potential biomarkers of reduced motor inhibition in research and clinical settings.

14:40-15:00   IVAN PATANè
Modulation of Interpersonal Distance Through Emotional Imitation
Tutor: Lorenzo Tonetti. Discussant: Caterina Bertini, U. Bologna; Alessando Grecucci, U. di Trento

The regulation of interpersonal distance, often referred to as personal space (PS), is a fundamental component of social interactions. While the influence of emotions on PS regulation is well-documented, the underlying mechanisms remain elusive. This study investigates the role of sensorimotor components of emotion in modulating PS, specifically assessing how facial emotion imitation influences interpersonal distance in response to emotional cues. To explore this hypothesis, we conducted a series of experiments utilizing a virtual reality adaptation of the Stop-Distance paradigm, targeting preadolescents (ages 11-13), a developmental stage where emotion regulation is particularly salient. In the first experiment, participants imitated facial emotional expressions before and after setting their distance from an avatar displaying anger, happiness, or no emotion. Post-imitation results revealed that participants increased their interpersonal distance from the avatar expressing anger and decreased it for the avatar displaying happiness, compared to pre-imitation. In the second experiment, participants observed facial emotional expressions without engaging in imitation, serving as a control condition. Observation alone did not result in any significant adjustments in participants' distance compared to pre-observation. Additionally, gaze direction analysis revealed no significant differences between the two experiments, suggesting that the difference between imitation and observation was not attributable to variations in attention deployment. In a third experiment we assessed the specificity of the emotional component of imitation in driving changes in PS. A new group of participants was asked to either imitate an emotional

facial expression (anger) or a non-emotional facial action (puffing out the cheeks). Results indicated that adjustments in PS occurred only following the imitation of emotional facial expressions, further underscoring the unique role of emotional sensorimotor component in PS regulation during preadolescence. These findings highlight the critical role of facial sensorimotor mechanisms in modulating interpersonal distance, offering novel insights into the sensory-motor processes underlying social cognition.

15:00-15:20   SILVIA GAMBINO

EEG functional connectivity in eyes-closed and eyes-open resting state is altered after posterior brain damage

Turor: Giuseppe di Pellegrino   Discussant: Caterina Bertini, U. Bologna; Elisa Ciaramelli, U. Bologna

Brain activity during eyes-closed and eyes-open resting state relies on distinct functional properties of complex networks both within and outside the visual system. Accordingly, transitioning from eyes-closed to eyes-open resting state modulates brain oscillatory activity, particularly in the visual cortices. Therefore, posterior brain damage affecting the visual system may alter functional connectivity patterns during this transition. To test this hypothesis, EEG recordings were acquired from hemianopic patients with left and right posterior lesions, control patients with anterior lesions, and healthy controls, during eyes-closed and eyes-open rest. Both left- and right- lesioned hemianopics failed to exhibit the typical decrease in lower- and upper-alpha functional connectivity in the posterior regions of the lesioned hemisphere at the eyesopen, compared to the eyes-closed, resting condition. Additionally, right-lesioned hemianopics displayed abnormally increased theta connectivity in posterior and anterior regions at eyes-opening. These findings emphasize the pivotal role of the posterior cortices in promoting alpha connectivity and the right hemisphere specialization in supporting coordinated interplay across alpha and non-alpha ranges at the opening of the eyes. Moreover, alpha connectivity patterns emerge as a valuable index of the functional integrity of the visual system and highlight distinct functional properties of the eyes-closed and eyes-open resting state.

15:20-15:40   ANTONELLA GUARINO

Analysing University Students' Psychosocial Well-Being through an Intersectional Lens.

Tutor: Cinzia Albanesi. Discussant: Silvana Grandi, U. Bologna; Michela Di Trani, U. La Sapienza

The academic well-being of university students is a multidimensional concept encompassing satisfaction with the educational experience, a sense of personal fulfillment, and psychological balance during their studies. A recent review (Okoro et al., 2022) highlighted how various risk factors, such as pressure to graduate, job prospects, interpersonal relationships, economic insecurity, study load, and unclear career aspirations, can intersect and affect students' well-being. Similarly, protective factors such as support from the university, mentoring programs, extracurricular activities, and a supportive academic climate have been shown to help reduce feelings of isolation and increase student satisfaction (Okoro et al., 2022). The aim of this study is to explore and analyze the academic experiences of university students, focusing on intersectional dimensions and factors of exclusion and oppression within the university environment. An online questionnaire was administered to a random sample of students at the campus of Bologna and Cesena. The participants included 91 students (Meanage = 23.8 years; 52.2% identified as cisgender women, 36.7% as cisgender men, 4.4% as non-binary, and 6.6% as "other"). They were enrolled in various courses (46% in Bachelor's degrees and 54% in Master's degrees), across different subject areas primarily representing the following fields: Ancient, Philological-Literary, and Historical-Artistic Sciences (22.4%); Civil Engineering and Architecture (17.9%); Historical, Philosophical, Pedagogical, and Psychological Sciences (11.9%); and Economics and Statistics (11.9%). Data analysis was conducted using an intersectional approach to quantitative research (Bauer et al., 2021). The results and operational implications are presented and discussed.

SESSION 4

ORGANIZATIONAL AND NEUROSCIENCE
CHAIRS: LUCA PIETRANTONI, VINCENZO ROMEI, MATTEO FRISONI

15:40-16:00   SOFIA MORANDINI

Job roles and emerging needs of aerospace manufacturing planners and schedulers

Tutor: Luca Pietrantoni. Discussant: Mabel San-Romàn Niaves, U. Bologna; Francesco Currò, U. Siena

Planning and Scheduling (P&S) are critical components of organizational management that influence efficiency, overall performance, and human factors in the workplace. The aerospace manufacturing industry is experiencing rapid changes, marked by heightened demands for new aircraft and the need for precise task execution to accommodate increasing air traffic and rigorous safety regulations. This study explores the human factors and emerging needs in the P&S processes within aerospace manufacturing. A qualitative research approach was employed, featuring semi-structured interviews with 15 professionals from a prominent European organization. The participants, actively engaged in P&S operations, were chosen to offer diverse perspectives on their roles and the industry's specific requirements. Results indicate that planners/schedulers, IT experts, and operations team leaders are crucial in ensuring efficiency throughout the various stages of P&S operations. The findings reveal that emerging needs encompass workforce and customer management (i.e., allocating human resources, responding to client requests, and addressing workforce resistance to new technology adoption), prioritization (i.e., scheduling tasks based on urgency, error susceptibility, and cost efficiency), and contingency handling (i.e., machinery availability, time constraints, quality issues, human performance variability, and weather conditions). These needs highlight the importance of considering human factors and cognitive aspects when designing and implementing P&S systems. The study underscores the challenges the aerospace manufacturing industry faces as it adapts to technological advancements and evolving market conditions. The findings emphasize the necessity of advanced P&S systems that integrate innovative technological solutions with an understanding of human factors.

16:00-16:20 JESSICA GALLINA

Electrophysiological and behavioral effects of prolonged alpha-band visual entrainment.

Tutor: Caterina Bertini. Discussant: Giuseppe Di Pellegrino, U. Bologna; Elisa Ciaramelli, U. Bologna

Brain oscillatory activity in the alpha band (7-13 Hz) has been documented to be a neural signature of the efficiency of the visual system. Notably, such rhythmic neural activity is not stationary but fluctuates as a function of the performance and can be functionally modulated by external rhythmic forces. In this regard, administering a brief train (e.g., 500 ms) of rhythmic stimuli in the alpha range is able to synchronize endogenous brain oscillations to the external rhythmical stimulation, leading to transient (e.g., 300 ms) resonance phenomena in neural and perceptual activity (i.e., sensory entrainment). However, it is not known whether a prolonged (e.g., 1 min) alpha-band sensory entrainment might successfully induce functional long-term modulations both on alpha oscillatory activity and related visual abilities. Therefore, to probe prolonged entrainment-induced after-effects, we recorded EEG in 25 healthy participants during a visual entrainment protocol in which 1 minute of visual entrainment, administered at different stimulation frequencies (i.e., IAF, IAF-2 Hz, IAF+2 Hz, Theta), was followed by either 1-minute of eyes-closed resting state or a block of a visual detection task. The results revealed persistent modulations of the neural oscillatory activity in the alpha, but not in the theta, frequency band, in the posterior and anterior scalp sites, showing a sustained increase of alpha power over the entire minute of eyes-closed resting-state following IAF, IAF-2 Hz, IAF+2 Hz, but not theta, stimulations. In addition, the results showed an increase in participants' perceptual sensitivity (i.e., d') in the visual detection task, following to the IAF and IAF +2 Hz entrainment. The present findings suggest that alpha-band visual entrainment can induce long-term modulations of the alpha-band oscillatory activity and of visual performance, providing additional knowledge on the oscillatory properties of the visual system, showing promise in future application of visual entrainment in clinical populations, demonstrating impairments in alpha oscillatory patterns, with the aim of regaining visual functions.

16:20-16:40 SONIA TURRINI

Spike-timing-dependent plasticity induction reveals dissociable supplementary– and premotor–motor pathways to automatic imitation

Tutor: Alessio Avenanti. Discussants: Vincenzo Romei, U. Bologna; Cosimo Urgesi, U. Udine

Humans tend to spontaneously imitate others' behavior, even when detrimental to the task at hand. The Action Observation Network (AON) is consistently recruited during imitative tasks. However, whether automatic imitation is mediated by cortico-cortical projections from AON regions to the primary motor cortex

(M1) remains speculative. Similarly, the potentially dissociable role of AON-to-M1 pathways involving the ventral premotor cortex (PMv) or supplementary motor area (SMA) in automatic imitation is unclear. Here, we used cortico-cortical paired associative stimulation (ccPAS) to enhance or hinder effective connectivity in PMv-to-M1 and SMA-to-M1 pathways via Hebbian spike-time-dependent plasticity (STDP) to test their functional relevance to automatic and voluntary motor imitation. ccPAS affected behavior under competition between task rules and prepotent visuomotor associations underpinning automatic imitation. Critically, we found dissociable effects of manipulating the strength of the two pathways. While strengthening PMv-to-M1 projections enhanced automatic imitation, weakening them hindered it. On the other hand, strengthening SMA-to-M1 projections reduced automatic imitation but also reduced interference from task-irrelevant cues during voluntary imitation. Our study demonstrates that driving Hebbian STDP in AON-to-M1 projections induces opposite effects on automatic imitation that depend on the targeted pathway. Our results provide unprecedented causal evidence of the functional role of PMv-to-M1 projections for automatic imitation, seemingly involved in spontaneously mirroring observed actions and facilitating the tendency to imitate them. Moreover, our findings support the notion that SMA exerts an opposite gating function, controlling M1 to prevent overt motor behavior when inadequate to the context.

16:40-17:00 FRANCESCO DI GREGORIO
Constructing pain predictions in the motor system
Tutor: Giuseppe di Pellegrino. Discussant: Francesca Starita U. Bologna; Emilio Chiappini, Leibniz Institute for Working Environment and Human Factors, Dortmund

Pain motivates action. In fact, pain acts as a learning signal that guides behavior in the prospective reduction of harm. As such, the pain system is inherently predictive, functioning to generate predictions of possible upcoming pain and tuning behavior accordingly. Thus, although mostly considered a perception problem, pain could be reframed as an action-learning problem(Wu et al., 2023). Nevertheless, whether and how pain drives the acquisition and update of motor predictions remains largely unexplored. Here, we advance the mechanistic understanding of pain processes by tracking how pain tunes the response of the motor system in pain anticipation. A Pavlovian threat conditioning protocol was adopted in which, during acquisition, two different visual stimuli (e.g., colored dots) predicted lateralized pain, either to the left (e.g., left conditioned stimulus, CS+L) or right (CS+R) arm. Then, during a reversal phase, the associations between the CS+ and the side of aversive shocks were switched (i.e., reversal of the spatial pain contingencies). Another visual stimulus (CS-) never predicted shock. Bilateral changes in corticospinal excitability, brain rhythms and skin conductance response (SCR) in anticipation of shock delivery were assessed through the co-registration of electroencephalography (EEG) with electrodermal activity and motor-evoked potentials (MEP) from the right and left hands. We found larger somatomotor alpha suppression for the two CS+ compared to the CS-, specifically over the hemisphere contralateral to the expected shock location, both during acquisition and reversal. Similarly, corticospinal inhibition occurred for the two CS+ compared to CS-, specifically for the arm where the shock was expected. Regressive models highlighted the correlation between somatomotor alpha suppression and corticospinal inhibition. In contrast to such lateralized responses, during acquisition, stronger non-lateralized frontocentral theta and SCR occurred for the two CS+ compared to CS-, regardless of expected shock location. During reversal, instead, a general increase in frontocentral theta was observed regardless of CS and expected shock location. Finally, causative connectivity analysis showed that somatomotor alpha temporally predicted frontocentral theta during acquisition, while a bidirectional oscillatory loop occurred between somatomotor alpha and frontocentral theta during reversal. Overall, these results indicate that somatomotor alpha and corticospinal excitability encode the acquisition and update of general predictions of pain, together with its location on the body, while frontocentral theta monitors the expression and update of such motor predictions(Seymour, 2019), especially during reversal, when predictions of pain location had to be recalibrated.

17:00-17:20 FERDINANDO TOSCANO
Leadership and Team Processes in Hybrid Work: What do we know?
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The rise of hybrid work has fundamentally shifted leadership and team dynamics, introducing challenges in maintaining cohesion, inclusivity, and effective communication. Hybrid teams, where members alternate between remote and in-office work, require new approaches to management due to the mix of physical and virtual interactions. These teams often face issues such as subgroup formation based on location, communication barriers, and disparities in information

access, which can disrupt unity and hinder team culture (Cramton & Hinds, 2005; Dulebohn & Hoch, 2017). In this evolving context, traditional leadership practices are being reassessed to better support hybrid team structures.

This research work has focused on exploring how leadership models and team processes adapt to these challenges. Findings suggest that hybrid teams benefit from flexible communication frameworks, balanced participation in decision-making, and proactive conflict management. Additionally, leadership in hybrid work increasingly prioritizes inclusivity and psychological safety, helping both remote and in-office members feel engaged, aligned, and supported (Stratone et al., 2022; Banks et al., 2022). Core team processes—including collaboration, communication, cohesion, conflict resolution, and coordination—were also examined, revealing effective strategies to maintain productivity and trust across hybrid environments.

These insights provide practical guidance for leaders and organizations to foster high-performing, adaptable teams. By focusing on the unique needs of hybrid teams, this research contributes to the development of leadership theory and practices that balance flexibility, engagement, and efficiency, equipping organizations for success in the hybrid work landscape.