

# XXXVI National Conference AIP

## Developmental and Educational Psychology Section

Cagliari, Italy, 19<sup>th</sup>-21<sup>st</sup> September 2024

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edited by  
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RESOCONTI /16

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*a cura di*

Roberta FADDA, Rachele FANARI,  
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## RINGRAZIAMENTI

È con grande piacere che apriamo questo volume degli atti del XXXVI Congresso Nazionale della Sezione di Psicologia dello Sviluppo e dell'Educazione dell'AIP, svoltosi a Cagliari dal 19 al 21 settembre 2024.

Il congresso ha rappresentato, ancora una volta, un'importante occasione di incontro e confronto per la nostra comunità scientifica. Le giornate trascorse insieme hanno offerto spunti preziosi su una vasta gamma di temi che attraversano la psicologia dello sviluppo e dell'educazione, mettendo in luce tanto la solidità delle ricerche consolidate quanto la vivacità delle nuove direzioni di studio.

Particolarmente significativo è stato il contributo delle giovani e dei giovani ricercatori, la cui presenza attiva e appassionata è segno di una comunità in costante crescita, capace di rinnovarsi e aprirsi al futuro con entusiasmo e rigore scientifico.

Desidero rivolgere, anche a nome del Comitato Esecutivo, un sentito ringraziamento al comitato organizzatore locale e al Dipartimento di Pedagogia, Psicologia, Filosofia dell'Università di Cagliari, per l'impegno, la cura e la generosa accoglienza che hanno reso possibile questo evento. La bellezza della città, insieme alla qualità del programma scientifico, ha contribuito a rendere questa edizione del congresso particolarmente speciale.

Con l'augurio che questi atti possano continuare a stimolare riflessioni e collaborazioni, rivolgo anche a nome a tutte e tutti un caloroso saluto e un sincero grazie per la partecipazione.

Antonella Brighi  
*coordinatrice nazionale della sezione di  
Psicologia dello Sviluppo e dell'Educazione di AIP*

## GRATITUDE ADDRESS

Dearest colleagues,

It's been an honor and a pleasure to welcome you to the XXXVI National Congress of the AIP Section of Developmental and Educational Psychology, held in Cagliari from September 19<sup>th</sup> to 21<sup>st</sup> 2024. Our conference is a significant annual meeting that allows exciting and fruitful exchanges among researchers on various research topics, experiences, and advances in Developmental and Educational Psychology.

A special thanks goes to the Section's Executive Committee, the local organizational committee, the Department of Pedagogy, Psychology, Philosophy and the Faculty of Humanities, Ordine delle Psicologhe e degli Psicologi della Sardegna, Comune di Cagliari for supporting the congress.

The scientific program includes outstanding keynote speakers and high-quality contributions, organized into an impressive number of symposia, poster sessions, mini-talk, and self-organized sessions on a wide range of topics of significant interest to Developmental and Educational Psychology.

We are grateful for the enthusiastic participation of more than a hundred colleagues, who we hope enjoyed an extensive research exchange along with the beauty of Cagliari and its local traditions.

Wishing you a bright and productive future in your research, we extend our warmest regards,

Roberta Fadda, Rachele Fanari, Maria Luisa Pedditzi, Maria Chiara Fastame  
*Department of Pedagogy, Psychology, Philosophy, University of Cagliari*



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- 146 99 - *A Short Version of the Jyväskylä Active Aging Scale (UJACAS-BR) for the Italian Population*  
Michele Savino, Annalaura Nocentini, Federica Stefanelli, Ersilia Menesini
- 147 97 - *The role of pro-environmental behaviours in the association between personality and psychological well-being. A pilot study*  
Marta Sannino

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- 148 25 - *Student agency's definition in secondary school research: a systematic review*  
Maddalena Vavassori, Valentina Grazia
- 149 39 - *Developmental Trajectories of Fluid Intelligence in Terms of Accuracy and Error Types Using a New Digital Tool: MatriKS*  
Noemi Mazzoni, Matilde Spinoso, Sara Giovagnoli, Matteo Orsoni, Sara Garofalo, Mariagrazia Benassi
- 150 71 - *PROSPERIA: Valutazione di impatto del Game Based Learning nei comportamenti prosociali degli studenti di 11 - 14 anni*  
Matilde Sparacino, Andrea Piazzoli, Alessio Magnolfi, Leonardo Boncinelli
- 151 117 - *Examining gamified learning through the lens of the Self-Determination Theory: a systematic review*  
Jessica Napolitano, Giuseppe Ritella, Lucia Ariemma, Roberto Marcone, Sebastiano Costa

- 152 *169 - Argumentation, reasoning, and critical thinking: an educational tool for the development of text-analysis skills in university students*  
Monica Mollo, Giuseppina Marsico, Giulia Savarese, Luna Carpinelli

SYMPOSIUM 88 - Inside The Body: Interoception In Typical And Atypical Development  
*Proponents: Margaret Addabbo, Letizia Della Longa, Maria Spinelli, Valentina Torchia, Giulia Gaggero, Greta Chiodi*

- 154 *The assessment of interoceptive sensibility and accuracy in school-age*  
Valentina Torchia, Silvia Canino, Liana Palermo, Simona Raimo
- 155 *Interoception and media addiction in children with developmental disabilities*  
Margaret Addabbo, Federica Fele, Luca Milani
- 156 *Clarifying the relationship between subjective interoception and alexithymia*  
Giulia Gaggero, Sara Dellantonio, Gianluca Esposito
- 157 *The role of affective touch in promoting self-regulation in preschool-age children*  
Letizia Della Longa, Teresa Farroni
- 158 *The effects of affective touch on emotional, behavioral, and physiological responses in adolescents with Type 1 Diabetes*  
Greta Chiodi, Elena Nava, Chiara Turati

SYMPOSIUM 66 - Adolescents' Peer Relationships And Aggressive Behaviors In Online And Offline Contexts

*Proponent: Federica Angelini*

- 160 *Watching Bullying: Differences In Visual Attention Among Victims, Bully/Victims, And Uninvolved Individuals*  
Laura Menabò, Simona C. S. Caravita, Grace Srzypiec, Phillip Slee, Annalisa Guarini
- 161 *Fake Profiles And The Effect Of The More Time Spent Online During The Pandemic Period: A Risk For Cyberbullying?*  
Carlo Marinoni, Simona C.S Caravita, Maria Assunta Zanetti
- 162 *Problematic Internet Use And Aggressive Behaviors: The Role Of Sleep Quality And Difficulties In Emotion Regulation*  
Claudio Longobardi, Matteo Angelo Fabris, Shanyan Lin
- 163 *Longitudinal Associations Of Social And Emotional Skills On Social Media With Friendship Conflict And Conflict Resolution During Adolescence*  
Federica Angelini, Gianluca Gini

SYMPOSIUM 146 - Cultivating the Future: Students' Well-Being from School to University

*Proponent: Giacomo Angelini*

- 165 *Parental interference, School burnout, and Depressive symptoms: a path analysis model on risk factors for student well-being from school to university*  
Giacomo Angelini, Ilaria Buonomo, Caterina Fiorilli
- 166 *Motivation and self-efficacy in university orientation: the mediating role of decision making*  
Luana Sorrenti, Concettina Caparello, Carmelo Francesco Meduri, Angelo Fumia, Laura Zanghi, Pina Filippello

- 167 *Adaptive and maladaptive academic profiles: the interplay between personality and mental health in university students*  
Gabriele Gullo, Barbara Caci, Ambra Gentile, Giulia Giordano, Marianna Alesi
- 168 *Meaning in life and life satisfaction as correlates of Vocational Identity Configurations: a person-centered approach with Italian university students*  
Federico Diano, Luca Fusco, Anna Parola
- 169 *Climate anxiety and hope for a better, sustainable world: Examining the moderating role of pro-environmental movement engagement in a sample of youth climate activists*  
Luciano Romano, Claudia Russo, Davide Clemente, Angelo Panno

SYMPOSIUM 119 - Shedding light on teachers' individual characteristics and competences: Research evidence to inform training practices from kindergarten to secondary school

*Proponents:* Andrea Baroncelli, Anna Di Norcia

- 171 *A tool to assess teachers' social and emotional competence: The Italian validation of SECTRS-14*  
Ilaria Grazzani, Alessandro Pepe
- 172 *Attitudes towards psychological knowledge use in teaching: Results on Italian teachers*  
Giovanni Maria Vecchio, Federica Zava, Paola Perucchini
- 173 *Different profiles of emotional intelligence in primary school teachers: relationship with students and children's behavior*  
Anna Di Norcia, Chiara Mannola, Giorgia Szpunar
- 174 *Exploring pre-service teachers' expectations for their social and emotional functioning as future teachers*  
Enrica Ciucci, Martina Cavassori, Andrea Baroncelli

SYMPOSIUM 100 - Early predictors of language development: Genetics, perceptual skills, and parental interaction

*Proponent:* Viola Macchi Cassia

- 176 *The learning brain: neural entrainment to visual structures and its link to early language development*  
Roberta Bettoni, Hermann Sergio Bulf, Valentina Silvestri, Stefanie Peykarjou, Viola Macchi Cassia
- 177 *The role of auditory processing in early language development: focusing on neural entrainment to rhythmic stimuli*  
Chiara Dondena, Caterina Piazza, Marco Borromini, Massimo Molteni, Valentina Riva, Chiara Cantiani
- 178 *The role of bio-behavioural synchrony on child language development: a longitudinal study from infancy to toddlerhood*  
Odette Nardoza, Melba Emilia Persico, Antonio Paone, Mirco Fasolo
- 179 *It takes four hands: a dyadic headcam study to explore how mother-infant exploration of physical objects shapes language development in preterm infants*  
Alessandra Raspanti, Elena Capelli, Giulia Barani, Sara Belloni, Martina Collura, Giorgia Mulé, Livio Provenzi

SYMPOSIUM 118 - How infants navigate the social world by paying attention to faces

Proponent: Roberta Bettoni

- 181 *Is environmental sensitivity trait associated with early facial emotion discrimination? A first evidence on 3-month-old infants*  
Alessandra Sperati, Valeria D'Aloia, Melba Emilia Persico, Maria Teresa Positano, Elisa Galli, Mirco Fasolo, Francesca Lionetti
- 182 *Developmental pathways of audiovisual processing in infants at elevated likelihood of autism during the first year of life*  
Valentina Riva, Elena Capelli, Elena Maria Riboldi, Maddalena Cassa, Carolina Beretta, Chiara Cantiani, Massimo Molteni
- 183 *Behind the gaze: exploring attentional processes in responding to joint attention through pupillometry*  
Roberta Bettoni, Giulia Calignano, Hermann Sergio Bulf, Erica Salomone, Eloisa Valenza, Viola Macchi Cassia
- 184 *Communicative development on the move between Minority and Majority worlds*  
Giulia Calignano, Chiara Ceccon, Filippo Gambarota, Selina Pacheco, Sofia Russo, Gianmarco Altoè, Massimiliano Pastore, Eloisa Valenza, Ughetta Moscardino

SYMPOSIUM 106 - Digital technologies and learning: problems, opportunities and research perspectives in the "new normal"

Proponents: Stefano Cacciamani, Maria Beatrice Ligorio

- 186 *Visualising students' writing processes through digital tools*  
Christian Tarchi, Ruth Villalón, Nina Vandermeulen, Lidia Casado-Ledesma, Anna Paola Fallaci, Eva Wennäs Brante
- 187 *Promoting students' agency in higher education through the progressive design method: a case analysis*  
Stefano Cacciamani, Vittore Perrucci, Ahmad Khanlari
- 188 *Stay in MOOCs: strategies to prevent dropout integrating technologies and educational approaches*  
Michela Ponticorvo, Monica Casella, Maria Luongo, Raffaella Esposito, Alessio Manfredini, Elena dell'Aquila
- 189 *Technology use and teachers' emotions*  
Pietro Crescenzo, Giuseppe Ritella, Annalisa Ventrella, Maria Beatrice Ligorio
- 190 *Application of a platform for the assessment and training of the executive functions in the scholastic context: usability data from teachers' perspective*  
Angelo Rega, Raffaele Nappo

SYMPOSIUM 60 - Enhancing Research Practices In Developmental Psychology: A Bridge From Theory To Statistical Methods

Proponents: Giulia Calignano, Tatiana Marci

- 192 *From theory to the validation of psychological constructs: an illustrative case of misalignment*  
Tatiana Marci, Ramona Cardillo, Claudia Marino
- 193 *Integrative approaches in child language processing: examining word meaning disambiguation by applying language corpora to behavioural experiments*  
Francesco Cabiddu, Lewis Bott, Gary Jones, Chiara Gambi

- 194 *Using variable-centered and person-centered approaches as complementary, not competitive, methods: an exemplification study*  
Pasquale Musso, Nicla Cucinella, Nicolò Maria Iannello, Fabiola Silletti, Rosalinda Cassibba, Costanza Baviera, Cristiano Inguglia, Alida Lo Coco, Sonia Ingoglia
- 195 *Critical effect size values and why to report them*  
Ambra Perugini, Filippo Gambarota, Enrico Toffalini, Laura Sita, Daniel Lakens, Massimiliano Pastore, Livio Finos, Gianmarco Altoè

SYMPOSIUM 52 - Making sense of social experiences: children's representations through drawings  
*Proponents: Ilaria Castelli, Federica Bianco*

- 197 *Conflict and harmony in siblinghood: drawing's contribution to research on interpersonal relationships in typical and atypical development*  
Oriana Incognito, Giuliana Pinto
- 198 *Children's drawings of their relationship with teachers and well-being in primary school*  
Eleono Cannoni, Chiara Mannola
- 199 *Drawing at school: exploring its role in children's well-being*  
Valentina Rita Andolfi, Elisabetta Lombardi, Daniela Traficante
- 200 *Tracing environmental awareness: a study of age-related differences in children's drawings from northern Italy*  
Claudio Longobardi, Matteo Angelo Fabris, Sofia Mastrokourou
- 201 *Peace and War in the eyes of children with an indirect exposure to war: an analysis of Italian children's drawings*  
Alessia Cornaggia, Federica Bianco, Ilaria Castelli

SYMPOSIUM 115 – "Moving between": school transitions as critical contexts of development  
*Proponent: Ada Cigala*

- 203 *The transition processes from kindergarten to primary school: the teachers point of view*  
Carlotta Degli Esposti, Ada Cigala
- 204 *The relationship between language production and early literacy in children with cochlear implants: a study on the transition between preschool and primary school*  
Marinella Majorano, Michela Santangelo, Irene Redondi, Elena Florit, Chiara Barachetti, Letizia Guerzoni, Domenico Cuda
- 205 *Dropout risk in the transition between the first classes of high school: a study in the Neapolitan suburbs*  
Santa Parrello, Elisabetta Fenizia, Grazia De Angelis
- 206 *Different contexts, same psychological processes? The construct of meta-emotion philosophy in teachers coming from kindergarten, primary school, and middle school*  
Andrea Baroncelli
- 207 *The transition to the university in off-site students and homesickness: an exploratory study*  
Paola Corsano, Rosa Triunfo, Cristiana Punzi

SYMPOSIUM 120 - The assessment of emotional skills in children and adolescents: progress and challenges among different developmental models and direct and indirect measures

Proponent: Antonella D'Amico

- 209 *The promotion of social and emotional learning (SEL) in preschool age: A training study with direct measures*  
Ilaria Grazzani, Valeria Cavioni, Alessandro Pepe
- 210 *Indices of emotional competence and individual differences: the case of preadolescents with callous-unemotional traits*  
Enrica Ciucci, Carolina Facci, Stefania Righi, Paul J. Frick
- 211 *An updated adaptation of the SDQ for preschoolers: teachers' and parents' evaluation*  
Marina Camodeca, Anna Di Norcia, Gabrielle Coppola, Valentina Levantini
- 212 *IE-ACCME-B: A new tool to measure emotional and metaemotional intelligence in children*  
Antonella D'Amico, Alessandro Geraci

SYMPOSIUM 55 - Women's well-being in different life contexts: a developmental life span perspective

Proponent: Aurelia De Lorenzo

- 214 *Parental interference, overstudy climate, and depressive symptoms: women's well-being in a sample of high school students*  
Giacomo Angelini, Ilaria Buonomo, Caterina Fiorilli
- 215 *Female adolescents toward the adult world. Identity, entrepreneurship and the role of adaptive competitiveness*  
Caterina Buzzai, Flavia Cirimele, Alessia Passanisi, Ugo Pace, Carla Zappulla
- 216 *Creative coping: a study of women's strategies to face with stressful situations*  
Anna Parola, Valeria Sarnelli, Luigia Simona Sica
- 217 *Mothers coping with the transition of children with a chronic illness into young adulthood: a qualitative study*  
Emanuela Calandri, Federica Graziano, Martina Borghi, Silvia Bonino
- 218 *Quality of life and frailty in a group of postmenopausal women: when physical activity is a resource*  
Aurelia De Lorenzo, Federica Cipolla, Emanuela Rabaglietti

SYMPOSIUM 102 - Aggressive Behaviors Among Adolescents: Risk Factors and Intervention Strategies

Proponents: Maria Rosaria Nappa, Francesco Sulla

- 220 *A Multilevel Analysis of Factors Shaping Bystander Roles in Bullying Dynamics among High School Students*  
Concetta Esposito, Mirella Dragone, Paola Alicandro, Maria Concetta Miranda, Serena Aquilar
- 221 *Indicated actions for dealing with bullying and victimization at school*  
Lisa De Luca, Annalaura Nocentini
- 222 *Changing Olistic Risk Evaluation of Teen Dating Violence (CORE in TDV) project: Pilot study for the design of the Serious Game*  
Francesco Sulla, Nunzia Merafina, Andreana Lavanga, Lucia Monacis, Margherita Santamato, Anna Sorrentino

- 223 *Cyber Dating Violence and Cyber Problematic Pornography Use during Adolescence: The Moderating Role of the Triangular Love Scale Dimensions*  
Maria Rosaria Nappa, Mara Morelli, Antonio Chirumbolo, Paul John Wright, Noelia Muñoz-Fernández, Elena Cattelino

SYMPOSIUM 103 - Parenting and socio-emotional development in early childhood

*Proponents:* Simona De Stasio, Benedetta Ragni

- 225 *To be present. parental phubbing implications on children's problematic behavior: a pilot study*  
Andrea Spano, Antonio Puligheddu, Annamaria Porru, Maria Lidia Mascia, Stefania Cataudella, Cristina Cabras, Daniela Lucangeli, Maria Pietronilla Penna, Dolores Rollo
- 226 *How are coparenting, intergenerational coparenting, children's temperament, and mindful parenting related to parental self-efficacy?*  
Benedetta Ragni, B., Simona De Stasio, James P. McHale
- 227 *Overcontrolled temperament: a preliminary study on the psychometric characteristics of the Overcontrol in Youth Checklist administered to mothers and fathers of children aged 4-6*  
Madalina Grigore, Giorgia Guidobaldi
- 228 *Artificial Intelligence for Studying Child-Caregiver Interaction in Autism Intervention*  
Maria Grazia Logrieco, Giulio Bertamini, Laura Casula, Francesco Sulla, Mohamed Chetouani, Silvia Guerrero, Mirco Fasolo, Stefano Vicari, David Cohen, Giovanni Valeri
- 229 *Primi Passi per Genitori e Bebè: a service to support parenting*  
Alessia Macagno, Paola Molina

SYMPOSIUM 75 - Transition to motherhood: contexts, constraints and resources

*Proponent:* Maria Cristina Gugliandolo

- 231 *DolceMente Mamma: A model of screening and prevention in the transition to parenthood*  
Giulia Ciuffo, V. Bergamini, S. Bonora, C. Cianfaglione, S. Cominotti, D. Covotta, E. Cusmai, C. Frascoli, F. Guanziroli, E. Masi, J. Militello, E. Perboni, A. Piccinelli, G. Tarantino, M. Varalli, C. Vincitorio, A. Bramante, Chiara Ionio
- 232 *How do women with rheumatic disease narrate the story of their pregnancy? A study with the Interview on maternal representations during pregnancy*  
Martina Smorti, Giulia Aluisini
- 233 *The role of environmental sensitivity and support perceived from the partner to the transition to parenting*  
Odette Nardoza, I. Passaquindici, A. Sperati, Melba Emilia Persico, G. C. Guerra, Maria Spinelli, Francesca Lionetti
- 234 *Maternal satisfaction between pregnancy and postpartum: a two-wave study*  
Martina Gallo, Francesca Liga, Maria Cristina Gugliandolo

SYMPOSIUM 168 - Rethinking psychological development and learning processes from a socio-material perspective

*Proponents:* Antonio Iannaccone, Monica Mollo

- 236 *Financial education in family: the parents' point of view*  
Annalisa Valle, Teresa Rinaldi

- 237 *Sensing Robots with smell: the effect of odors on relational engagement and trust*  
Letizia Aquilino, Federico Manzi, Andrea Schito, Andrea Mazzatenta, Angelo Cangelosi, Sara Invitto
- 238 *A semiotic approach to the understanding of mathematical concepts: Napier bones*  
Gemma Carotenuto, Cristina Coppola, Maria Mellon, Monica Mollo, Tiziana Pacelli
- 239 *The role of sociomaterial experiences in a university course: exploring the frontier between scientific reflection and pedagogical innovation*  
Antonio Iannaccone, Elisa Cattaruzza

SYMPOSIUM 38 - Unravelling the digital matrix in educational contexts: The impact of individual and contextual factors on how adolescents interact with digital media

Proponent: Oriana Incognito

- 241 *The role of technologies in the educational context: how their use affects scholastic and extra scholastic goals*  
Martina Benvenuti, Elvis Mazzoni
- 242 *Fake news and digital literacy: a preliminary study with young people for targeted interventions and educational pathways*  
Aurelia De Lorenzo
- 243 *The interplay of reading medium, highlighting, and task value in preadolescents' text comprehension*  
Angelica Ronconi, Lucia Mason
- 244 *Improving sourcing and intertextual integration skills in reading digital texts through an integrated approach*  
Oriana Incognito, Christian Tarchi

SYMPOSIUM 74 - Social cognition and prosocial behavior in children and adolescents

Proponents: Elisabetta Lombardi, Annalisa Valle

- 246 *Actions Chains And Intention Understanding In 3-6-Year-Old Children*  
Cinzia Di Dio, Laura Miraglia, Giulia Peretti, Antonella Marchetti, Giacomo Rizzolatti
- 247 *The relationship between emotion regulation strategies and social behaviors in 3-5-year-old children*  
Annalisa Levante, Chiara Martis, Anna Cristina Dellarosa, Luigi Russo, Flavia Lecciso
- 248 *Exploring prosocial responses to peer sadness in school-aged children: empathy, prosocial motivation, and contextual factors*  
Edoardo Saija, Susanna Pallini, Roberto Baiocco, Jessica Pistella, Antonia Lonigro, Salvatore Ioverno
- 249 *The role of social cognition and personality traits on prosocial decision-making: a study with school-age children*  
Elisabetta Lombardi, Ilaria Castelli, Annalisa Valle
- 250 *Exploring secondary school students' sourcing skills: the influence of self-efficacy and thinking dispositions*  
Christian Tarchi, Oriana Incognito

SYMPOSIUM 41 - From Theory to Practice: The Application of Robotics and AI in Human Developmental Challenges

Proponents: Cinzia Di Dio, Federico Manzi

- 252 *Social robotics and autism spectrum disorder screening: a challenge for early intervention?*  
Daniela Conti, Adam James Kay, Alessandro Di Nuovo
- 253 *Embodied Artificial Intelligence: introducing artificial intelligence, robotics and evolutionary robotics to children*  
Michela Ponticorvo, Clara Nobile, Davide Marocco, Onofrio Gigliotta
- 254 *ERROR: Evaluating tRust weaRing Off in Robots*  
Alessandra Rossi, Raffaella Esposito, Silvia Rossi
- 255 *Virtual Agents and Risk-Taking Behavior in Adolescence: The Twofold Nature of Nudging*  
Laura Miraglia, Cinzia Di Dio, Michaela Gummerum, Simone Bigozzi, Davide Massaro, Antonella Marchetti

SYMPOSIUM 133 - Early biological-neurocognitive markers of and preventive interventions in reading development

Proponent: Sara Mascheretti

- 257 *Early electrophysiological markers in language and learning impairment: long-term follow-up from infancy to school age*  
Chiara Dondena, Marco Borromini, Valentina Riva, Massimo Molteni, Chiara Cantiani
- 258 *Precursors of Reading and Writing: A Study on Children with Literacy Difficulties*  
Cristiana Varuzza, Cristina Caciolo, Giulia Lazzaro, Andrea Battisti, Federica Somma, Stefano Vicari, Deny Menghini
- 259 *The role of play in pre-schoolers: the long- and short-term cognitive effects*  
Sara Bertoni, Sandro Franceschini, Giovanna Puccio, Simone Gori, Andrea Facoetti
- 260 *Gene x environment interaction in early treatment of reading-related skills in pre-readers*  
Valentina Lampis, Sara Bertoni, Chiara Mauri, Matteo Di Segni, Donald Ielpo, Lucy Babicola, Sara Mascheretti

SYMPOSIUM 15 - The school physical environment matters: effects of indoor and outdoor settings

Proponent: Lucia Mason

- 262 *Students' perception of their listening experience in school classes with different acoustic quality during various learning situations*  
Giulia Vettori, Simone Secchi, Lucia Bigozzi
- 263 *The role of indoor school environment on students' and teachers' well-being: results from a focus group study*  
Alessandro Lorenzo Mura, Maria Luisa Pedditzi, Marcello Nonnis, Ferdinando Fornara
- 264 *Children's reading comprehension in indoor and outdoor environments*  
Lucia Mason, Angelica Ronconi, A.C. Sorbello, S. Cotignoli
- 265 *Social-psychological effects of outdoor education at school: a meta-analysis*  
Valeria Chiozza, Paola Perucchini, Mei Xie, Marino Bonaiuto

SYMPOSIUM 16 - The role of parental reflective functioning on child adjustment in family dynamics

Proponents: Sarah Miragoli, Elena Camisasca

- 267 *Parental reflective functioning and executive functions in preschool children: the mediating role of parental supportive interventions*  
Mara Morelli, Matilde Brunetti, Pietro Spataro, Emiddia Longobardi
- 268 *Exploring the interplay between parental reflective functions and adolescent reflective functions*  
Francesco Cerciello, Alessandro Frolli
- 269 *Fathers' psychological well-being, co-parenting, and children's adjustment: do paternal reflective functioning mediate or moderate these associations?*  
Alessandra Bavagnoli, Alessandra Marelli, Cristal Sirotych, Elena Camisasca
- 270 *Parental reflective functioning and child maltreatment risk: the role of emotional dysregulation*  
Vittoria Badino, Sarah Miragoli

SYMPOSIUM 65 - Promoting Ethnic-Cultural Identity and Youth Adjustment in Multicultural Contexts: New Challenges and Opportunities

Proponents: Ughetta Moscardino, Sabine Pirchio

- 272 *The role of plurilingual educational practices in students' identity*  
Sabine Pirchio, Sara Costa, Jasmine Giovannoli, Sara Passarini
- 273 *Are you telling me to discard who I am? The role of ethnic identity in ethnic microaggressions*  
Serena Verbena, Benedetta E. Palladino
- 274 *Profiles of cultural identity development and associations with psychosocial adjustment among adolescents participating in the Identity Project intervention in Italy*  
Ughetta Moscardino, Chiara Ceccon, Gianmarco Altoè, Adriana J. Umaña-Taylor
- 275 *Cultural kaleidoscope: navigating well-being and adaptation in young immigrant adults through diverse identity dimensions*  
Nicolò Maria Iannello, Cristiano Inguglia, Pasquale Musso

SYMPOSIUM 67 - The early development of representational systems: the role of working memory and executive functions

Proponent: Sabrina Panesi

- 277 *The role of inhibitory control skills in early language development*  
Elena Gandolfi
- 278 *Relationship between drawing and language in toddlers and preschoolers: the role of working memory capacity and executive functions*  
Sabrina Panesi, Sergio Morra
- 279 *The role of executive function and working memory in early writing*  
Laura Traverso, Mirella Zanobini, Paola Viterbori, Maria Carmen Usai
- 280 *The development of early mathematical abilities in mainstream school and deprived environments: relations with working memory and inhibitory control*  
Chiara De Vita, Carlo Tomasetto, Sandra Pellizzoni

SYMPOSIUM 173 - Enhancing children's Executive Functions through robotics and gamification

Proponent: Chiara Pecini

- 282 *Assessing the impact of age on the cognitive effectiveness of coding intervention*  
Chiara Montuori, Lucia Ronconi, Gabriele Pozzan, Costanza Padova, Tullio Vardanega, Barbara Arfé
- 283 *A story for NAO: engagement and cognitive control of second and third grade children during story-telling interactions with the nao social robot*  
Stefano Scatigna, Laura Fiorini, Lorenzo Pugi, Elena Adelucci, Filippo Cavallo, Alice Bruni, Benedetta Carotenuto, Maria Chiara Di Lieto, Benedetta Del Lucchese, Elisa Matteucci, Antea Scrocco, Giuseppina Sgandurra, Chiara Pecini
- 284 *Efficacy of a computerized treatment of executive functions: preliminary data*  
Raffaele Nappo, Angelo Rega
- 285 *The Elli's world, a video game for improving executive function and media literacy: the Emile project*  
Clara Bombonato, Antea Scrocco, Silvia Della Rocca, Andrea Frascari, Chiara Pecini, Christian Tarchi
- 286 *Is a video-game based training feasible to enhance executive function in children with neurodevelopmental disorders?*  
Alice Bazzurro

SYMPOSIUM 101 - Rethinking narrative in the life span: textual, graphic and experiential tools for self-reflection

Proponents: Luigia Simona Sica, Alessandro Frolli

- 288 *Narrative approach and Theory of Mind in children*  
Francesco Cerciello, Alessandro Frolli
- 289 *A visual tool to tell about perceived relational closeness to others in preadolescents*  
Carolina Facci, Paul J. Frick
- 290 *Adolescents at risk of dropping out narrate their worlds: family, neighbourhood, peers, school, and extracurricular activities*  
Elisabetta Fenizia, Santa Parrello
- 291 *Social differences in the construction of the future: stories of late adolescents*  
Luigia Simona Sica, Federico Diano, Emanuela Militello, Luca Fusco
- 292 *Narrative writing as a tool for well-being exercise among teachers: a qualitative study with the Sandwich Generation*  
Emanuela Rabaglietti

SYMPOSIUM 73 – Unraveling resilience: novel discoveries and interventions across the lifespan in diverse populations

Proponents: Fabiola Silletti, Pasquale Musso

- 294 *Baby Blues to Bright Solutions: The Role of Maternal Social Support on Infant Resilience*  
Fabiola Silletti, Qingyu Jiang, Amanda Koire, Gabrielle Coppola, Rosalinda Cassibba, Leena Mittal, Carmina Erdei, Joshua L. Roffman, Cindy H. Liu

- 295 *The impact of climate crisis stress on children's life satisfaction: the mediating role of future orientation and resilience*  
Federica Stefanelli, Maria Chiara Basilici, Ersilia Menesini
- 296 *From risk factors to early intervention: pathways to resilience for at risk families with children aged 0-6*  
Fiorenza Giordano, Sarah Miragoli, Luca Milani
- 297 *Exploring the role of resilience and basic psychological needs in the relationship between parental stress and life satisfaction among mothers of children with autism spectrum disorder*  
Maria Chiara Gugliandolo, Eliana De Salvo, Francesca Cuzzocrea

SYMPOSIUM 23 - Being affected by disease in adolescence and emerging adulthood: which factors can promote a positive adaptation? The response by the Pediatric Psychology Task Force

Proponent: Martina Smorti

- 299 *Aya leukemia survivors narrate their daily life: a multi-method analysis with nvivo*  
Roberta Maria Incardona, Sabrina Bonichini, Livia Taverna, Marta Tremolada
- 300 *From single trauma to multiple trauma: An intervention research on the intertwining of war trauma and cancer*  
Damiano Rizzi, Giulia Ciuffo, Tetiana Molodii, Chiara Ionio
- 301 *Planet parents-adolescent with a rare disease: relationship representations and care needs*  
Concetta Polizzi, S. I. P. Ped Rare Disease Group, Annalisa Scopinaro
- 302 *Being affect by cardiomyopathy during the transition to adulthood: how parental relationship can protect the psychological and relational wellbeing*  
Martina Smorti, Alessia Carducci, Veronica Campani, Franco Cecchi, Iacopo Olivotto

SYMPOSIUM 57 - Enhancing parenting from birth to adolescence: key ingredients for effective interventions

Proponent: Maria Spinelli

- 304 *Supporting and accompanying maternal competence in the NICU and return home, in preterm birth conditions*  
Concetta Polizzi, Giovanna Perricone, Maria Regina Morales
- 305 *From Inner to Dyadic Connection: The Role of Mindfulness in Mother-Infant Interaction During the First Year of Life*  
Ilenia Passaquindici, Massimiliano Pastore, Maria Teresa Positano, Giulio D'Urso, Maria Spinelli
- 306 *Enhancing positive parenting in parents of preschoolers through the app-based mindful parenting program "MINUTO"*  
Chiara Suttora, Stefania Bortolotti, Maria Bigoni, Daniela Iorio, Margherita Fort, Chiara Monfardini, Alessandra Sansavini
- 307 *Helping parents of adolescents through an attachment-based program: Strengths, outcomes and obstacles in CONNECT Parent group-CPG implementation in Italy and across international sites*  
Lavinia Barone, Claudia Greco, Marlene Moretti

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*Proponent:* Alessandra Geraci

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## KEYNOTE SPEECH

### **Strength in numbers: the role of close relationships in coping with life's challenges**

*Sarah Galdiolo*  
*University of Mons (Belgium)*

*Chair:* Antonella Brighi (University of Bozen – Bolzano)

Throughout our lives, we encounter a wide range of events and challenges—some normative and socially desirable, such as marriage or childbirth, and others non-normative or difficult, like the death or illness of a loved one. These experiences inevitably lead to stress. For decades, research has primarily explored stress from an intraindividual perspective, focusing on how individuals cope with life events and the stress they provoke. However, developmental changes and life experiences often occur within social contexts. Social relationships are not just a significant part of the human experience—they are at its core. When facing a life event, individuals are not alone; they can be supported by loved ones, and emotion regulation can be an interpersonal experience. Thus, studying stress from an individual perspective alone is insufficient, as it is an interindividual experience. Given that stress is an interindividual experience, we might ask whether interconnected individuals, such as family members or partners, synchronize with each other. Synchrony refers to the degree to which the time-varying states—whether behavioral or physiological—of at least two individuals change in coordination with each other. This question has been at the heart of my research, through different life challenges, such as the transition to parenthood, dealing with a child with externalizing behaviors, or couples facing a disruptive event, such as the COVID-19 pandemic. These issues were analyzed during the keynote presentation.

## KEYNOTE SPEECH

### **Interaction drives development: from infant emotion to childhood autism**

*Daniel Messinger*  
*University of Miami (FL)*

*Chair:* Roberta Fadda (University of Cagliari)

Much development occurs as children explore and react to their social environments. To understand the rules governing early social interaction, Dr. Messinger employs machine learning of audio, video, and ultrawideband signals deployed in naturalistic contexts. Guided by a dynamic systems perspective, he uses statistical tools to model early face-to-face interaction, predict attachment, and characterize autism spectrum disorder. Dr. Messinger will discuss ongoing research harnessing multimodal objective measures of vocalizations and location captured with wearable sensors in inclusion classrooms containing children with and without disabilities such as autism. The research incorporates both machine learning and tools from statistical physics to predict children's speech and language development in everyday contexts.

## Mini-talk – session 1: SOCIAL ABILITIES AT SCHOOL

*Discussant:* Fabrizio Sanna (University of Cagliari)

### 36 - A “dialogic reading” intervention at school to promote language skills in 4-year-olds: data from a pilot study conducted in Italy

*Arianna Bello* <sup>(1)</sup> - *Francesca Moncalli* <sup>(1)</sup> - *Paola Perucchini* <sup>(1)</sup> - *Donna Jo Napoli* <sup>(2)</sup>  
*Dipartimento di Scienze della Formazione, Università Roma Tre, Roma, Italia* <sup>(1)</sup> - *Swarthmore College, Università, Swarthmore, Stati Uniti D' America* <sup>(2)</sup>

**Introduction.** Infant language promotion programmes that use dialogic reading conducted by teachers in a school setting are rare. To examine the effectiveness of the intervention “Dialoguing with the stories of Leo Lionni” on lexical comprehension and production and expressive grammar skills of preschool children who are either L1-Italian or children of migrants with L2-Italian.

**Methods.** The intervention program consisted of 5 sessions a week (of around 30 minutes each) for a duration of 4 weeks. During the intervention 10 books were proposed for reading. Lexical comprehension, lexical production and expressive grammar skills were assessed before and after the intervention. Thirty-one children aged 4 years participated in the study: 20 (N=12, L1 Italian; N=8 L2 Italian) participated in the intervention and 11 (N=7, L1 Italian; N=4, L2 Italian) formed the control group.

**Results.** Statistical analyses (repeated measure ANOVAs) show a significant effect of the intervention only on lexical production: the children in the intervention group showed a greater increase in vocabulary production between pre and post-test than the children in the control group. A comparison between the L1 Italian children and L2 Italian children who participated in the intervention shows that children with L1 Italian have a higher performance in both lexical production and expressive grammar.

**Discussion.** The results highlight greater expressive language abilities post intervention in the children who participated in dialogic reading, particularly in the L1 Italian children, underlining the usefulness for teachers to adopt a dialogic reading strategy in kindergarten, and a necessity to reflect on how to promote L2 Italian in children of migrants.

## **111 - Enhancing prosocial behaviors in primary school: the role of sympathy and empathic self-efficacy in the CEPIDEAS junior intervention**

*Federica Zava*<sup>(1)</sup> - *Isabella Giacchi*<sup>(1)</sup> - *Giovanni Maria Vecchio*<sup>(1)</sup>  
*Università di Roma Tre, Dipartimento di Scienze della Formazione, Roma, Italia*<sup>(1)</sup>

Prosocial behaviors, such as sharing, helping, and caring, are key for promoting social interaction and cohesion, especially within educational settings. Within the framework of Social Cognitive Theory (SCT, Bandura, 1997), sympathy and empathic self-efficacy are central to cultivating prosocial behaviors in children. In the field of Socio-Emotional Learning (SEL, Durlak et al., 2015), the CEPIDEAS Junior program was specifically designed to introduce prosocial education to primary students. Through targeted learning activities, the program aims to deepen students' understanding of prosocial behavior and its determinants, to fostering a supportive and inclusive school environment conducive to positive social development. In this study, we aim to improve our understanding of the impact of the CEPIDEAS Junior program on prosocial behaviors and to investigate the additional advantages of sympathy and empathic self-efficacy in promoting prosocial behaviors in the primary school setting. The intervention was conducted in eighteen schools in Rome, involving primary school students. A sample of 1045 students ( $Mage = 8.51$ ,  $SD = 0.73$ ; 471 girls). A two-wave quasi-experimental design was used with intervention ( $n = 527$ ) and control groups. We adopted a multi-informant approach including peer-rated prosocial behavior, teacher-reported sympathy, and children's empathic self-efficacy. Latent Difference Score (LDS) models revealed significant increases in prosocial behaviors, sympathy, and empathic self-efficacy in the intervention group. Serial mediation analyses indicated that the intervention program indirectly enhanced prosocial behaviors through increased sympathy and empathic self-efficacy. The role of sympathy and empathic self-efficacy in driving prosocial behavior was supported. The results highlighted the efficacy of the CEPIDEAS Junior program, confirming the relevance of the SEL approach in promoting positive behaviors in primary school. Based on SCT, the importance of leveraging empathic self-efficacy as a mechanism for developing prosocial behaviors is also confirmed. Practical implications for teachers and educators will be discussed.

### 138 - Supportive parenting as a moderator of the efficacy of an intervention for promoting school-age children's socio-emotional learning

Chiara Riccioni <sup>(1)</sup> - Laura Di Giunta <sup>(1)</sup> - Goren Gordon <sup>(2)</sup> - Clementina Comitale <sup>(1)</sup> - Carolina Lunetti <sup>(3)</sup> - Giulia Gliozzo <sup>(1)</sup>

La Sapienza, Università, Roma, Italia <sup>(1)</sup> - Tel-Aviv University, Università, Tel-Aviv, Israele <sup>(2)</sup> - Università degli studi Guglielmo Marconi, Università, Roma, Italia <sup>(3)</sup>

**Introduction.** Children's social and emotional learning (SEL) is a key component of children's development in recognizing, understanding, and regulating their own and others' emotions and creating positive relationships with peers and adults around them (CASEL, 2017; Durlak et al; 2022). This study is part of V-Robotator project, which aims at promoting school-age children's SEL, with online activities, in sub-groups of children, facilitated by a virtual agent (Gordon et al., 2023). In particular, this study aims to examine the role of a potential moderator of the efficacy of such intervention, namely supportive parenting. It was hypothesized that the intervention was more effective for those children whose parents were high in positive parenting.

**Methods.** Seventy parent-child dyads (38 from Rome, 35 from Catania; 85% mothers; children's mean age= 9.02, SD=.91, 52% boys) and 11 teachers participated to this study. The efficacy of the intervention was measured through teacher- (SSIS SELb; Elliott et al., 2020) and children-reports (RESE; Caprara & Gerbino, 2001; Di Giunta et al., 2013) at pre and post-test. Supportive parenting was measured through parent-reported positive parenting (Capaldi & Patterson, 1989), warmth, and rejection (Rohner, 2005).

**Results.** Teacher-reported children's social awareness ( $F(1,69)=3.03, p=.08$ ) and responsible decision making ( $F(1,69)=4.55, p=.04$ ) at the post-test were (almost) significantly higher than the pre-test, as well as child-reported self-efficacy beliefs in dealing with negative emotions ( $F(1,69)=5.30, p=.02$ ). Supportive parenting was moderately positively correlated with children's SEL. Finally, it emerged that teacher-reported SEL were more effective for those children whose parents were less supportive; whereas child-reported SEL were more effective for those children whose parents were more supportive. The average Cronbach's alpha among all the examined measures was .70.

**Discussion.** This study contributes to attest the validity of an innovative intervention aimed at promoting children's SEL and it highlights the crucial importance to rely on multi-informant framework when examining the association between contextual and individual determinants of children's well-being.

## **Mini-talk – session 2: EARLY CHILDHOOD EDUCATION, INCLUSION, AND PARENTING**

*Discussant:* Roberto Marcone (University of Campania Luigi Vanvitelli)

### **72 - A new online coparenting-based intervention: the co-construction process of the Coparent2Balance curriculum**

*Benedetta Ragni* <sup>(1)</sup> - *James P. McHale* <sup>(2)</sup>

*LUMSA Università di Roma, Dipartimento di Scienze Umane, Roma, Italia* <sup>(1)</sup> - *Family Study Center, University of South Florida, St. Petersburg, Florida, Stati Uniti D' America* <sup>(2)</sup>

The United Nations' 2030 Agenda for Sustainable Development underscores the urgency of empowering women, recognizing unpaid domestic duties and childcare, and fostering shared household responsibilities. Despite some progress, women in the EU still spend 11 hours more per week than men on unpaid domestic work. The Coparent2Balance project has been funded by the Italian University & Research Minister (Seal of Excellence in the European Horizon program MSCA-2021-PF-01-0), to create an innovative 5-week digital intervention for Italian heterosexual couples with children aged 12-36 months. Grounded on Prof. James McHale's Focused Coparenting Consultation (FCC) model, its main objective is to enhance parental consciousness of the importance of the father's involvement in children's development. It emphasizes a collaborative approach to parenting, focusing its content on coparenting, which is defined as the enterprise undertaken by two or more adults who together provide for the care and upbringing of children for whom they share responsibility. Participants will have access to the Coparent2Balance online platform for 5 weeks, accessing psychoeducational resources and interactive mini-serious games through computers or mobile devices. Additionally, weekly expert-led online sessions will be available for further support. This mini-talk will outline the project's framework, its intervention-research methodology, and initial findings. Research suggests that positive dimensions of coparenting, such as coordination, collaboration, and equal division of labor, can promote greater paternal involvement in childcare. Consequently, coparenting emerges as a fundamental element in both academic and clinical settings, with the potential to foster healthier family relationships.

**Keywords:** coparenting, digital intervention, fathers.

## 82 - INTERCOMP: Advancing Inclusion and Diversity through Innovative Teaching Practices

Antonella Brighi <sup>(1)</sup> - Alessandro Failo <sup>(1)</sup> - Alberto Amadori <sup>(1)</sup> - Giulia Prestera <sup>(1)</sup> - Francesca Sangiuliano - Intra <sup>(1)</sup> - Livia Taverna <sup>(1)</sup>  
Libera Università di Bolzano, Facoltà di Scienze della Formazione, Bolzano, Italia <sup>(1)</sup>

The INTERCOMP project aims to meet the horizontal priority of "*Inclusion and Diversity in all fields of education, training, youth, and sport*", with a specific focus on stimulating innovative learning and teaching practices. The primary goal of this project is to educate educators about innovative teaching methodologies that enhance the inclusion and integration of students from diverse cultural backgrounds. Past research and theorizing have established that social inclusion and integration of individuals from varied groups are crucial dimensions of education. As the numbers, reasons, and conditions under which individuals relocate to new countries and seek integration into local communities rise, it is essential that teaching and learning practices continually evolve. INTERCOMP approaches the development of innovative teaching practices from the perspective of social and emotional learning. The INTERCOMP project is designed around three main pillars: knowledge, skills, and attitudes, which are essential for effective and modern intercultural education. This presentation will focus on the development of educational training modules, materials, and tools aimed at boosting the intercultural competencies of educators. By utilizing intercultural techniques that incorporate social and emotional learning, educators will develop suitable teaching skills to effectively interact with students of diverse cultural backgrounds, thereby enriching existing approaches and promoting an intercultural mindset through education. Additionally, the project integrates a trauma-informed approach to further support educators in addressing the psychological and emotional needs of students from diverse and potentially challenging backgrounds.

**Keywords:** inclusion, diversity, intercultural education, teaching innovation, intercultural competencies.

### 83 - Inclusive approaches in Italian Early Childhood Education and Care: the view of practitioners

Beatrice Ragaglia <sup>(1)</sup> - Alessia Macagno <sup>(2)</sup> - Anne Henning <sup>(3)</sup> - Daniela Bulgarelli <sup>(1)</sup>  
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**Introduction.** This research explores the perspectives of Italian practitioners on the inclusion of children with disabilities in Early Childhood Education and Care (ECEC). To date, Italy operated on a divided system addressing different children's age groups (0–3 and 3–6 divisions) until the recent establishment of the ZeroSix Integrated System.

**Methods.** Semi-structured interviews were conducted with 14 women practitioners between 28 and 62 years ( $M = 41.8$ ,  $SD = 8.9$ ) working in ECEC settings in northwest Italy: seven nursery school educators and seven kindergarten teachers. During the interview, participants referred to a particular child: the children were 3 girls and 11 boys, aged between 18 months and 6 years, each with a different health condition. Their responses were analyzed using deductive content analysis according to the eight dimensions of inclusion addressed by the European Agency for Special Needs and Inclusive Education (2017). The software ATLAS.ti 23.4 was used for coding and text analysis.

**Results.** Key themes identified as pivotal for fostering inclusion included creating an inclusive social, teaching and learning environment, adopting a child-centered approach, fostering an inclusive social environment, and maintaining a family-friendly environment. Some aspects of these dimensions were also recognized as challenging, especially in terms of providing specialised disability professionals ( $N = 9$ ), as well as developing trustful and cooperative relationships with families ( $N = 5$ ). The implementation of materials for all children also proved to be a critical issue ( $N = 5$ ), as did the opportunity for children to resolve conflicts alone ( $N = 5$ ). The strengths and weaknesses of inclusion varied between the two divisions: kindergarten teachers more frequently mentioned supporting prosocial behaviours, encouraging peer interaction, focusing on the ability to express oneself and being understood by peers and staff, and using peer tutoring to enhance the inclusion of children with disabilities.

**Discussion.** This study enriched the literature by examining how Italian practitioners implement inclusive practices in ECEC, analysing what difficulties or critical aspects they encounter in implementing inclusive practices and highlighting the differences between the 0–3 and 3–6 divisions.

**Keywords:** ECEC, inclusion, disability, belief and practice.

## 84 - DiversHUBility: a European project to raise awareness and develop skills of managers, operators, and people with disabilities

Giulia Savarese <sup>(1)</sup> - Luna Carpinelli <sup>(1)</sup> - Marco Navarra <sup>(2)</sup> - Stefano Bifulco <sup>(1)</sup> - Giovanna Stornaiuolo <sup>(1)</sup> - Federico Manzi <sup>(3)</sup> - Margherita Magnini <sup>(3)</sup> - Luigi D'Alonzo <sup>(3)</sup> - Elena Zanfroni <sup>(3)</sup> - Ilenia Folci <sup>(3)</sup> - Luca Rollè <sup>(4)</sup> - Tommaso Trombetta <sup>(4)</sup> - Maria Noemi Paradiso <sup>(4)</sup> - Annalisa Sannino <sup>(5)</sup> - Marta Margiel <sup>(6)</sup> - Anna Nawrot <sup>(6)</sup> - Ercan Küçükarslan <sup>(7)</sup> - Mario Verissimo <sup>(8)</sup> - Graça Gonçalves <sup>(8)</sup> - Sofia Tsiortou <sup>(9)</sup>

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**Introduction.** In the European Union (EU), around 87 million people have some form of disability; of these, only half have a job and 28.4 percent of people with disabilities are at risk of poverty or social exclusion. The Erasmus+ DiversHUBility project aims to develop skills to improve the employability and productivity of people with disabilities. The project intends to concretize the process of empowerment and self-awareness of people with disabilities - in line with the document "Guidelines for the implementation of the E+ inclusion and diversity strategy and ESC" - to overcome cognitive, social, or other difficulties and thus make them fully participate in the economic, social and working life of the EU.

**Methods.** The DiversHUBility project brings to fruition a partnership between Italy, Poland, Finland, Greece, Portugal, and Turkey, creating a network for the exchange of knowledge, to pursue two main results: 1) a university specialization and professional competence-building course in "Management of diversity and work inclusion of people with disabilities" (in blended mode); 2) a TOOLKIT: guidelines for the work inclusion of people with disabilities.

**Results.** Preliminary results obtained by the project and the critical issues encountered in defining the different project's components will be presented. This includes outlining the structure of the entrepreneurship development pathway in highly innovative contexts and detailing the research and development activity towards creating an internationally relevant training program and an innovative TOOLKIT designed for a wide range of users.

**Discussion.** The DiversHUBility project can concretely contribute to a cultural and systematic change that fosters greater acceptance and inclusion in the workplace. By focusing on the development of transversal competencies such as resilience, flexibility, adaptability, and self-esteem, which are crucial for the employment success of people with disabilities in a rapidly changing environment, it can foster the creation of support networks between people with disabilities, employers, educational institutions, and other key actors to have a direct impact.

## Mini-talk – session 3: WELL-BEING IN ADOLESCENCE

*Discussant:* Maria Luisa Pedditzi (University of Cagliari)

### 35 - Project “Zoomer: an intervention on mentalization abilities in adolescence to promote psychological well-being”

Giulia Peretti <sup>(1)</sup> - Andrea Luna Tacci <sup>(1)</sup> - Edorado Alfredo Bracaglia <sup>(1)</sup> - Marcella Garcia <sup>(2)</sup> - Fabio Azzimondi <sup>(2)</sup> - Costanza Eugeni <sup>(2)</sup> - Giada Fanti <sup>(2)</sup> - Cecilia Gaboardi <sup>(2)</sup> - Cristiano Bregamo <sup>(2)</sup> - Rita Gallizzi <sup>(2)</sup> - Davide Massaro <sup>(1)</sup>

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**Introduction.** The project “Zoomer: spazi di ascolto ed esperienziali sulle risorse di mentalizzazione per il benessere psicologico degli adolescenti”, funded by Fondazione Cariplo’s Attenta-mente grant, aimed to create listening and experiential spaces designed to promote the well-being of adolescents. Adolescence is a period of transition during which young people define their identity, form relationships and face increasing challenges. Teachers and educators have a key role to play in promoting the well-being of young people and the various professionals who come into contact with them. It is therefore essential that they are properly trained to achieve these goals effectively. It is also important to make adolescent themselves aware of the importance of their mental well-being. From a psychological perspective, the concept of mentalisation is important, i.e. the ability to predict and interpret one’s own and others’ behaviour on the basis of one’s own and others’ mental states (Allen, Fonagy & Bateman, 2008; 2010). High mentalisation skills promote effective relational competence and generate psychological well-being in everyday contexts. These contexts thus become sites for the promotion of mentalisation skills, creating a community that fosters relational and positive educational practices.

**Methods.** The training programme focused on the promotion of: psychological wellbeing, mentalisation and mentalising communities through specific courses for the different actors involved. Through this training, which involved educators and teachers (40) and adolescents aged 15 to 19 (37 classes, high school and technical institute), and a supervision course for practitioners (4 classes, vocational institute), we provided them with the knowledge and skills necessary to promote well-being and the ability to mentalise through lectures and practical workshops.

**Results.** Preliminary results on mentalisation showed that 51.9% of students in technical institutes and 70% in high schools considered the intervention to be not very effective on self-knowledge, whereas 58% of students in technical institutes and 69% in high schools considered it highly effective on peer knowledge.

**Discussion.** This enabled participants to reflect on interpersonal relationships and the promotion of mentalising communities. It is hoped that by improving mentalisation skills, educators, teachers, and adolescents will be better prepared to develop such skills and promote mentalising communities.

**Keywords:** mentalisation, adolescents, educators, mentalising communities, promoting well-being.

### **37 - Well-being in secondary school: a contribution to the validation of the Well-Being Profile in a sample of adolescent students**

*Laura Francesca Scalas* <sup>(1)</sup> - *Maria Luisa Pedditzi* <sup>(1)</sup> - *Claudia Pes* <sup>(1)</sup> - *Stefania Cuccu* <sup>(1)</sup> - *Daniela Fadda* <sup>(1)</sup> - *Paola Magnano* <sup>(2)</sup> - *Marina Guarnera* <sup>(2)</sup> - *Rita Zarbo* <sup>(2)</sup> - *Lucrezia Perrella* <sup>(3)</sup> - *Ernesto Lodi* <sup>(3)</sup> - *Patrizia Patrizi* <sup>(3)</sup>

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*- Università degli Studi di Enna "Kore", Dipartimento di Scienze dell'Uomo e della Società, Enna, Italia* <sup>(2)</sup> - *Università degli Studi di Sassari, Dipartimento di Scienze umanistiche e sociali, Sassari, Italia* <sup>(3)</sup>

This contribution presents preliminary results of the PRIN project "Paths toward well-being: An action-research for promoting quality of life in a multidimensional perspective" involving the Universities of Cagliari, Enna "Kore" and Sassari. Specifically, here we describe results from the Research Unit of Cagliari which focuses on the school context. In the last decades, the interest in subjective well-being from a multidimensional perspective has greatly increased. However, few instruments adopt this multidimensional perspective and have proper psychometric properties. The Well-Being Profile (WB-Pro – Marsh, Huppert, Donald, Horwood, Sahdra, 2020) offers several advantages since it has a solid theoretical background and good psychometric properties. The instrument includes 15 scales providing a profile for individuals or groups, that can help implement interventions to enhance well-being. For this reason, the WB-Pro shows great potential for the school context. However, the scale has been validated only in adult samples (Marsh et al, 2020; Scalas, Lodi, Magnano, Marsh, 2023). Here we present the results of a validation in adolescent students. We administered the WB-Profile to a sample of 624 Sardinian adolescents; however, 70 students provided wrong answers to one or more of the 9 control questions (e.g. To this item please respond 1) and were excluded from the analyses. An additional 10 subjects were excluded due to age values out of range (15-, 22-years old, or higher). The answers of the final sample of 544 adolescents (age range = 16-21; F = 46.5%; M = 53.1%, other = .4%) were used to test the factorial structure of the WB-Pro with ESEM and target rotation (CFI = .979; TLI = .954; RMSEA = .033) and with Bifactor ESEM and target rotation (CFI = .983; TLI = .961; RMSEA = .030). All the items saturated on the expected dimensions and almost all scales correlated with each other. On a subsample of 395 adolescent residents in the province of Cagliari (F = 48.4%), we tested the association of the WB-Pro dimensions with constructs relevant to the school context (i.e. school self-efficacy, motivation). The results show that the WB-Pro has good psychometric properties and can be used with adolescent samples, providing detailed profiles that can help practitioners develop tailored interventions to enhance school well-being in adolescents.

**Keywords:** well-being, multidimensional perspective, adolescents, factorial structure, PRIN.

## **155 - Evaluation of the effectiveness of a school dropout reduction intervention: implications for adaptive skills**

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School dropout is an extremely complex phenomenon involving several dimensions of an individual's social life, with effects and medium-term, and long-term effects. The possible predictors are multiple and influence how student reacts to the school context. Several studies have analyzed the role of individual factors on the phenomenon; however, considering the multidimensional nature, it is necessary to analyze the joint role of these factors on a sample of 146 students ( $F=77$ ;  $M_{AGE}=12.4$ ) from secondary school, the effectiveness of a psycho-educational and social intervention to combat school dropout was analyzed, as well as the role of factors such as conditions of social exclusion and poverty, personal and/or family difficulties, study motivation, quality of relationships and self-esteem, and the implications on the adaptive skills of at-risk children. Structural equation models highlight the central role of psycho-social factors in explaining the improved adaptive abilities of boys.

**Keywords:** school dropout, adolescent, quality of relationships, self-esteem, adaptive skills.

**BOOK PRESENTATION - 26 – Camodeca, M., Gelati, C. (2024). *Il benessere a scuola. Una prospettiva psicologica*. Roma: Carocci Editore.**

Presenters: Marina Camodeca <sup>(1)</sup> - Carmen Gelati <sup>(2)</sup>  
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The book highlights some aspects contributing to school wellbeing in children and adolescents. Chapters, reporting sound theoretical approaches and findings of scientific research, deal with wellbeing associated with motivation, emotions, learning (reading and writing, mathematics, study skills), relationships with teachers and peers, special educational needs, and inclusion. For each topic, useful assessment instruments are also indicated.

## Short Speech – session 1: CONTEXTUAL FACTORS IN DEVELOPMENT

*Discussant:* Simonetta D'Amico (University of L'Aquila)

### 5 - Coping and emotions during the Ukraine war: a multi-country survey among higher education students indirectly exposed to the conflict

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**Introduction.** On 24 February 2022, Russia invaded Ukraine, launching a war that is still provoking traumatic economic, social, and psychological consequences worldwide (Jawaid et al., 2022; Kurapov et al., 2023). Wars cause increased psychopathology also for indirect victims, including higher education (HE) students (Baschnagel et al., 2009; Ben-Zur et al., 2012). We investigated how HE students, as indirect victims, coped with the conflict and how they felt during 2022. We had three aims: (1) testing a model in which worry due to war-related domains was linked to war-related coping strategies, in turn linked to war-related emotions, (2) testing the model's invariance, and (3) exploring gender, study field, and geographic area differences in emotions.

**Method.** We involved 2314 students ( $M_{age} = 23.30$ ,  $SD = 5.74$ ; 56% females) from 16 countries (Croatia, Ecuador, Gambia, Greece, India, Indonesia, Italy, Japan, Mexico, Pakistan, Po-

land, Portugal, Romania, Serbia, Slovenia, and Spain). They completed an online survey formed of 36 questions. We assessed the extent of worry due to different war-related domains (education, macroeconomics, and military; Bronfenbrenner, 2005), the agreement with statements about war-related coping strategies (opposition and support giving; Skinner & Zimmer-Gembeck, 2016), and the frequency of six emotions (anger, shame, anxiety, hopelessness, hope, and pride; Raccanello et al., 2022).

**Results.** We used the R software. A structural equation model revealed significant relations between war-related worry about military and macroeconomics domains and the two coping strategies, significantly related to the emotions. A measurement invariance analysis indicated that the model resulted strongly invariant across gender, study field, and geographic area. Through linear mixed models, we found that students felt anger and anxiety more frequently, followed by hopelessness and hope; in addition, females and students from countries geographically close to the war region felt more intense emotions.

**Discussion.** Knowledge about indirect victims' coping and emotional reactions is the basis for developing actions to support them. Notwithstanding limitations such as the self-report nature of the data, our results call for evidence-based policy guidelines to be followed by institutions to cope with the traumatic psychological consequences of being witnesses to wars.

**Keywords:** coping, emotions, war, higher education students, indirect exposure.

## **24 - Peer victimization and internalizing symptoms: examining the moderating role of self-blame in native and migrant adolescents**

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The present research examined the relationship between bullying victimization and internalizing problems in both native and migrant adolescents, within the framework of the social information processing and the minority stress model. Specifically, it has been investigated how the tendency towards a self-blame attribution style in the interpretation of negative social interactions may intersect with migratory background in explaining adverse mental health effects arising from peer harassment. This study involved 430 high school students (43% girls, 27% migrants) in the province of Rome, aged 14-17 years, who completed self-report questionnaires. A hierarchical moderated regression analysis was utilized. Results revealed a significant three-way interaction between migrant background, self-blame, and peer victimization. Specifically, among native adolescents, peer victimization showed a significant and positive association with internalizing symptoms, irrespective of self-blaming tendencies. Conversely, among migrant adolescents, this association was significant only at high levels of self-blame attribution bias. These findings could deepen our understanding of the distinct vulnerabilities faced by ethnic minority youth, shedding light on specific risk factors affecting the psychosocial adaptation of adolescents from migrant backgrounds.

**Keywords:** peer victimization, internalizing symptoms, social cognition, migrant background, adolescence.

## **123 - Parental style and parental ethnotheories. A comparison between North African immigrant mothers and Italian mothers**

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It is now widely accepted that parenting styles are influenced by the values, models and beliefs of one's own culture. To reconcile their cultural identity with that of the host country, migrant parents are forced to adapt their cultural parenting practices, previously considered fixed and unchanging. This adaptation is defined as a 'hybrid' approach (Scarzello & Arace, 2012). To facilitate an acculturation process that protects the well-being of both the child and the migrant mother, it is essential to understand the practices used by these mothers when living in a context that is markedly different from their home country. The aim of this study is therefore to identify the main parenting practices of North African immigrant mothers of Islamic religion and the values to which they refer. A comparison will then be made with the parenting practices and reference values of Italian mothers. Participants were 126 mothers of children aged between 3 and 5 years ( $M = 3.99$ ;  $SD = 1.22$ ): 63 mothers were from North Africa (46% from Egypt, 32% from Morocco, 22% from Tunisia,) and 63 were Italian. Both the samples did not exhibit statistically significant differences about age, and level of education. The mothers had an average age of 31.2 ( $SD=3.9$ ) and a relatively low level of education, with at least one other child attending primary school. The data were collected through in-depth interviews. The interviews were conducted along with a cultural mediator from mother home country. During the interview, the cultural mediator had the opportunity to intervene, both to ask for clarifications about answering and to facilitate the mothers' understanding of the questions. The answers were coded by the researchers, with the support of the mediators. Content analysis was conducted using the ATLAS.ti software. Subsequently, the results were analyzed according to the principles of grounded theory, focusing on the emerged meanings and avoiding the selection of data based on preset categories. Significant differences were found between immigrant and Italian mothers in both parenting practices and the values considered important for their child's growth. Autonomy and creativity were identified as the most important values for Italian mothers, while docility, discipline, and religiosity were identified as the most important values for Muslim mothers from North African countries.

## 141 - Italian primary school children's perspectives on individual and structural factors that contribute to ethnic-based inequalities: preliminary findings

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**Introduction.** Social inequalities exist in our societies, resulting in unequal opportunities, limited access to resources, and unfair treatment (Duncan & Murnane, 2011). Beliefs about inequality develop early in children (Sommerville & Ziv, 2018). Also, it has been observed that children can differentiate between two types of inequalities: individually based, arising from legitimate differences in people's choices, abilities, or efforts, and structurally based, referring to social structures that limit people's access to resources and opportunities, such as a group membership (Rizzo & Killen, 2018). Currently, there is limited research in Italy that examines how children perceive ethnic inequalities, either at the individual or structural level. Based on previous operationalizations (Rizzo et al., 2016), this study aims to investigate how children assess these inequalities and how their evaluations relate to perpetuating the injustices they observe through their own distribution of resources, also considering the role of gender and age.

**Methods.** 53 primary school children (40% males; mean age = 9.6, SD= 0.55) participated in the study. They completed a computerized task featuring scenarios depicting ethnic disparities between two chess clubs - the "red" club, made up of Italian children, and the "blue" club, consisting of children with a migrant background. The children were asked to assess the fairness of individually- and structurally-based inequalities on a 4-point Likert scale and then take action by allocating the materials necessary for chess tournament training. The task was administered on a one-to-one basis by trained research assistants.

**Results.** The Repeated Measure ANOVA revealed that children consider inequalities based on ethnicity resulting from structural factors to be more unfair than those resulting from individual factors ( $F = 5.65$ ;  $p = 0.02$ ;  $\eta^2 = 0.11$ ). Neither gender nor age had significant effects. Also, children's evaluation of a club's structural advantage was significantly associated with how they allocated resources, with those who assessed it as less wrong allocating more resources to perpetuate inequality and continuing to favor the advantaged group.

**Discussion.** The present study offers new insights into the development of children's evaluations and responses to inequalities on an individual and structural basis.

**Keywords:** ethnic inequalities, allocation task, children.

### 153 - The memory of bullying victimization in the school context: a cross-cultural investigation

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Bullying victimization in school has become a topic of international concern in recent decades, as an estimated 20%-45% of children in various countries report being involved in bullying dynamics. School bullying is a cause for concern: research findings suggest that children and adolescents involved in peer bullying exhibit negative emotions, poor physical health, and school avoidance. A small number of studies have paid attention to the long-term effects of childhood bullying experiences among young adult populations despite recent findings suggesting that the psychosocial effects of childhood bullying are evident even after childhood and adolescence. In addition, victimization by teachers has been little investigated, although it has been found to be problematic in many cultures; despite this, prevalence rates and differences in the cultural experience of this form of victimization have yet to be explored. The present study will allow participants to retrospectively report their experiences of victimization by teachers during primary and secondary school (kindergarten through high school) to examine both prevalence rates and consequences of this form of victimization. Certain cultural dimensions, such as Tightness/Looseness, Power Construal, Individualism/Collectivism, and Socioeconomic Status, will be examined as key variables to better understand how culture may play a role in the associations between teacher victimization and related psychosocial consequences. Cross-cultural relationships in school contexts and perceptions of victimization (retrospective, i.e., investigating memories) will be investigated along with the experience of Bullying by teachers and peer groups, Psychological Maltreatment by Teachers, Psychological Distress experienced in the classroom, Academic Motivation, and Regulatory Emotional Self-Efficacy. Since this is a cross-cultural research, data will be collected (data collection in progress) through an online self-report questionnaire via an open science platform (<https://osf.io/wtk8d/>) in a sample of approximately 200 participants. Correlation, mediation, and moderation analyses will be conducted. Implications for school-education professionals will be discussed.

**Keywords:** teacher bullying victimization, memories, psychological distress, cross-cultural psychology

## Short Speech – session 2: THEORY OF MIND

*Discussant:* Fiorenzo Laghi (Sapienza University of Rome)

### 9 - A study of attention to social and non-social stimuli in preschool children with autism spectrum disorder through eye-tracking

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**Introduction.** Reduced attention to faces and increased attention to non-social stimuli, compared to typically developing children (TD), is an early sign of the atypical development of social cognition in autism spectrum disorder (ASD) (Frazier et al. 2017). While this bias is well documented in regard to circumscribed interest objects (Sasson & Touchstone, 2014), less is known about its robustness when social stimuli are paired with non-circumscribed interest objects. Our study aimed to fill this gap in the literature, by investigating visual attention to faces and everyday objects in preschoolers with ASD and TD, through an eye-tracking paradigm.

**Methods.** A group of 19 preschool children with ASD (15 males) and 19 children with TD (14 males) participated. The two groups were matched for gender, age (ASD mean age: 56.63 m., SD: 8.42 m., range: 45-73 months; TD mean age: 60.42 m., SD: 2.26 m., range: 57-64 months), and non-verbal IQ - Leiter-R Vr battery (ASD mean NVIQ: 110, SD: 13.38, range: 90-133; TD mean NVIQ: 109, SD: 10.69, range: 90-126). Our stimuli were 20 images composed of a picture of a human face (5 males and 5 females), with a neutral expression, paired with a picture of an object not related to circumscribed interests. We recorded visual attention with an eye tracker. Participants were instructed to watch a series of images. Each stimulus-image lasted 5 seconds. We measured preference (the total looking time) and sustained attention (the mean duration of consecutive fixations) to the stimuli.

**Results.** Children with ASD showed a significantly reduced preference for faces and paid significantly more sustained attention to the objects than controls. Moreover, within-group analysis showed that while TD children showed a significant preference and greater sustained attention to the face over the object, children with ASD did not differentiate the two images in terms of preference or sustained attention.

**Discussion.** These findings add to the literature by indicating that objects not related to circumscribed interests might not be as attractive for children with ASD in comparison to faces. These results might have important implications for early intervention. Caretakers could invest valuable time in exposing children with ASD to faces so to promote attention to such stimuli and make them more relevant compared to everyday objects in daily environments.

**Keywords:** autism spectrum disorder; preschool children; social stimuli; visual preference; eye-tracking.

## 42 - Newborns' sensitivity to pointing action as an ostensive communicative signal

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Pragmatic theories assume that humans evolved a species-unique inferential capacity to express and detect intentions via communicative actions (Grice, 1957; Sperber & Wilson, 2002). Recent studies provided evidence that 6-to 13 month-olds recognize communicative interactions between third parties via turn-taking exchange of tone sequences or speech sounds by inferring communicative intentions (Martin, Onishi & Vouloumanos, 2012; Tauzin, & Gergely 2018; Vouloumanos, Onishi, & Pogue, 2012). Interpreting pointing action involves an understanding of others' intentions, attention, and knowledge states (Aureli, Perucchini, & Genco, 2009; Camaioni, Perucchini, Bellagamba, & Colonnese, 2004; Csibra & Gergely, 2011; Franco, Perucchini, & March, 2009; Gergely & Jacob, 2012; Liszkowski, 2018). By around 12 months of age, infants point meaningfully to intentionally guide others' attention to entities and events, and by 20 months of age, infants' pointing is a communicative, referential act, used flexibly across a range of situations for various purposes (Liszkowski & Ruether, 2021). Here we investigate for the first time whether newborns manifest an attentional bias toward a pointing action. Using a preferential visual paradigm, we explored 5-day-old newborns' visual reactions to a pointing toward a target and to a fist directed toward the same target. Newborns looked longer toward the pointing compared to the action involving the fist. Our results show that newborns are sensitive to pointing gestures, suggesting a predisposition to develop an early understanding of communicative intentions and other mental states.

## 126 - The role of motor control in the development of internalizing and externalizing problems and prosocial behaviour in preschool age

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**Introduction.** Previous scholars emphasized the importance of good motor coordination, which positively influences emotional and behavioral development. At the same time, difficulties in movement control can lead to emotional and self-regulation challenges (Cameron et al.,2016). School-age children with movement difficulties also show high rates of internalizing emotional and behavioral problems (Crane et al.,2017) and/or externalizing symptoms (Kennedy et al.,2013). This contribution explores the link between motor coordination development and social and emotional skills in the unexplored early childhood period.

**Methods.** Parents of 429 children (223 boys, $M=48.7,SD=8.43$ ) completed the Little Developmental Coordination Disorder Questionnaire (LDCDQ;Rihtm,2011),which assesses the control during movement ( $\alpha=.90$ ), the fine motor ( $\alpha=.88$ ), and the general coordination ( $\alpha=.84$ ), and the Strength and Difficulties Questionnaire (SDQ;Goodman,1997),which assesses internalizing ( $\alpha=.60$ ) and externalizing ( $\alpha=.70$ ) problems and prosocial behaviors ( $\alpha=.70$ ). We conducted correlation analyses and hierarchical linear regression analyses to understand the LDCDQ subscales' role in internalizing and externalizing problems and prosocial behaviors.

**Results.** Correlation analyses revealed that all the subscales of the LDCDQ were negatively related to internalizing ( $r$ s from  $-.25$  to  $-.35, p < .001$ ) and externalizing ( $r$ s from  $-.20$  to  $-.34, p < .001$ ) problems and positively associated with prosocial behaviors ( $r$ s from  $.23$  to  $.28, p < .001$ ). Findings from regression analyses suggested that the control during movement subscale was negatively related to internalizing problems for both boys ( $R^2=.14; \beta = -.27, p=.01$ ) and girls ( $R^2=.14; \beta = -.34, p=.01$ ). The general coordination subscale was negatively associated with externalizing problems for both boys ( $R^2=.14; \beta = -.33, p=.01$ ) and girls ( $R^2=.10; \beta = -.34, p=.01$ ). Finally, results suggested that only in girls ( $R^2=.16; \beta = .35, p=.01$ ), and not in boys ( $R^2=.15; \beta = .14, p=.24$ ), the general coordination subscale was positively related to prosocial behaviors.

**Discussion.** This study highlights that motor difficulties in preschool children can influence their ability to interact with peers and how they deal with social and emotional situations. These results underscore the importance of further research in early childhood, as studies on this age group are lacking.

## 128 - Theory of Mind and academic achievement: meta-analytical findings and theoretical reflections

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**Introduction.** The recent expansion of research beyond the preschool years has enabled researchers to address new questions concerning the interplay between children's mindreading and their school life. We examined whether children's individual differences in Theory of Mind (ToM), the ability to infer and reflect on others' mental states, influence their academic achievement in primary school.

**Methods.** We report the results of a systematic search of empirical papers published between the year 1978 (the year in which Premack and Woodruff first coined the term 'theory of mind') and January 2024. The search terms were: ("theory of mind") AND ("reading comprehension" OR "text comprehension" OR "math\*") AND (child\* OR adolescen\*). The inclusion criteria were: articles published in English, studies involving at least one group of neurotypical participants whose mean age was between 4 and 18 years, and studies that included at least one behavioral measure of ToM. The search was conducted in PsycINFO, PubMed, and Scopus and yielded 2702 initial results. We removed duplicates, non-original papers, and papers published in non-English (N=1,621) and examined the remaining 1,081 papers for eligibility by title/abstracts. Following this process, we removed N=1,030 papers; the remaining 1,086 papers were screened for full text and checked for eligibility. The final number of reports was 51. The screening process followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement (Page et al., 2021).

**Results.** The majority of studies examined reading comprehension (N=35), whereas only 22 studies examined math skills. Twenty-one studies had a longitudinal design, and the great majority examined the effects of early ToM on later academic achievement (N=4). Significant moderate associations between ToM and reading comprehension and mathematical skills were found both within and between time points (Fisher z score range .20 - .40).

**Discussion.** To organize these findings, we developed a theoretical framework called the "ToM at School Framework". We propose three possible routes through which children's ToM might influence academic outcomes: a social-motivational, a metacognitive and a linguistic route. This framework provides testable hypotheses for future research on the links between children's ToM and later success at school (Lecce, 2021).

## 134 - Theory of Mind at school: is there a link with Advanced Scientific Reasoning?

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**Introduction.** Theory of Mind (ToM) is defined as the ability to infer others' mental states, such as beliefs, desires, or emotions. Scientific reasoning is defined as intentional knowledge seeking and develops along three qualitatively distinct levels, i.e., naïve, intermediate, and advanced. Individual differences in both ToM and scientific reasoning during middle childhood are associated with cognitive skills (i.e., executive functions-EFs, language, non-verbal abilities). While recent findings show a significant relationship between ToM and scientific reasoning, it is still not clear whether: (1) individual differences in ToM primarily relate to children's acquisition of advanced scientific reasoning (AdvSR) or also help them overcome less-sophisticated conceptions (naïve and intermediate levels), and (2) there are specific associations between scientific reasoning and distinct aspects of ToM: recursive ToM-rToM, interpretive ToM-iToM, and social awareness ToM-saToM.

**Methods.** Eighty-four children (43 boys; age=8.70±0.61 years) attending elementary school in northern Italy, took part in the present study. Children were assessed for their ToM (rToM, iToM, and saToM), scientific reasoning (control-of-variables strategy-CVS, falsification, and nature of science-NoS), EFs (inhibitory control), verbal (verbal comprehension) and non-verbal (non-verbal fluid intelligence) ability.

**Results.** After controlling for EFs, verbal and non-verbal skills and age, all ToM components significantly correlated with AdvSR (rToM:  $r=0.29$ ,  $p<0.01$ , iToM:  $r=0.28$ ,  $p<0.05$ , saToM:  $r=0.32$ ,  $p<0.01$ ), but not with the overcoming of naïve and intermediate levels of understanding. Hierarchical regression analyses showed that the association between all the three ToM components and AdvSR was independent of children's EFs, verbal and non-verbal ability. Finally, ToM components significantly correlated with CVS (rToM:  $r=0.25$ ,  $p<0.05$ , iToM:  $r=0.31$ ,  $p<0.01$ , saToM:  $r=0.35$ ,  $p<0.001$ ), whereas NoS was related to only the ToM reasoning components (rToM:  $r=0.42$ ,  $p<0.001$ , iToM:  $r=0.30$ ,  $p<0.01$ ).

**Discussion.** Overall, our findings suggest that different aspects of ToM are associated with children's advanced level of scientific reasoning. This suggests that ToM paves the way for more sophisticated reasoning in the science domain and that several distinct mechanisms may underly this effect.

**Keywords:** Theory of Mind; scientific reasoning; primary school; middle childhood.

## 136 - The development of theory of mind in middle childhood: a longitudinal perspective

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**Introduction.** Research in Theory of Mind (ToM), defined as the ability to attribute mental states to others in order to explain and predict social behavior (Premack & Woodruff, 1978), has recently expanded to include the period of middle childhood (Devine & Lecce, 2021). This expansion of research on ToM into middle childhood raises new questions about the development of ToM and the underlying mechanisms. To date very few longitudinal studies have been conducted on age-related changes in this developmental period, the present study was designed to address this gap and to investigate the development of ToM across middle childhood.

**Methods.** Participants were 194 Italian primary school children ( $M$  age = 9.37 years at Time 1,  $SD$  = 0.31 months). Children participated in a two-year longitudinal study and were tested four times, with a regular six-months interval. At each time point participants completed assessments of ToM using Strange Stories task (Happé, 1994), Silent Films (Devine & Hughes, 2013) and Triangles Task (Castelli et al., 2000). As preliminary analyses, we tested measurement invariance models to evaluate whether the ToM tasks we selected maintain consistent psychometric properties over time, thus ensuring interpretability of our longitudinal data. Then we analysed the developmental trajectory of ToM over time using latent growth curve models.

**Results.** Measurement invariance analyses demonstrated that the selected ToM tasks perform consistently across time, meaning that they are interchangeable measures of the same construct. Latent basis model showed evidence of significant gains in performance over time (*Unstandardized Est*: 0.82,  $SE$  = 0.20,  $p$  = .00). However, there is no evidence of variation in intercepts and of variation in gains over time.

**Discussion.** This study contributes to the advancement of literature on ToM development in middle childhood by providing analyses on measurement invariance, which are rare in ToM literature, and by offering longitudinal evidence of ToM growth in 9- to 10-years-old children, followed across four time points. Growth curve analyses were performed to capture nonlinear growth patterns and to account for individual variation in ToM developmental trajectories.

**Keywords:** Theory of Mind, middle childhood, longitudinal study, measurement invariance.

## 156 - The relationship between autistic traits and social-emotional traits in toddlerhood

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**Introduction.** From a secondary prevention perspective for mental health, exploring risky behaviors in toddlerhood is relevant due to the pivotal implications that it can have. Autistic traits (i.e., difficulties in social interaction/communication) and social-emotional traits as well (i.e., internalizing/externalizing traits, dysregulation, competence) are conceived dimensionally on a continuum extending from zero/few autistic/social-emotional traits to a very large number of them (Achenbach, 1966; Costantino, 2011). Following the multicausal approach (Fried & Cramer, 2017), risky behaviors impact the severity of the outcome. Thus, detecting them and their levels early may have meant in preventing social maladjustment and/or psychopathology onset starting from toddlerhood. In this vein, the current study – on Italian toddlers aged 18-36 months - hypothesized that the autistic traits would positively predict internalizing/externalizing traits and dysregulation (HP1), and negatively the competence (HP2) controlling by sex and age.

**Methods.** 361 questionnaires [n=178 females;  $M_{mo}(SD)= 28.98(4.65)$ ] have been collected (Ethical Committee:31665). The study used the Quantitative-CHECKlist for Autism in Toddlers (Allison et al., 2008) and the Infant and Toddler Social Emotional Assessment (Carter et al., 2003).

**Results.** Support was provided for HP1 and HP2: The more autistic traits the more internalizing [ $F_{(1, 359)}=15.281;p<.001;\beta=.202$ ] and externalizing [ $F_{(3, 357)}=9.163;p<.001;\beta=.257$ ] traits, the higher dysregulation [ $F_{(3, 357)}=14.264;p<.001;\beta=.340$ ] (HP1). The lower the autistic traits the more competence [ $F_{(3, 357)}=46.944;p<.001;\beta=-.477$ ](HP2). The older the children, the more competence ( $\beta=.126; p=.007$ ). Findings highlighted that autistic traits, externalizing traits, and dysregulation were higher for boys than girls; whereas the competence was higher for girls compared to boys.

**Discussion.** Results supported the path between the considered traits supporting the need to assess them starting from toddlerhood. It may have a cascade effect in the field of mental health informing early screening procedure and intervention planning. To begin, early identification of atypical developing conditions may be promoted whether clinical scores are met; additionally, enhancement training may be designed to prevent maladjusted behaviors when borderline scores were reached.

**Keywords:** autistic traits; internalizing/externalizing traits; dysregulation; competence; toddlerhood.

## Short Speech – session 3: EDUCATION AND ADOLESCENCE

*Discussant:* Maria Luisa Pedditzi (University of Cagliari)

### 7 - How do teachers perceive and act in response to their students' aligned and resistant agency?

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**Introduction.** Student agency – i.e., learners' proactive participatory acts, either *aligned* with the teachers' instructional goals or expressing *resistance* and opposition – can be either facilitated or hindered by teachers during everyday classroom interactions (Mameli et al., 2023; Reeve, 2022). As to why this happens, previous studies have offered speculative interpretations, but empirical investigations are still rather sparse. In this experimental study, we aimed to explore how teachers perceive and think about reacting to student agency, in its aligned and resistant forms.

**Methods.** 369 secondary school teachers (78.9% women) participated in this study. Participants were asked to read one of four random experimental scenarios concerning a generic student (girl or boy) requesting to retake a test due to a failing grade. The procedure manipulated (a) student agency (aligned vs. resistant) and (b) student academic achievement (high vs. low), while students' gender (male vs. female) was systematically varied across conditions to take into account its effect. Participants were then asked to respond to 18 items pertaining to (a) the positive/negative perception of the student's request; the teacher's (b) emotional and (c) behavioral reaction; and (d) the estimation of the likelihood that the student would exhibit similar behaviors in the future.

**Results.** The analyses revealed a main effect of student agency on almost all the investigated variables, with hardly any moderating or direct effect of student academic achievement and of gender. While aligned agency was perceived as legitimate and constructive, able to favor positive feelings, more easily acceptable, and more likely to appear in the future, resistant agency was perceived as more threatening, able to trigger greater frustration, anxiety, and shame, more difficult to accommodate, and less likely to reappear.

**Discussion.** Despite the constructive nature of student agency, in both its aligned and resistant forms, eventually able to improve learning conditions, this study unveils that teachers only recognize the positive role of “domesticated” forms of participation that do not challenge their authority.

**Keywords:** student agency, teachers' perceptions, experimental study.

## 10 - A longitudinal study of student agency's trajectory over the first year of middle school

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**Introduction.** Student agency, defined as students' proactive and engaged involvement in their learning, has become a central priority in efforts to enhance learning environments, particularly in science and mathematics education (Leijen et al., 2023), where traditional practices often place teachers as authorities in knowledge transmission, relegating students to passive roles. While numerous studies have highlighted the influence of contextual factors on student agency, gaps persist in comprehending its longitudinal development, and its association with individual factors remains largely unexplored. Based on these premises, the present study investigated student agency's trajectory during a school year and the influence of individual factors (gender, personality traits and academic emotions).

**Method.** First year middle schoolers from five schools participated in a three-wave data collection at the beginning (T1: N = 410, 45.1% female,  $M_{age} = 10.97$ ,  $SD_{age} = .36$ ), middle (T2: N = 464, 44.5% female,  $M_{age} = 11.23$ ,  $SD_{age} = .46$ ), and end (T3: N = 454, 44.3% female,  $M_{age} = 11.45$ ,  $SD_{age} = .55$ ) of a school year. They completed self-report questionnaires on perceived sense of agency and academic emotions during Math classes, and their personality traits. A latent growth model was estimated to test the trajectory of student agency from T1 to T3, then gender and personality traits were added as time-invariant covariates and the emotions of Enjoyment, Anger and Shame as time-varying covariates.

**Results.** Results show a significant decreasing trajectory in students' sense of agency ( $B(SE) = -.48 (.19)$ ,  $p = .011$ ), affected by gender ( $B(SE) = -.19 (.07)$ ,  $p = .006$ ), but not personality traits (all  $ps > .05$ ). Enjoyment and Anger were positively associated with agency at all waves, while Shame had negative associations.

**Discussion.** Our study highlights a critical trend in a crucial feature of student learning. Students' perceived sense of agency overall decreased during the year, with harsher effects for female students. Consistent with previous literature, this longitudinal finding raises a starker alarm for researchers and educators, by also bringing the focus on the interplay between individual and contextual factors in this process, due to the significant contribution of academic emotions experienced throughout the year.

**Keywords:** student agency; mathematics education; academic emotions; personality; gender.

## 51 - The relation between grades in science and beliefs about the importance of protecting the environment among adolescents: a longitudinal study

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The goal 13 of the 2030 Agenda presented by the United Nations (UNESCO, 2017) considers education as one of the strategies to fight against climate change. In terms of findings, Wray-Lake et al. (2010) showed that over time, adolescents were less inclined to feel responsible for environmental issues. Nonetheless, education may be an important tool to impact attitudes and behaviors, as underlined by recent studies (Leiva-Brondo et al., 2022; van de Wetering et al., 2022). In line with the 2030 Agenda, the aim of the current study was to analyze the relations between grades in science and beliefs about environmental protection among adolescents over different times. Specifically, it was hypothesized that over five years, grades in science would positively predict beliefs about the importance of protecting the environment. Within a longitudinal design, we sampled 424 students (Males = 228,  $M_{age} = 12.21$ ,  $SD = 9.52$ ) attending the first year of middle school (in Arzano, a district of the city of Naples) at T1 (in 2013) and the second year of high school (in Arzano and Naples) at T5 (in 2017). At each time, they answered an item taken from the universalism dimension of the PVQ (Capanna et al., 2005), which measures beliefs about environmental protection. Further, their grades in science were recorded. Data were analyzed using a Cross Lagged Panel Model (CLPM). CLPM showed that the final model had a good fit to data:  $\chi^2(34) = 29.07$ ,  $p = .71$ , RMSEA = .00, SRMR = .04, with 31% of variance explained for beliefs. From T1 to T2, there was a significant and positive bidirectional influence between grades in science and beliefs. Nevertheless, from T2 to T5, only the significant and positive effect of grades on beliefs was demonstrated. Therefore, the higher the grades in science that adolescents got, the more they were concerned about the protection of the environment. Our results point out the impact of grades in science on beliefs about the importance of environmental protection. It is relevant to underline that the school curriculum for science includes specific topics about environmentally sustainable behaviors. Thus, boosting the study of science and showing its practical implications to students might influence their beliefs, which might in turn lead to sustainable behaviors.

**Keywords:** grade in science, beliefs on environmental protection, sustainability, adolescence, CLPM

### 53 - Breaking the Binary Mold: Understanding Social Representations of Nonbinary Gender Identities among the LGBTQIA+ Italian Population

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**Introduction.** To comprehend nonbinary identity, it is necessary to incorporate new and more inclusive social representations (SRs). Transnormativity, cisnormativity, and genderism may characterize LGBTQIA+ people so that nonbinary people risk being invalidated and excluded by the community. A sense of community, social justice, and interpersonal contact may represent protective factors. This study aimed to provide empirical data on the SRs of nonbinary gender identities within the LGBTQIA+ Italian population, utilizing free word association and quantitative data.

**Methods.** A total of 1,486 LGBTQIA+ students and non-students aged between 18 to 65 years old ( $M=25.8$ ,  $SD=7.1$ ) took part in an online survey. The sample included monosexual (lesbian, gay, heterosexual), polysexual (e.g., queer, pansexual), asexual, cisgender (men and women), trans (men and women), and nonbinary individuals. Participants were asked to associate three words that come to mind when hearing the expression "nonbinary gender identities". Then, they were asked to fill out scales concerning: 1) gender/sex diversity beliefs; 2) genderism and transphobia; 3) sense of community; 4) social justice.

**Results.** Participants' responses were categorized into five main SRs, from affirmative to dissonant. Participants with a high sense of community and social justice showed more affirmative SRs; those with affirmative beliefs regarding gender/sex diversity and low levels of transphobia shared more affirmative and less dissonant SRs. Youth, plurisexual individuals, and nonbinary individuals exhibited higher levels of affirmative SRs compared to monosexual individuals, cisgender men, and trans women. Cisgender women and trans men did not show significant differences in representations from other groups. Participants with close contact with nonbinary individuals exhibited more affirmative and less descriptive SRs than their counterparts.

**Discussion.** Overall, our study frames a positive picture of the SRs of nonbinary genders among the Italian LGBTQIA+ population. Research is essential in understanding how the LGBTQIA+ communities perceive and support nonbinary individuals to promote affirmative SRs and reduce stigma.

## 129 - The impact of scouting on adolescent well-being and social adaptation: a study on life skills, self-efficacy, and self-esteem in Italian and Spanish adolescents

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**Introduction.** Adolescence is characterized by significant developmental changes in the physical, emotional, and social domains. While structured group activities such as scouting are generally recognized for their positive impact on adolescent development, specific research on the role of scouting in the Italian context remains limited. Therefore, this study aims to examine the influence of scouting on interpersonal adjustment, self-esteem, and self-efficacy in a sample of Italian adolescents and to compare these findings with similar results from a Spanish sample.

**Methods.** Our study involved 124 Sicilian adolescents aged 13-18 years, equally distributed between scouts and non-scouts, and matched for gender and age. Both groups completed the Rosenberg Self-Esteem Scale, the General Self-Efficacy Scale, the Interpersonal Adaptation Questionnaire, and an ad hoc questionnaire on satisfaction with the scouting experience. Data were analyzed using SPSS, incorporating findings from a corresponding Spanish study to highlight comparative results.

**Results.** Italian scouts showed significantly lower levels of passivity, impulsivity, narcissism, social anxiety, and stress in social situations than non-scouts, along with higher levels of self-efficacy and self-esteem. Notably, satisfaction with the scouting experience strongly mediated the relationship between scouting participation and improved self-efficacy and self-esteem, regardless of the duration of the experience. The Spanish study found similar trends in conflict resolution skills but no significant differences in self-esteem and other social skills.

**Discussion.** This study underscores the unique contributions of scouting in fostering essential life skills and a positive self-concept among Italian adolescents. The comparative analysis with Spanish counterparts enriches our understanding of scouting's benefits across different cultural contexts. The differences found can be attributed to the specific ways Scouting is integrated into local communities, the focus of program activities, and the broader educational and social policies in each country. These findings support a tailored approach to integrating Scouting into youth development programs worldwide while respecting local cultural and educational frameworks.

**Keywords:** scouting, adolescent development, interpersonal adjustment, self-esteem, self-efficacy.

### 130 - UP2U: A violence prevention program for adolescents

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**Introduction.** Many young people around the world engage in violent behavior, including crimes such as robberies and assaults, as well as aggressive behaviors such as hitting, bullying, and throwing objects at others. In this context, educational games, commonly referred to as serious games, have emerged as promising tools for preventing youth violence by providing more realistic and engaging learning experiences. Based on these premises, we designed, developed, and tested a gamified intervention based on an application for mobile devices called "Up2U" to help professionals teach adolescents to act responsibly and avoid involvement in antisocial or violent conduct. Up2U draws upon social-cognitive theories that suggest antisocial and violent behavior stems from neutralization techniques (e.g., moral disengagement, Bandura, 1991; self-serving cognitive distortions, Barriga & Gibbs, 1996), that people use to self-justify acts that are in conflict with a person's moral beliefs and self-concept (Ribeaud & Eisner, 2010). The game incorporates these theories' principles and translates them into four group activities that gradually increase in complexity, starting with identifying common rule violations and ending with analyzing personal interpretations and correcting cognitive distortions. This study presents the preliminary results of the game's usability as assessed by adolescents.

**Method.** Ninety high school students participated in the game's pilot experimentation (Mean age = 16.32; SD = 1.24). They tested the game and evaluated its usability using a scale adapted from other commonly used instruments in the literature (e.g., IJsselsteijn, 2013), which specifically assessed liking, playability, ease of use, and usefulness of the proposed activities. Each item was rated on a 6-point Likert scale (range 1-6).

**Results.** The students found the game easy to use ( $M=4.87$ ,  $SD = 1.15$ ) and highly appreciated the graphics and scenarios ( $M=4.58$ ,  $SD = 1.14$ ). They also judged favorably its usefulness in making people reflect on new concepts applicable to their daily lives ( $M=4.61$ ,  $SD = 1.21$ ). Currently, data collection is ongoing to evaluate the efficacy of the intervention, and the findings will be discussed later.

**Discussion.** Up2U represents a promising approach that could potentially empower adolescents to make positive changes and develop healthier attitudes toward rules and social interactions.

## 160 - From realism to moral relativism: a post-modernist misunderstanding of Piaget's theory

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In various Psychology texts, even in the APA Dictionary (<https://dictionary.apa.org/moral-relativism>), it is stated that, according to Piaget, children pass from a phase of moral realism to one of moral relativism in which the principles or rules are no longer considered immutable, but founded and maintained by mutual agreement and therefore modifiable. Proposed by authoritative sources, and in tune with the postmodernist zeitgeist typical of the present time, this thesis has spread to numerous websites and has 'gone viral'. On examination of *Le jugement morale chez l'enfant* (Piaget 1932), we find that the term "relativism" does not appear. Piaget attributes a universal (and therefore objective) value to the principle from which moral rules derive (the golden rule). In describing the change that occurs in the transition from heteronomous to autonomous morality, in an article published in 1928, he states: "When dealing with the adult, the child is overwhelmed by a truth that remains external to his thoughts. By collaborating with his peers, on the contrary, he develops both his own personality and the cult of impersonal and objective truth". (Piaget, J. *La règle morale chez l'enfant*. Zweiter Sommerkurs für Psychologie in Luzern, Août 1928, Luzern: Stiftung Lucerna, p. 44). There are two points in Piaget's work that may have suggested or supported the misunderstanding. 1) The use of the term *realism* (with a completely different meaning from that found in moral philosophy) in naming the first phase of moral development may suggest that the subsequent phase is characterized by what in philosophy is its opposite, that is, relativism. 2) The investigation into the rules of the game, in which, in the most advanced phase, children state that these rules can be changed with the agreement of the players, may suggest that the same applies to moral rules. We need, therefore, to understand the purpose of Piaget's study of the rules of the game and the conclusions he drew from it. Attributing relativism to the most advanced stage of moral development implicitly entails accrediting it with greater validity than the opposite point of view. What consequences this can have is suggested by psychological research in which moral relativism has been found to favor the execution or justification of dishonest conduct.

**Keywords:** moral development, Piaget, realism, relativism

### **163 – School climate and mental health in adolescents: the role of perceived marginalization**

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School climate (S.C.) involves the experience of school life from the perspective of students, teachers and administrators, and parents and families; it is linked to the beliefs, values, and norms that characterize the school setting (Cohen et al., 2009). A recent meta-analysis defined marginalized children as those who are excluded, ignored, or neglected and considered a vulnerable group of children. (Dorji et al., 2021). Also previous studies have demonstrated that a negative school environment can increase the risk of psychological problems (La Salle et al., 2021). However, few studies have explored the mediating role of perceived marginalization in this context. Marginalized and minority students frequently perceive a less favourable S.C. than their peers. This underscores the necessity of considering S.C. within the broader context of equity. (Di Sano et al., 2024). This study aims to investigate the effect of S.C. on the mental health of Italian students at the secondary education level. Particular attention is given to the potential mediation effect of perceived marginalization. We hypothesized that perceptions of marginalization mediate the effect of S.C. on mental health outcomes. Our research involved 92 secondary school students, equally distributed by gender. The S.C. and mental health outcomes were assessed using the GSCS (Georgia School Climate Survey) questionnaire, but the perceptions of marginalization were assessed using items developed for this research. A mediation analysis was conducted using Path-Analysis. The model demonstrated that S.C. has a negative effect on mental health outcomes (total effect: -0.889;  $p = 0.013$ ). However, the direct effect of S.C., controlled for marginalization, was not significant ( $p = 0.105$ ). Conversely, the indirect effect through the perception of marginalization was significant (coefficient = -0.353; BootLLCI = -0.883; BootULCI = -0.041). This result indicates that the perception of marginalization plays a pivotal role in mediating the effect of S.C. on mental health. This underlines the importance of school interventions that not only improve the general school climate but also specifically address marginalization to promote students' psychological well-being. Future interventions should consider the implementation of integrated strategies that aim to create a more inclusive and welcoming school environment.

## Short Speech – session 4: DIGITAL TOOLS IN EDUCATION

*Discussant:* Giuseppe Ritella (Università degli Studi della Campania Luigi Vanvitelli)

### 11 - Adolescent social media use and depression: a person-centered approach

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Many previous studies have investigated the effects of social media use (SMU), including both general SMU and specific types of SMU (e.g., active and passive SMU), on adolescents' depression. However, very few of these studies have employed a person-centered approach. To address this gap, this study conducted a latent profile analysis using five SMU indicators (i.e., problematic SMU, SMU intensity, active SMU, passive SMU, and nighttime SMU) to identify potential SMU patterns among adolescents. The participants were 986 Italian students (525 girls, 53.2%) from senior high schools, aged 13 to 20 years old ( $M = 16.84$ ,  $SD = 1.60$ ). Five SMU profiles emerged: (1) the *Active users* ( $n = 126$ , 12.8%), (2) the *Low-intensity passive users* ( $n = 97$ , 9.8%), (3) the *Passive users* ( $n = 251$ , 25.5%), (4) the *Nighttime active addict* ( $n = 358$ , 36.3%), and (5) the *Highly nighttime active addict* ( $n = 154$ , 15.6%). The relative mediating effects of adolescents' self-esteem and self-concept clarity were found in the relationships between SMU profiles and depression. This study highlights the heterogeneity of SMU patterns among adolescents, their association with depressive symptoms, and the potential underlying mediating mechanisms.

**Keywords:** specific social media use, self-esteem, self-concept clarity, depression, person-centered approach.

## 40 - Use of Digital Devices and Emotional-Behavioural Issues: The Role of Mediation Practices

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**Introduction.** In this contribution, we aim to analyse the role of parental mediation practices in the relationship between the use of Digital Devices (DD) and children's emotional-behavioural problems, to understand whether children's use of DD may be influenced by temperamental factors or parental relationship patterns.

**Methods.** 237 parents of 129 boys (mean age=4.7; SD=1.2) and 108 girls (mean age=4.4; SD=1.4); with a prevalence of responses from mothers (73.9%). The mothers' age ranged from 23 to 53 years (Mean=39.5; SD=5.48), fathers' age ranged from 25 to 64 (Mean=41.6; SD=6.31). All parents completed the Mediation Practices Questionnaire (Valkenburg et al., 1999, adapted into Italian by Mascaro et al., 2023) and the Digital Technology Use Questionnaire (Cannoni et al., 2018).

**Results.** Preliminary correlations highlight an influence of solo DD usage time ( $r=.179^{**}$ ) and usage time with parents ( $r=.160^*$ ) on externalizing problems, as well as an influence of solo usage time on internalizing problems ( $r=.141^*$ ). Similarly, the usage time of DD with parents shows a negative correlation with restrictive mediation practices ( $r=-.150^{**}$ ), but no correlation with instructive mediation practices. Instructive mediation practices, however, demonstrate a negative correlation ( $r=-.217^{**}$ ) with externalizing problems. Lastly, social covieing practice shows a positive correlation with solo DD usage time ( $r=.156^*$ ) and usage time with parents ( $r=.242^{**}$ ), but not with emotional-behavioural problems.

**Discussion.** The results of this study are currently being updated and will be part of a broader model that is under verification. Nevertheless, even at this stage, these data allow for reflections on the role of parental mediation practices. These practices could be considered not only as mediation strategies that parents employ between their children and technology but also, in some cases, as protective factors against the onset of behavioural problems. On the other hand, the hypothesis we find pertinent to verify is whether technology use is linked not so much to parental example but rather to a temperamental disposition oriented towards internalizing aspects. Therefore, individuals with a more withdrawn temperament may prefer the use of digital devices to other activities.

## **110 - Digital Serious Games for enhancing collaboration and learning: preliminary results of a systematic review**

*Isabella Giacchi* <sup>(1)</sup> - *Antonia Lonigro* <sup>(1)</sup>

*Università degli Studi Roma Tre, Dipartimento di Scienze della Formazione, Roma, Italia* <sup>(1)</sup>

In recent years, the use of Digital Serious Games (DSGs) to enhance collaborative learning and promote cognitive, social, and emotional skills is growing (Wang & Huang, 2021; Krath et al., 2021); however, evidence about its impact on the development of psychosocial skills and learning in work and academic contexts remains limited. Thus, we conducted a systematic review focusing on the use of DSGs to promote collaboration and learning. We searched the databases of EBSCO, SCOPUS, and Web of Science using the following keywords: 'serious game\*' AND 'learning' AND 'cooperat\*' OR 'collaborat\*'. We identified 30 studies that satisfied our inclusion criteria: 1) DSGs designed to promote learning in collaborative settings; 2) empirical studies in professional and academic contexts; 3) academic publications. These studies found positive effects on learning outcomes and several psychosocial skills, including teamwork, problem solving, communication, self-efficacy, and motivation. User satisfaction was also considered a key aspect of learning. Results suggest that DSGs are flexible tools that can be adapted to any intervention in both education and training contexts. Interesting implications regarding the constructs and research design for the construction of DSGs interventions may be discussed.

**Keywords:** digital serious games, collaboration, learning, psychosocial skills, systematic review.

## 122 - Participation to viral social challenge: a pilot study on a sample of Italian adolescents

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Youth involvement in at-risk behavior driven by viral social challenges through social networks is an emerging and alarming problem among youth worldwide. Very few studies have systematically investigated this topic (Juárez-Escribano, 2019; Ortega-Barón, 2021). In the current contribution, we present the preliminary results of an ongoing study aimed at investigating the prevalence of viral social challenges among adolescents and their attitudes toward the phenomenon. Additionally, the study explores the role of related personality and parental variables in adolescents who are either directly involved or bystanders. After carrying out three focus groups, evidencing the main thematic issues related to the viral social challenges, we carried out a pilot study involving 409 adolescents (48.2% males) attending secondary schools from the 6th to the 10th school grade (Mean Age = 13.6; SD = 1.4). The key item was "Have you ever participated in a so-called "challenge" through Social Networks?" Other ad hoc questions concerned how much they perceived the challenges as fun or dangerous and the reason why, in their opinion, adolescents participate in challenges. Other measures used in the pilot study as potential associated variables were parental monitoring, peer pressure resistance, social media dependence, fear of missing out, and sensation seeking. About 25.7% of the sample (105 participants) reported having participated in viral social challenges; over 90% of involved participants found these challenges fun, whereas 34% found the challenges dangerous, a little or more. A Multivariate Analysis of Variance (MANOVA) was performed to investigate the association between independent variables and involvement in Internet Challenges. Results evidenced a main effect of the factor group (involved vs. not involved); post-hoc analyses revealed a main effect only for sensation seeking ( $F= 4,78$ ;  $p=.005$ ) and for Fear of Missing out ( $F= 10.79$ ;  $p=.001$ ). This ongoing study sheds light on the importance of investigating the phenomenon of Viral Social Challenges, which has received significant attention in the media and public opinion yet remains largely unexamined in psychological research.

**Keywords:** viral social challenge, at-risk behavior, social media, sensation-seeking

## 166 - Real and Virtual Game: An Experience Between Gamification and Serious Games

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**Real and Virtual Game: An Experience Between Gamification and Serious Games** The game, a crucial element for individual development, has been studied for its cognitive, emotional, and social impact. Education has increasingly utilized the game to facilitate learning and experiencing the world. Recently, education has seen an expansion of games, especially digital ones, with specific objectives such as Serious Games, gamification, Game-Based Learning, and Simulations. This study investigates the interaction between real and virtual games, highlighting the influence of both on the development of transversal skills. We present the case of "Treasure Hunt," a game that combines gamification and serious games, implemented as part of classroom experimentation in direct internship courses for specialization in support teaching at the University of Sassari. Using Genial.ly, an online platform that allows the creation of interactive presentations, the activity, designed for an elementary school class, is centered on pirates and structured as an interactive adventure. Our analysis focuses on educational benefits such as student autonomy, experiential learning, time and resource management, teamwork, and peer teaching. The developed game demonstrates the effectiveness of gamification and serious games in learning, stimulating knowledge in a more engaging manner compared to traditional methods. It promotes recovery in various subjects, physical activity, coordination, and cognitive skills such as attention and decision-making. The game is essential for psychomotor and cognitive development, and the use of games fosters the development of Life Skills, crucial both personally and professionally. A final evaluation confirms the effectiveness and appreciation for both physical and digital activities, highlighting the importance of the game in education.

**Keywords:** game, gamification, serious game, learning, life skills

## Short Speech – session 5: WELL-BEING IN ADOLESCENCE

*Discussant:* Elena Cattelino (Università della Valle d'Aosta)

### 13 - Bigorexia in Adolescence: Perceived Social Support and the Mediating Role of Psychological Distress

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**Introduction.** Bigorexia, a disorder characterized by excessive preoccupation due to the perception that one's muscles are not adequately developed, can have serious consequences on the mental and physical health of young individuals. Given the importance of social and psychological well-being during this stage of life, the purpose of this research was to examine the potential predictive role of perceived social support (PSS) and the mediation of psychological distress (PD) as a factor between PSS and bigorexia.

**Methods.** The sample included 754 participants (68% girls), aged between 14 and 17 years. Participants completed the following self-reports: Multidimensional Scale of Perceived Social Support (MSPSS), Depression, Anxiety and Stress Scale (DASS), and the Muscle Dysmorphic Disorder Inventory (MDDI), which was analyzed in its three factors: Drive for Size (DS), Appearance Intolerance (AI), Functional Impairment (FI). Structural equation modeling (SEM) was used to test the hypothesized model.

**Results.** The tested model revealed good fit indices:  $\chi^2(308) = 932.83$ ;  $p < .001$ ; CFI = .95; RMSEA .05; SRMR = .07. The study confirmed a significant negative relationship between PSS and PD ( $\beta = -.32$ ), between PSS and DS, AI, and FI ( $\beta = -.14$ ;  $\beta = -.05$ ;  $\beta = -.13$ ), and between PD and DS, AI, and FI ( $\beta = .09$ ;  $\beta = .58$ ;  $\beta = .16$ ). Additionally, significant indirect effects were highlighted between PSS and DS, AI, and FI through PD ( $\beta = -.03$ ;  $\beta = -.18$ ;  $\beta = -.05$ ).

**Discussion.** Interventions aimed at improving social skills and relationships in adolescence could be effective in preventing distress related to problematic body image perception. Furthermore, early recognition of psychological distress symptoms could help prevent the adoption of dysfunctional behaviors, thus offering appropriate support at a time when aspects of one's growth, such as individual identity and social relationships, are often perceived as out of control.

**Keywords:** perceived social support, psychological distress, bigorexia, adolescence.

## 46 - Children's and Adolescents' Body Shaming Experiences and Drunkorexia in Young Adults: Indirect Effects through Psychological Distress

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Body shaming can be described as a series of acts directed to harass, mock, or humiliate a person regarding their body shape or weight. An emerging line of research has recently explored the consequences of body shaming for mental health, and specifically, several studies have demonstrated its predictive role in the development of maladaptive eating behaviors. The aim of this study was to examine how experiences of body shaming during childhood and adolescence affect the development of drunkorexia in emerging adulthood. Specifically, we examined the predictive role of body shaming from peers and parents/caregivers during childhood and adolescence on the development of compensatory behaviors in response to alcohol consumption during young adulthood, considering the potential mediating role of psychological distress in this relationship. A sample of 1624 young adults (69% women), aged 18 to 30 years, participated in the study. Results revealed that experiences of body shaming from both peers and parents/caregivers during childhood or adolescence were significantly associated with an increased risk of engaging in drunkorexia behaviors in emerging adulthood. Furthermore, significant indirect effects of body shaming experiences by peers and parents/caregivers on drunkorexia were observed, mediated by psychological distress symptoms. These findings offer valuable insights into the psychosocial risk factors associated with drunkorexia behaviors and highlight the importance of addressing body shaming during childhood and adolescence in prevention and intervention efforts.

**Keywords:** drunkorexia, food and alcohol disturbance, eating disorders, body shaming, victimization.

## 81 - Achievement emotions in adolescence: relations with Big Five personality traits in males and females

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**Introduction.** According to the Control-Value Theory (CVT; Pekrun et al., 2023), students experience different achievement emotions in relation to school activities or outcomes. Such emotions are influenced by many antecedents at proximal (control and value appraisals) and distal levels (personality and sex). The relation between personality and achievement emotions has been studied only rarely (Hoferichter et al., 2014; Pekrun et al., 2023; Thomas & Cassady, 2019), particularly with adolescents (Sorić et al., 2013). This study has two aims: (1) investigating whether the Big Five personality traits (BF) are related to positive and negative achievement emotions, and (2) exploring whether the relations between the BF and achievement emotions are the same for males and females.

**Methods.** We involved 254 6<sup>th</sup>-7<sup>th</sup> graders ( $M_{age} = 12.20$ ,  $SD = 0.57$ , range: 10.47-13.81; 43% females) from Northern Italy. Through a self-report paper-and-pencil questionnaire, we assessed Big Five personality traits (adapting the *Big Five Inventory-2*; Soto & John, 2017) and school-related positive and negative achievement emotions (using the *Achievement Emotions Adjective List*; Raccanello et al., 2022).

**Results.** First, by running a path analysis, we found that positive achievement emotions ( $R^2 = 0.20$ ) were related positively to Extraversion ( $\beta = 0.25$ ,  $p < .001$ ) and Open-mindedness ( $\beta = 0.16$ ,  $p = .007$ ), and negatively to Neuroticism ( $\beta = -0.13$ ,  $p = .038$ ); and that negative achievement emotions ( $R^2 = 0.34$ ) were related positively to Neuroticism ( $\beta = 0.45$ ,  $p < .001$ ) and negatively to Agreeableness ( $\beta = -0.13$ ,  $p = .033$ ). Second, by conducting a multigroup comparison, we observed different patterns of relations for the two sexes. For males, there were positive relations between positive emotions and Open-mindedness, and between negative emotions and Neuroticism. For females, positive emotions were positively related to Extraversion, and negative emotions were linked positively to Neuroticism and negatively to Agreeableness.

**Discussion.** Notwithstanding limitations (reduced sample size, cross-sectional data), we documented some relations between BF and school-related emotions experienced by adolescents as postulated by the CVT, also finding sex differences. Understanding how individual differences impact achievement emotions can be the basis for interventions to improve students' well-being.

### **131 - Age-related differences in tacit coordination abilities: propensity for cooperation and aversion to competition in children, adolescents and young adults**

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Adolescence is an age of heightened social exploration during which people develop increasingly sophisticated social strategies to interact with their peers. Using a new adolescent-friendly behavioural economics task, we investigated whether this adolescent social development is reflected in improvements in the ability to 'mentally' coordinate with others, that is, to coordinate choices without communicating in cooperative vs. competitive decision environments. N = 596 participants (215 men/boys, 375 girls/women), divided into children/adolescents (N = 297, mean age = 11.6, SD = 1.35, range 9 – 15) and adults (N = 299, mean age = 21.4 SD = 3.33), attempted to maximise earnings ("gold coins") in three economic games. Each game involved a series of choices between two options: a low-paying but safe option (e.g., 7 coins) and a potentially high-paying but uncertain option (15 coins or 0). In a cooperative condition, if the uncertain option was chosen, the maximum gain was achieved only if an anonymous peer also chose the same uncertain option; in a competitive condition, the high gain was achieved only if the other person *did not* choose the same uncertain option. In a non-social condition, the maximum gain was obtained based on a random lottery. In all conditions, if the safe option was chosen it was obtained for sure. Non-verbal reasoning abilities were measured using a matrix-reasoning task. Mixed models showed that adults chose the uncertain option more frequently under cooperation than competition but displayed more response variability and longer response times under competition than cooperation (all Cohen's *ds* > 0.44, *ps* < 0.001). Each of these behavioural signatures was substantially reduced in younger participants (all Cohen's *ds* > .28, *ps* < .001) or even entirely absent. Adults also clearly outperformed younger participants in terms of earnings (Cohen's *ds* > .57, *ps* < .001), even when controlling for age differences in non-verbal reasoning abilities. These findings demonstrate that the ability to coordinate with peers without communicating improves markedly during adolescence and this age-related improvement is characterised by increased propensity towards cooperation and aversion to competition. This newly adapted game theoretic measure offers new insights into how social abilities develop during adolescence.

## 132 - Learning in university students: an intervention study

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**Introduction.** Academic success is related to self-regulation (Zimmerman, 2008), which, in the study, includes attention and emotion regulation, motivation, metacognition, and the use of study strategies (Panadero, 2017). Interventions based on mindfulness improve attention and emotion regulation (McConville et al., 2017), those on coaching enhance motivation (Spence et al., 2008), and those on strategies improve the study method (Dunlosky et al., 2013). This research evaluates the effectiveness of a course (MEL, Mindful Effective Learning), designed and conducted by the second author, that integrates mindfulness, coaching, and study strategies and which from a previous pilot study (Corti & Gelati, 2020) seems to have positive effects on the self-regulation of university students.

**Methods.** The sample includes 173 students from the University of Naples Federico II divided into the control (77: 40 F e 37 M) and the experimental group (96: 57 F, 39 M). The latter participated in the intervention (11 90-minute modules). Before and after the intervention students reported the percentage of exams taken, their grade point average, and completed the Motivated Strategies for Learning Questionnaire (Pintrich et al., 1991), Achievement Emotions Adjective List (Raccanello et al., 2015), Mindful Attention Awareness Scale (Veneziani & Voci, 2015) and Questionnaire for Eudaimonic Well-Being (Sotgiu et al., 2019).

**Results.** Analysis of covariance showed that, after the intervention, participants in the experimental group achieved a higher score in the percentage of exams taken,  $F(1, 155)=4.32$ ,  $p<.05$ ,  $\eta^2p=.03$ , in cognitive and metacognitive strategies of *Elaboration*,  $F(1, 164)=15.08$ ,  $p<.001$ ,  $\eta^2p=.08$ , *Organization*,  $F(1, 164)=10.29$ ,  $p<.01$ ,  $\eta^2p=.06$ , *Critical Thinking*,  $F(1, 164)=19.30$ ,  $p<.001$ ,  $\eta^2p=.11$ , *Self-regulation*,  $F(1, 164)=11.15$ ,  $p<.001$ ,  $\eta^2p=.06$ , in self-efficacy,  $F(1, 167)=19.52$ ,  $p<.001$ ,  $\eta^2p=.11$ , well-being,  $F(1, 160)=7.02$ ,  $p<.01$ ,  $\eta^2p=.04$  and positive emotions,  $F(1, 167)=10.34$ ,  $p<.01$ ,  $\eta^2p=.06$  and a lower score on negative emotions,  $F(1, 167)=5.34$ ,  $p<.05$ ,  $\eta^2p=.03$ .

**Discussion.** The intervention seems to have positively impacted study strategies, self-efficacy, well-being, and learning. Specific interventions aimed at fostering these aspects should be promoted in the university context. An approach that integrates mindfulness, coaching, and study strategies seems particularly effective.

### 135 - Wellbeing in adolescence: how do teens interpret their world?

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The perspective on their own future may be an important source of worry for the adolescents, and when it is overwhelming, worry may affect their well-being and mental health. Conversely, a current confident orientation to the future could positively affect adolescents' wellbeing. However, some current sources of worry (as climate change or war) were found affecting adolescents' well-being, as well as psychological symptoms (i.e., depression, anxiety, stress). Furthermore, different levels of well-being can be associated and vary with the ways of interpreting one's social experience. The present study aims to explore in a sample of 496 high-school students ( $M_{age} = 16.8$ ,  $SD = 1.03$ ; 77.4% female) if the future time perspective, as well as any specific ways to interpret own experiences, are predictors of well-being. Participants filled out Keyes' Mental Health Continuum – Short Form measuring emotional, social, and psychological wellbeing; Depression Anxiety Stress Scale – 21 for depression, anxiety, and stress as symptoms of personal distress; Intolerance of Uncertainty Scale – 12 as index of a dispositional characteristic; Climate Change Worry Scale and War Experience Worry Scale measuring the worries about two current planetary emergencies; Future Time Perspective (FTP) scale about the individual's projection on future; the View of Context (VOC), a questionnaire that asked to respondents to express themselves about their micro and macro-social context, as well as with respect to life values in order to detect respondents' positioning regarding the ways of attributing meaning to their experience in social contexts. Findings (i.e., Pearson's  $r$  coefficients for estimating the measure associations, and three linear regressions that verified the predictors of emotional, social, and psychological wellbeing) revealed that FTP is a positive predictor of all types of wellbeing ( $\beta = 5.709$ ;  $\beta = 3.614$ ;  $\beta = 5.480$ ; all  $p < .001$ , respectively), as well as some different ways of attributing meaning to one's experience. Finally, based on VOC answers, eight semiotic clusters (i.e., respondent profiles) exhibiting significantly different levels of well-being were extracted. In conclusion, understanding adolescents' well-being implies knowing their world perception and the meanings they adopt to interpret their experiences. Some preventive and educational implications are discussed.

## Short Speech – session 6: WELL-BEING AND LEARNING IN ADULTS

*Discussant:* Laura Francesca Scalas (University of Cagliari)

### 3 - University students' psychological well-being and mental health: developmental differences in a sample attending a counseling service

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Wellbeing assessment has mainly been explored in adolescence, while early adulthood has received less attention. University students, transitioning between adolescence and young adulthood, represent a noteworthy population for study, due to the potential distress associated with adjusting to the university educational system. The current research aims to present data on psychological wellbeing in a sample of university students attending the Psychological Counseling Service at the University of Pavia. A sample of 751 students (Mage = 24.16; S.D.=3.32; F=71%) was assessed before attending the counseling intervention by administering the following self-report measures: the Generalized Anxiety Disorder-7 (GAD-7); the Beck Depression Inventory-II (BDI-II); the Cognitive Reappraisal (CR) and Expressive Suppression (ES) scales of the Emotion Regulation (ERQ-10); and the four domains (Wellbeing; Problems; Functioning; Risk) of the Clinical Outcomes in Routine Evaluation-Outcome Measure (CORE-OM). To examine developmental differences, the sample was divided into three age groups: 19-21(late adolescence); 22-24 (emerging adulthood);  $\geq 25$  years old (young adulthood). A one-way MANCOVA was conducted on the questionnaires' scores, by considering the age group as independent variable, and the gender as covariate. Multivariate tests showed a significant effect of age group (Pillai's Trace = .042;  $F_{16,1482}=1.997$ ;  $p=.011$ ;  $\eta_p^2=.021$ ) and gender (PT=.099;  $F_{16,740}=1.997$ ;  $p<<.001$ ;  $\eta_p^2=.099$ ). Compared solely to young adults, late adolescents reported higher level of anxiety, lower scores in the CR scale and a lower level of Wellbeing. Also, they were associated with higher depression level, and greater scores in Problems and Risk domains compared to the other groups, which did not differ in any measures between them. Concerning gender differences, females reported higher severity for anxiety and depressive symptoms, and lower wellbeing.

This research suggests that in this population seeking help for psychological support at a counselling service, late adolescence is the developmental period associated with the lowest mental health quality, likely due to the substantial changes involved in facing a new educational and social system. Future studies may address this age group for tailored support implementation and for studying its longitudinal development to the counselling intervention.

## **28 - Are most interactions false? The importance of the appropriate distribution and link function with non-normal data**

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Interaction effects are frequently tested in psychological research, especially in developmental psychology. Indeed, many main effects are well-established, and efforts are dedicated to discovering moderators. In most cases, variables of interest are non-normally or not-entirely-normally distributed. For instance, sum scores in questionnaires, accuracies, or number of errors in cognitive tasks, as well as reaction or response times, often exhibit non-normal distributions due to their discrete or skewed nature with bounded ranges. Conventional linear models may fail to address the unique characteristics of these variables, thus violating crucial assumptions. While such violations do not necessarily affect the validity of results, this must be evaluated on a case-by-case basis. One substantial issue arises from the mean-variance relationship inherent in many non-normal distributions (e.g., Binomial, Poisson, Gamma), which is overlooked by standard linear models. This oversight can lead to inflated type-1 error rates, particularly when assessing interaction effects in the presence of two (or more) relevant main effects. In this presentation, we illustrate the detrimental consequences of applying standard linear models to non-normal data through both real and simulated examples. In some cases, it is virtually guaranteed that significant interactions will emerge, yielding “replicable-but-false” findings. To mitigate this issue, employing a Generalised Linear Model (GLM), such as logistic regression, with an appropriate link function proves essential in stabilising the mean-variance relationship. By comparing the outcomes of using a standard linear model versus a GLM, we demonstrate that in many common scenarios, only the latter allows researchers to keep type-1 error rates under control when evaluating interaction effects. Furthermore, we offer practical insights into real-world applications of GLMs in psychological research. By selecting the correct distribution and link function tailored to the nature of the data, researchers can effectively address the issue of inflated type-1 error rates, thereby enhancing the validity and reliability of their findings. Our findings underscore the critical importance of employing appropriate statistical methods when analysing non-normally distributed variables and interactions in psychological research.

### 33 - Acceptance of disability and flourishing state: the experience of people with acquired physical disability

Chiara Martis <sup>(1)</sup> - Elisa De Carlo <sup>(1)</sup> - Emanuela Ingusci <sup>(1)</sup> - Fulvio Signore <sup>(1)</sup> - Flavia Lecciso <sup>(1)</sup>  
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**Introduction.** According to Wright's (1961) theory, the acceptance of acquired disability is a loss process characterized by changes in the individual's attitudes toward disability. This leads to the (1) development of self-satisfaction, (2) de-emphasis of disability salience, and (3) acquisition of compensatory behavioral qualities. The current study hypothesized that accepting disability is a personal resource enhancing the state of flourishing (Keyes, 2002) which consists of high levels of well-being and low levels of distress. Therefore, the purpose of the study was to examine whether acceptance of disability positively predicts well-being and negatively predicts distress. Two research questions were formulated: (RQ1) Would each factor of acceptance of disability (i.e., self-satisfaction; de-emphasis on disability salience; compensatory behavioral qualities) positively predict each dimension of well-being (i.e., Autonomy; environmental mastery; personal growth; positive relations with others; purposes in life; self-acceptance)?; (RQ2) Would each factor of acceptance of disability (i.e., self-satisfaction; de-emphasis on disability salience; compensatory behavioral qualities) negatively predict distress? Sex was included as a covariate.

**Methods.** 107 Italian adults with acquired physical disabilities [M(SD) = 48.12(14.87) yo] filled out an e-survey (No. 31665). The study employed the Acceptance of Disability Scale (Kaiser et al., 1987), the Psychological Well-Being Scale (Ryff 1989), and the Depression-Anxiety-Stress Scale (Bottesi et al., 2015).

**Results.** Correlations and multiple linear regression analyses were computed. Findings revealed that the more self-satisfaction, the more well-being, and less distress; the more compensatory behavioral qualities, the more well-being (in terms of personal growth, positive relationships with others, purpose in life, and self-acceptance); the more de-emphasis on disability salience, the more well-being (in terms of purpose in life). No significant sex effects were found.

**Discussion.** Findings expand knowledge on the topic and provide support for the role of personal resources of acceptance of disability in promoting a flourishing state for adults with acquired physical disabilities, informing intervention planning.

**Keywords:** acceptance of disability; well-being; distress; flourishing; acquired disability.

## 79 - Sports and physical activity through the life course: experiences of discrimination in older Italian sexual minority adults

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**Introduction.** In recent years, there has been a growing recognition of the diverse and dynamic experiences of older individuals who identify as lesbian, gay, bisexual, and other non-heterosexual people (LGB+). Notably, a specific line of research focused on older LGB+ adults' experiences in sports and physical activity contexts, highlighting that they are usually faced with experiences of discrimination and victimization. Indeed, experiences of minority stressors are generally related to older LGB+ individuals withdrawing from sports and PA contexts, consequently impacting their physical and mental health.

**Methods.** The present study was conducted as part of the national research project "Ageing Well in an Ageing Society," Funded by Next Generation EU [DM 1557 11.10.2022]. PNRR, Investment PE8 – Project Age-It. We investigated experiences of discrimination and minority stressors in a group of 21 older Italian sexual minority women ( $M_{\text{age}} = 71.5$ ;  $SD = 7.6$ ) and sexual minority men ( $M_{\text{age}} = 66.6$ ,  $SD = 5.5$ ) through their life course in the specific sports and PA contexts. Data were collected using a semi-structured interview, and data were analyzed through a thematic analysis.

**Results.** In line with the Minority Stress Theory, four themes were identified from the study: 1) External stressors, which included specific sub-themes as encounters with discrimination, isolation, and negative experiences in locker rooms; 2) internal stressors, which consisted of different sub-themes as concern about concealing one's sexual orientation, internalized heterosexist stigma and, avoidance; 3) social support, which included different sub-themes as personal and social resources (e.g., psychologists, friends, family); 4) and coping, which consisted of different sub-themes as positive LGB+ identities, sports preference, and personal weaknesses.

**Discussion.** The present study aligned with recent literature that underlines the need to make sports and physical activity contexts more affirmative for older LGB+ people, reducing experiences of discrimination and consequently promoting their participation and aging well

**Keywords:** ageing well, older LGB, sport, physical activity, minority stress

## 121 - The emotion regulation and the digital device use in the young adults

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**Introduction.** Successful emotion regulation is an important aspect for an efficient capacity in social and interpersonal relations, and for the individual's well-being. Recent research (Wartberg and colleagues, 2021; Zsido and colleagues, 2021), highlights the importance of emotion regulation in relation to the use of social media and digital devices in the young population. The aim of this research is to evaluate the relationship between difficulties in emotion regulation, social media and digital device use, global self-esteem, attention deficit and the presence of heightened arousal before sleep.

**Methods.** Participants were 242 (18-32,  $M_{age}=21.4$ ,  $DS=2.38$ , Female= 82.6%). To verify the hypothesis, Difficulties in Emotion Regulation Scale (DERS-20) (Lausi et al,2020), Rosenberg Self-Esteem Scale (RSES) (Rosenberg, 1965), Internet Behaviors Scale (IBS) (Ranaey et al, 2016), a subscale of Working Memory Questionnaire (WMQ) (Vallat-Azouvi et al, 2012), (that measures attention difficulties), and Pre-Sleep Arousal Scale (Jansson-Fröjmark et al, 2012), were administered. A correlation matrix was performed.

**Results.** The results show that the correlation was statistically significant. In detail, DERS-20 has a positive and significant correlation with the use of social media and digital devices ( $p<0.001$ ), attention deficits ( $p<0.001$ ), and a high level of pre-sleep arousal ( $p<0.001$ ), while the global self-esteem shows a negative and significant correlation with DERS-20 ( $p<0.001$ ).

**Discussion.** These results are important to better understand the relationship between young people's mental health and well-being and digital device use.

**Keywords:** emotion regulation, self-esteem, social media use.

## 137 - Exploring Numeracy Development Across the Lifespan: Comparing Symbolic and Non-Symbolic Representations

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Research on numeracy development is increasingly relevant due to its importance across the lifespan, impacting academic achievement in children, work success in adults, and managing everyday demands in elders. Despite this, few studies directly address the issue. To investigate numeracy development, we administered a PC-presented parity judgment (PJ) task to children, young adults, and elderly participants, collecting response accuracy and reaction time (RT). Our task included Arabic digits (symbolic), dots (non-symbolic), and finger-based representations, as numeracy may be associated with both symbolic and non-symbolic formats. Fingers promote numerical skills development from early childhood (e.g. Noel, 2005), and several studies highlight a physiological association between fingers and number representations even in adults (e.g. Rusconi et al., 2005). By including finger-based numerical representation we aimed to verify whether access to quantity representation conveyed by fingers follows the same pattern as non-symbolic numerical format (dots) or is closer to Arabic symbols. The research sample consisted of 96 participants: 22 8-year-old children (17F), 21 10-year-old children (13F), 22 elderly participants (10F; M= 68.5 years; range 62-79); 31 young adults (16F; M= 24.13 years; range 19-37). Analyses were conducted using Mixed Effects Models. For accuracy, results showed a main effect of Age and Condition (Arabic, fingers, dots): 8-year-olds performed significantly lower than young adults and the elderly ( $p < .001$ ), and 10-year-old children performed similarly to adults and the elderly. Regarding Condition, dot performance was significantly lower than that with Arabic digits ( $p < .001$ ) while correct responses with fingers and Arabic digits did not differ. For RTs, the main factor Age was significant: 8-year-olds had significantly longer RTs than other groups in all conditions, while 10-year-old children did not differ from young adults and the elderly. In conclusion, a developmental trend regarding accuracy aligns performances when presented with stimuli represented by fingers and Arabic digits, supporting the hypothesis of a stronger association between hands and numbers compared to dots. RTs, however, do not seem to support this finding as no differences were found between the different stimulus presentation modalities. Limitation: small sample size.

**Keywords:** numeracy development, lifespan, symbolic representations, non-symbolic representations.

## 167 - IN.S.I.E.M.E., a Health Promotion Intervention for People Over 65

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Active aging has been defined by the WHO as "the process of optimising opportunities for health, participation, and security in order to enhance the quality of life as people age" (WHO, 2002), a process that aims to increase people's opportunities for health, well-being, and social participation. International studies (Lear et al., 2017; Li et al., 2020; Yerrakalva et al., 2023) demonstrate the positive link between active aging and health benefits. In this context, we proposed designing, implementing, and evaluating a health promotion intervention. The project "IN.S.I.E.M.E. - INclusione, Stili di vita, Informatica, EMpowerment cognitivo, Emozioni" aimed to promote healthy behaviours and lifestyles, improve IT skills and communication, support cognitive reinforcement, promote socialization, social inclusion and participation in social life through IT tools. The project took place from October to December 2023, with weekly sessions of 2 hours each, led by a psychologist specializing in Health Psychology. These sessions were interactive group workshops characterized by active involvement. Pre- and post-intervention tests were administered, including: CORE-OM, WHOQoL-Bref, CIQ, MSPSS, T.E.C.H., MOCA, IPAQ, MNA, PSQI, and Fagerstrom Test, to evaluate the effects of intervention on quality of life, perceived community integration, perceived social support, IT skills, cognitive decline, physical activity, dietary habits, sleep quality, and the presence of smoking addiction. The results highlighted positive effects on the sense of community integration, the increase in IT skills, cognitive functioning, perceived health improvement, diet habits, and sleep quality. The project has demonstrated the effectiveness of multidisciplinary interventions in optimizing the quality of life for the elderly through active aging. The results observed confirm the importance of targeted programs to promote well-being and social participation in the over-65 population.

**Keywords:** health psychology, QoL, active aging, lifestyles.

## Short Speech – session 7: GENDER IDENTITY AND RIGHTS

*Discussant:* Emanuela Confalonieri (Università Cattolica del Sacro Cuore, Milano)

### 2 - Risk and protective factors of homophobic cyberbullying in a sample of Italian adolescents: the mediating role of social dominance orientation

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*Libera Università di Bolzano, Facoltà di Scienze della Formazione, Bolzano, Italia*<sup>(1)</sup> - *University of Texas at Austin, Human Development and Family studies, Austin, Stati Uniti D' America*<sup>(2)</sup>

**Introduction.** Homophobic cyberbullying (HC) among adolescents is an emerging and concerning form of online bias-based aggression. However, little research has explored its prevalence and predictors. This study aims to address this gap by investigating HC through the theoretical lens of a socioecological stigma framework (Earnshaw et al., 2018). Specifically, it examines the interplay between contextual and individual factors associated with this phenomenon.

**Methods.** Parallel (in-school and online) survey samples ( $n = 3,807$ ) were collected among Italian youth (Mage=16.69; F=50.6% M=26.1% Other=22.5% : LGBTQ+=58.1%). Multigroup structural equation modeling (SEM) was employed to examine potential differences in path coefficients across gender and sexual orientation subgroups.

**Results.** The results indicated that heterosexual boys reported higher levels of homophobic social norms, social dominance orientation (SDO), and socioemotional competences (SEC) compared to other subgroups. The multigroup SEM analysis revealed that socioemotional competences negatively predicted homophobic cyberbullying, whereas homophobic social norms positively predicted it. Furthermore, the mediating role of SDO on homophobic cyberbullying was found to be stronger for heterosexual boys. Conversely, SEC acted as a stronger protective factor against both SDO and HC for heterosexual girls.

**Discussion.** Further research should explore prevention strategies targeting norms and orientations that facilitate this harmful behavior, focusing on the development of heterosexual boys.

**Keywords:** homophobia; cyberbullying; peer norms; socio-emotional competences; social dominance orientation.

## 63 - What do teachers need? A systematic review of high school teachers' opinions toward sexuality education

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**Introduction.** Sexuality Education (SE) is crucial for promoting positive, consensual, and healthy sexuality. SE is recognized as a lifelong learning process and a human right, yet it still faces social and educational resistance. The literature emphasizes the significance of providing adequate SE, with teachers discussing various sexual topics. The current study is the result of a systematic review on the attitudes and opinions of in-service secondary and high school teachers toward SE.

**Methods.** Relevant articles were systematically searched following PRISMA guidelines. Between March and September 2023, four scientific databases (ERIC, PsycInfo, Scopus, and Web of Science) and other sources were searched for original articles. From 2208 records recovered, we included the 103 that met the eligibility criteria. The studies were categorized into four emergent themes using reflexive thematic analysis: (1) Barriers and facilitators to SE; (2) programs' aspects of SE; (3) SE curricula; (4) individual factors and SE.

**Results.** Four themes and relative subthemes emerged from teachers' attitudes and opinions. (1) Barriers and facilitators to SE (n = 88): internal barriers; external barriers; and facilitators. (2) Programs' aspects of SE (n = 70): teaching methods, strategies, and materials; educational responsibility; type of implementation; and SE approaches. (3) SE curricula (n = 63): general content; medical prevention; LGBTQ+ issues; and healthy attitudes and behaviors. (4) Individual factors and SE (n = 55): personal beliefs; religious faith; and gender differences. Most research articles were focused on internal (n = 71) and external (n = 65) barriers to SE implementation, teaching strategies (n = 43), opinion on educational responsibility (n = 31), general content of SE curricula (n = 30) and individual factor as personal beliefs (n = 39) and religious faith (n = 20).

**Discussion.** The findings highlight various opinions among teachers on SE, emphasizing the importance of including teacher training to enhance their comfort level with discussing sexual topics. This research contributes to bringing attention to the perspectives of teachers, which are often overlooked in the design of SE programs for students. The study has relevant policy, sociocultural, and educational implications for enhancing teacher training while considering teachers' needs

**Keywords:** comprehensive sexuality education, teachers' needs, teachers' opinions, systematic review.

## 64 - Family functioning and well-being in nonbinary people: risk and protective dimensions

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**Introduction.** While many transgender individuals experience themselves as having a binary gender, a significant portion of the transgender population identifies as nonbinary. The proportion of transgender individuals identifying beyond the traditional gender binary is expected to rise, underscoring the need to study the nonbinary population, which has gained visibility in recent clinical research. For young people belonging to LGBTQ+ populations, relationships with their family of origin are often complex. Nonbinary adolescents may perceive even lower family cohesion and support compared to their cisgender and binary transgender peers. The objective of this systematic review and meta-analysis is to synthesize existing research exploring the familial experiences of nonbinary individuals.

**Methods.** The selected articles were systematically searched in four scientific databases. We exclusively included articles containing original data and either solely nonbinary participants or studies where nonbinary individuals were delineated within the overall sample. Out of the initially identified 2837 records, 37 articles met the inclusion criteria for analysis.

**Results:** In the majority of studies concerning family reactions to nonbinary gender identity, prevalent were negative feelings among family members. Multiple studies have shown that nonbinary individuals often have positive relationships with their siblings, who offer significant support. However, experiences of coming out vary widely: some studies report positive interactions with family members, while others reveal negative experiences or decisions to conceal gender identity within the family. The majority of studies suggest a higher prevalence of violence and victimization from family members among nonbinary individuals. Additionally, the association between family functioning, well-being, and mental health was emphasized. Finally, utilizing a meta-analytical approach, we discovered that nonbinary individuals perceived significantly lower levels of support compared to both binary ( $d = 0.18$ ; 6 studies) and cisgender individuals ( $d = 0.61$ ; 5 studies).

**Discussion.** The present review and meta-analysis underscore the family's pivotal role in interventions and emphasize the relevance of collaborating with families to promote the well-being and affirmation of nonbinary people.

**Keywords:** disclosure, family context, nonbinary, support perceived, well-being.

## 89 - Navigating educational contexts: the role of Safe Zone training in promoting well-being for LGBTQ+ students

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**Introduction.** University settings can be challenging and sometimes dangerous, especially for LGBTQ+ students. In recent decades, schools and universities have implemented “Safe Zone” projects to promote students’ academic progress and well-being. These programs allow school and university staff to be trained on LGBTQ+ topics, helping them to create a more affirming and open environment for all students. They seem to be particularly effective in addressing structural barriers of oppression, providing an overview of LGBTQ+ communities and terminology, and creating an environment where LGBTQ+ students can feel supported and protected from discrimination and harassment. *Aim:* This systematic review aims to synthesize existing research exploring the studies about the effectiveness of Safe Zone programs and giving an overview of line guides and practices about programming staff training.

**Methods.** The selected articles were systematically searched in four scientific databases. Interventions other than Safe Zone, such as Safe Space or Ally Training, were included with slightly different names. Out of the initially identified 1022 records, 120 publications met the inclusion criteria for analysis.

**Results.** We identified three research themes: (a) Safe Zone: Guidelines and best practices (n =109), (b) Safe Zone and well-being (n =33), (c) Safe Zone contents (n =65). In most publications concerning Safe Zones, guidelines and best practices were presented. Multiple studies have shown the effectiveness of Safe Zones on trained people, pointing out higher levels of LGBTQ+ competence and awareness after training and between trained and untrained people. Other studies have shown that students’ changing perceptions of openness and approval from teachers and school staff indirectly affect training. Several studies suggest that this type of intervention also impacts campus climate, being perceived as safer and more welcoming by both students and teachers.

**Discussion.** The present study is the first systematic review of Safe Zone programs. It underscores the pivotal role of school staff in setting the tone of their institutions and the relevance of implementing Safe Zones to promote the well-being and affirmation of LGBTQ+ people.

**Keywords:** LGBTQ+ programming, safe school policy, Safe Zone, Safe Space, sexual-minority youth.

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## Short Speech – session 8: PARENTING

*Discussant:* Roberta Fadda (University of Cagliari)

### 87 - Secure Base or Safe Haven? Parental Roles and Emotion Regulation during Middle Childhood

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**Introduction.** Research suggests that the safe haven function may play a more relevant role in the child-mother attachment relationship, while the secure base function may be more prominent in child-father attachment. Nonetheless, previous research on developmental correlates of attachment, and specifically emotion regulation (ER), has almost uniquely considered child-mother attachment, neglecting the father. This results in a gap concerning the unique contribution that each parent gives to children's ER development and display. Parental roles are therefore still to be explored, especially during middle childhood. The present study aims at unpacking the relationship between children's ER abilities in middle childhood and attachment dimensions of secure base and safe haven towards their mothers and fathers.

**Methods.** Data was collected from a sample of 697 children (48,3% girls, 51,1% boys, 0.6% unknown) aged from 8 to 13 y/o. Attachment functions of secure base and safe haven were assessed through two self-report versions of the *Security Scale* (SS) questionnaire, one for each parent. Children's ER dimensions of Emotional Control (EC), Emotional Self-Awareness (ESA) and Situational Responsiveness (SR) were measured by administering the *Emotion Regulation Index for Children and Adolescents* (ERICA). The collected data was analyzed using Response Surface Analysis (RSA).

**Results.** Results concerning attachment to the mother showed a linear association between the safe haven function, which emerged as primarily important, and ESA and SR dimensions of ER. An interaction effect between secure base and safe haven on EC was also revealed. Differently, findings regarding attachment to the father indicated how EC and RS dimensions linearly associate with the secure base function, while also showing a quadratic association with safe haven. Associations with ESA appear to be more complex and multifaceted. **Discussion.** Results seem to address a major difference between maternal and paternal contributions when considering children's ER abilities, upholding previous literature on the matter and providing interesting insights about the unique roles that parents may play in children's development. Developmental implications, as well as future directions of research, will be discussed.

**Keywords:** attachment, emotion regulation, middle childhood, parental roles, RSA

## 91 - Parental well-being and Family Outcomes of PEERS®: A Social Skills Training for Adolescents with Autism Spectrum Disorder

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Parents of autistic adolescents (ASD) experience heightened stress levels compared to parents of neurotypical children or those with other disabilities, due to challenges related to diagnosis, intervention, and uncertainties about prospects. Despite social skills training (SST) being a recommended intervention for ASD, its impact on parental well-being and family outcomes remains underexplored. Program for the Education and Enrichment of Relational Skills (PEERS®) is a globally recognized manualized group-based SST recently adapted to Italy. It involves parents as social coaches to support teens' competencies in ecological settings. This study aimed to investigate the PEERS® impact on parents, assessing: (1) stress related to adolescent characteristics, parent characteristics, quality of adolescent-parent interactions, stressful life circumstances, and (2) parental generic person-centered quality of life (QoL).

Thirty-seven mothers ( $M_{\text{age}}=49.9$ ,  $SD=4.4$ , range 42-59 years) and as many fathers ( $M_{\text{age}}=53.8$ ,  $SD=6.6$ , range 38-73 years) were assessed at three time-points: pre-intervention (T0,  $n=19$ ), post-intervention (T1,  $n=37$ ), and 3 months follow-up (T2,  $n=37$ ). In the subsample ( $n=19$ ), assessed at three time-points, differences emerged between T0 and T1 as evaluated by fathers, who reported a worsening in the quality of interactions with children ( $t_{(15)}=-2.96$ ,  $p=.01$ ,  $d=7.2$ ,  $M_{\text{pre}}=44.9$ ,  $SD_{\text{pre}}=6.9$ ,  $M_{\text{post}}=46.1$ ,  $SD_{\text{post}}=8.2$ ). Furthermore, a decrease in stress related to adolescent characteristics over time was observed both from T0 to T2 as well as from T1 to T2 ( $F_{(1,17)}=10.9$ ,  $p=.004$ ,  $\eta^2_p=.39$ ;  $M_{T0}=51.44$ ;  $SD_{T0}=9.04$ ;  $M_{T1}=53.06$ ;  $SD_{T1}=9.47$ ;  $M_{T2}=43.33$ ;  $SD_{T2}=8.03$ ), as evaluated by mothers. Notably, in the overall sample ( $n=37$ ), when comparing mothers *vs.* fathers evaluations in the perceived quality of adolescent-parent interactions, a difference emerged at T1 ( $t_{(33)}=-3.17$ ,  $p=.003$ ,  $d=7.5$ ), with fathers ( $M_{\text{pd}}=47.8$ ,  $SD_{\text{pd}}=6.3$ ) reporting a poorer perception compared to mothers ( $M_{\text{md}}=43.7$ ,  $SD_{\text{md}}=7.9$ ). These findings suggest that PEERS® may influence some aspects of parental stress, with differences between mothers and fathers. However, it does not have a significant impact on QoL. Clinical implications and study limitations were discussed.

**Keywords:** parental stress, quality of life, autistic adolescents, social skills training, PEERS®

## 95 - Children's behavioral problems and emotional symptoms in early infancy: parental burnout and protective factors

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**Introduction.** Parental burnout is a clinically significant condition that results from a long-term imbalance between parental stress and parental resources (Mikolajczak & Roskam, 2018; Roskam et al., 2021; Griffith, 2022). It can have a detrimental effect on all individuals in the family system across the lifespan. Examining parental burnout and identifying protective factors for parents' and children's well-being is important to ensure appropriate assessment and treatment. In our study, we investigated the extent of parental burnout in parents of children under two years of age and also analyzed possible associations between these aspects and parents' sociodemographic characteristics. In addition, we examined the impact of parental burnout and some protective factors (especially parental resilience, social connection, concrete support, and promotion of children's emotional competence) on children's behavioral problems and emotional symptoms.

**Methods.** A total of 139 parents (85.6% mothers; mean age =35.09, SD = 4.71) of children aged 0 to 2 years (51.8% girls; mean age = 1.52, SD = 0.61) participated in this study. In addition to a questionnaire on socio-demographic information, parents completed the following instruments: Parental Burnout Assessment (PBA, Roskam, Brianda, & Mikolajczak, 2018); Behavioral problems and emotional symptoms scale (Arace, Scarzello, Zonca, Agostini, Prino, 2021); Parents Assessment of Protective Factors scale (PAPF; Kiplinger & Browne, 2014).

**Results.** Regression analysis shows that parental burnout predicts children's behavioral problems and emotional symptoms ( $\beta=.428$ ;  $p<.001$ ). Among the protective factors, social connection ( $\beta=-.209$ ;  $p<.005$ ) and resilience ( $\beta=-.190$ ;  $p<.05$ ) have a significant effect. The socio-demographics of the parents had no influence on the results.

**Discussion.** The results highlight the impact of family context on children and the importance of interventions that can support family protective factors and reduce parents' perceptions of stress to promote children's well-being and reduce the incidence of behavioral problems and emotional symptoms.

**Keywords:** parental burnout, behavioral problems, emotional symptoms, infancy, protective factors.

## 105 - Obstetric violence in the Italian context: socio-demographic and psychological correlates

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**Introduction.** Obstetric violence (OV) is frequent form of violence experienced by women during childbirth, with a prevalence ranging from 43.6% to 78.4%. Moreover, having experienced OV is associated with deleterious consequences such as psychological distress and a more traumatic and stressful childbirth experience. Despite this evidence, studies concerning this form of violence are still scarce. Therefore, the present study aims to fill this gap exploring (i) the prevalence of OV and (ii) the associated socio-demographic and psychological factors.

**Methods.** To date, 255 women ( $M_{\text{age}} = 33.96 \pm 4.88$ ) were recruited. Inclusion criteria were: (i) age > 18 years old, and (ii) having given birth in the last year in Italy. Women were asked to fill out an online questionnaire with their socio-demographics data, information about childbirth, experience of OV, and well-known self-report measures for assessing anxiety, depression, and birth-related posttraumatic stress disorder. First, descriptive statistics were calculated to investigate the prevalence of the various forms of OV. Second, a series of  $\chi^2$  tests or t-tests were conducted to explore the differences between those who have experienced OV and those who did not.

**Results.** Results showed that 78% of women reported experiencing at least one form of OV. Specifically, 49% of participants suffered at least one type of OV in terms of abuse or violence, while almost 62.70% in the form of non-consented care. Moreover, some significant differences in socio-demographic and psychological characteristics emerged between those who suffered OV and those who did not. For example, there were a higher prevalence of primiparous who had experienced at least one form of OV compared to multiparous ( $\chi^2(1) = 4.307, p = .038$ ) and those who have suffered of OV reported higher levels of anxiety ( $t(253) = -2.102, p = .037$ ) and birth-related PTSD ( $t(253) = -2.785, p = .006$ ) but not of depression ( $t(253) = -1.755, p = .080$ ).

**Discussion.** Overall, the results showed that OV is a widespread phenomenon in the Italian context that should not be underestimated since it is associated with negative consequences for the psychological well-being of women. Therefore, both preventive and treatment interventions are needed to reduce its negative effects.

**Keywords:** anxiety, depression, obstetric violence, psychological distress, traumatic childbirth.

### 139 - Emotion regulation pattern of mothers and fathers during the COVID-19 pandemic: clustering and associations with adolescents' depressive symptoms

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**Introduction.** The COVID-19 outbreak was characterized by psychological distress in families, with an increase in depressive symptoms (Hollenstein et al., 2021). Different patterns of emotion regulation have been found to play an important role when dealing with the intense emotions elicited by the pandemic. Both parental and child characteristics influence the processes involved in the socialization of emotional regulation (Morris et al., 2007). The present study aims to examine emotion regulation-related indicators of parents whose adolescent children were high in depressive symptoms during the peculiar stressful time of the COVID-19 pandemic.

**Method.** Participants were from a convenient sample of mothers (Mage = 49.25, SD=5.52) and fathers (Mage = 50.14, SD = 5.80) whose adolescent children were in treatment for anxiety-depressive problems (N=80; Mage = 14.97, SD = 2.27; 44% girls). Parents were asked to report on their own and their children's depressive symptoms, on their emotion regulation strategies, and their experience during the pandemic. Data were collected before the COVID-19 pandemic hit Italy (T1) and about eight months after the COVID-19 pandemic began (T2). All examined measures presented an average Cronbach's alpha of .70.

**Results.** Two-step cluster analysis revealed two distinct clusters for both mothers and fathers: Cluster 1 "the Covid-19 negative affect Dominant" (e.g., lower perceived self-efficacy in regulating the negative emotions, lower supportive parental strategies for the socialization of children's negative emotions) and a Cluster 2 "the Resilient to the Covid-19 negative affect" (Opposite of Cluster 1). Moreover, those youths who showed a decrease in internalizing symptoms over time belonged to families in which both mothers and fathers were able to activate their own emotional resources and were also able to create a supportive family emotional climate for their adolescents before the pandemic.

**Discussions.** This study contributes to clarifying the role of individual and contextual characteristics in relation to internalizing symptoms in adolescence. In addition, this study contributes to further explore the role that some family environments, in spite of negative atmospheres, may serve as a protective function, softening the development of symptoms such as depression (Katz et al., 2008).

**Keywords:** emotion regulation, COVID-19, adolescence, parents.

## 158 - "CONNESSIONI EDUCATIVE" a system to create new alliances between family, school, and community

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**Introduction.** The project intends to strengthen the cognitive and relational skills of minors in vulnerable conditions, stimulating a new educational alliance between school, family, educational services, and territory. Extra-curricular laboratory activities were carried out to strengthen cognitive, relational, and creative skills and professional and experiential courses for minors aged 14-17. Integrated paths were created between school, educational services, and the territory for minors in conditions of family educational fragility, who were supported through the experimentation of multifamily therapy. Finally, two counseling spaces have been activated where thematic meetings have taken place for teachers and parents. The recipients are approximately 600 minors and their families. The project is currently underway and will be completed by October 2024. Our lab is leading the impact assessment part with the interested parties.

**Methods.** The data collection is still ongoing and consists of three different parts: 1) online questionnaire for everyone, to measure the effectiveness of the actions undertaken in the project with adolescents, educators/operators, and parents; 2) semi-structured interviews with educators and operators with roles of responsibility in the projects; 3) focus groups with parents. Data collection was carried out subject to the approval of the university bioethics committee.

**Results and Discussion.** Interviews carried out (10 with operators/educators) have been analyzed using T-Lab and Netminer for social network analysis (Co-occurrence, Neighbor and Centrality Analysis). Preliminary results show how participants took part in actions involving different actors, where various positive changes were found, such as the passage from the total isolation and demotivation of some adolescents to the construction of new friendly relationships and the birth of new interests. However, these changes have also been found in families, who through some activities have discovered a new world in which they can interact with other parents, feeling less isolated in their difficult situation and receiving support from efficiently trained figures.

**Keywords:** education, educational poverty, adolescents, families, schools

## Short Speech – session 9: LANGUAGE, COMMUNICATION AND LITERACY

*Discussant:* Rachele Fanari (University of Cagliari)

### **29 - The Contribution of PASTA and Executive Functions to reading in primary school. A preliminary study**

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**Introduction.** Phonemic awareness (PA) refers to the ability to reflect on and manipulate phonemes. The development of the ability to become aware of and conduct mental operations on phonemes might involve higher-order cognitive processes modulating attention on goal-relevant information and behavioral control (i.e., executive functions, EFs), which, in turn, contribute to the development of reading (e.g., Diamond et al., 2007). This study investigated the contribution of several PA and EF skills in three decoding tasks.

**Methods.** 102 typically developing 3<sup>rd</sup>-5<sup>th</sup> graders ( $M_{\text{age}} = 9.2$  years,  $SD = 10.1$  months) completed a battery of tests assessing PA (i.e., PASTA, a new pseudo-words blending task, and the CMF Word Blending test), EFs (Raven's Colored Progressive Matrices test as a measure of visuo-spatial working memory, phonological and categorical Fluency Tests to evaluate set-shifting and inhibition), and reading (i.e., the MT Reading test, DDE-2 Word and DDE-2 Pseudo-Words Reading tests) skills.

**Results.** Statistically significant correlations were obtained among PA, EFs, and reading measures. Moreover, a series of hierarchical regression analyses revealed that 18-37% of the variance in the reading conditions was mainly predicted by PASTA and EFs.

**Discussion.** Despite its exploratory nature and the caution needed in tracking some conclusions, this study seems to suggest that the concurrent assessment of pseudo-words blending, EFs, and reading skills should be encouraged in 3-5 grades.

**Keywords:** phonemic awareness, executive functions, reading, primary school.

## 48 - Linguistic components and inhibitory controls in monolingual and bilingual children in typical and atypical development

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**Introduction.** Although clinical markers as well as neuropsychological profiles of monolingual children with Developmental Language Disorder (DLD) have been widely recognized across languages, however the identification of language and cognitive characteristics of bilingual or second language learner children with DLD currently poses a significant research and clinical challenge. This study examined language and non-verbal inhibitory control skills of Italian monolingual and bilingual typically developing children (TD) with Italian as L2 and their age-matched monolingual and bilingual peers with DLD.

**Methods.** Four groups of preschoolers were enrolled: 30 TD Italian monolinguals, 24 TD bilinguals, 19 DLD Italian monolinguals, and 19 DLD bilinguals. All children were assessed in Italian on vocabulary, receptive morphosyntax, and morphological markers for DLD in the Italian language (i.e., third-person verb inflection, definite articles, third-person direct object clitic pronouns, simple propositions), and on non-verbal inhibitory control skills (i.e., response inhibition and interference suppression). Group performance was compared using a series of one-way analyses of variance (ANOVA).

**Results.** DLD monolingual and bilingual children achieved significantly lower performance in all language measures than both TD monolingual and bilingual children. However, TD bilinguals, though comprehensively showing better language skills than DLD monolinguals, achieved a performance closer to them, but significantly higher than that of DLD bilinguals. Both TD monolinguals and bilinguals showed better results than both DLD groups in inhibitory control tasks, particularly in the interference suppression task.

**Discussion.** This study provides a picture of language and inhibitory control characteristics of children with various language profiles and adds to the literature on potential markers of DLD among bilingual children. These results suggest that the assessment of non-linguistic markers, which are associated with language impairment, could be a useful approach to better specify the diagnosis of DLD and reduce cases of misdiagnosis in the context of bilingualism.

**Keywords:** language, inhibitory control, bilingualism, developmental language disorder, morphological acquisition

## 147 - Differences in vocabulary tasks between monolinguals and bilingual toddlers aged 34 to 41 months and the role of language exposure

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**Introduction.** Bilingual children are often under-referred to SLPs and under-diagnosed when it comes to Developmental Language Disorder, because of the difficulties in assessing their language performance, language exposure and language use. Considering the Italian Language Exposure, assessed with the Italian Language Exposure Questionnaire adapted from the English Plymouth model (Cattani et al., 2014), the results of monolingual and bilingual toddlers will be evaluated and compared. The purpose of the study is to explore the role of the language exposure and to identify the cut-off of the percentage of the Italian Language Exposure for which the bilingual toddlers perform on average as their monolingual peers, helping to identify criteria for bilinguals at-risk of DLDs. Since this is an ongoing study, the results shown are preliminary.

**Methods.** Participants are 64 toddlers (33 monolinguals, 31 bilinguals) aged 34 to 41 months old living in Italy, who completed the test "Parole in Gioco"; their parents were interviewed to complete the Italian L.E.Q. The monolingual and bilingual toddlers are homogeneous for age (Student's  $t=1.31$ ,  $p=.194$ ), gender ( $\chi^2=1.33$ ,  $p=.715$ ) and family level of education (Student's  $t=.854$ ,  $p=.396$ ).

**Results.** Monolingual participants show higher scores on average than bilingual peers in "PinG" (for Comprehension  $p=0.005$ ; for Production  $p<.001$ ). Moreover, for bilingual participants the Italian Language Exposure correlates positively with the vocabulary test "PinG" (for Comprehension  $r=.670$ ,  $p<.001$ ; for Production  $r=.59$ ,  $p<.001$ ). Furthermore, the cut-off of the Italian L.E.Q. for which bilinguals perform as their monolingual peers is ~50-60% and will be discussed further.

**Discussion.** According to these results, bilingual toddlers (34 to 41m.o.) have less vocabulary knowledge on average compared to monolinguals, but higher percentages of Italian Language Exposure positively affect their performance on vocabulary tests. In conclusion, bilinguals who are exposed to high percentages of Italian ( $> \sim 50-60\%$ ), tend to perform as their monolingual peers.

**Keywords:** language development, DLDs, bilingualism

## 151 - Apprendimento di grammatica artificiale in dislessici adulti: qual è il locus del deficit nella dislessia evolutiva?

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**Introduzione.** Un deficit nell'acquisire instances potrebbe essere alla base dei disturbi dell'apprendimento e spiegare la difficoltà nell'acquisire rappresentazioni ortografiche e fatti aritmetici. Studi di grammatica artificiale esaminano la capacità dei soggetti di apprendere implicitamente regole presenti in stringhe di stimoli visivi. Il seguente studio vuole comprendere quale sia il locus del deficit di automatizzazione dei dislessici e testare se le prestazioni della grammatica artificiale dipendono dall'apprendimento delle regole, delle instances o dalle proprietà distribuzionali insite nella grammatica a cui sono stati esposti.

**Metodi.** 49 dislessici e 74 normolettori adulti sono stati sottoposti a prove di apprendimento di grammatica artificiale mediante un compito attivo di copia. Successivamente i partecipanti hanno effettuato prove di scrittura e di giudizio grammaticale e riconoscimento, con stimoli appresi, stimoli nuovi grammaticali e stimoli nuovi non grammaticali (gli stimoli variano anche per la frequenza dei bigrammi).

**Risultati.** I dislessici hanno imparato la grammatica artificiale e usano la memoria procedurale tanto quanto i controlli. Ciò si evince dall'effetto confondente degli stimoli grammaticali nel riconoscimento e dall'effetto grammaticale nel giudizio grammaticale. Inoltre, i dislessici hanno acquisito instances e le utilizzano, ma hanno rappresentazioni instabili e ciò si evince dalle migliori prestazioni con item appresi sia nel riconoscimento che nel giudizio grammaticale e da una maggiore difficoltà nel rifiutare item di controllo con errori non grammaticali. Inoltre, i dislessici iper-utilizzano le proprietà distribuzionali per compensare rappresentazioni instabili. Infatti, i dislessici, come i controlli, compensano le difficoltà con posizioni critiche per bigrammi più frequenti nel riconoscimento e nel giudizio grammaticale e riducono gli errori nel giudizio grammaticale con bigrammi ad alta frequenza più dei controlli.

**Discussione.** È necessario promuovere l'utilizzo delle conoscenze distribuzionali nei dislessici come strategia di compenso e aumentare le opportunità di apprendimento per consolidare l'apprendimento di instances.

**Keywords:** dislessia, lettura, grammatica artificiale, rappresentazioni lessicali, proprietà distribuzionali, deficit procedurale.

## 162 - The effect of an intervention based on the program Baby Signs® Italia to the communication of children with Down syndrome

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**Introduction.** Children with Down syndrome show a heterogeneous socio-cognitive profile, characterized by lower language skills than cognitive abilities, especially in production. Gestural communication, and especially joint attention, seem to be relatively preserved. The program *Baby Signs® Italy* is a parent training to introduce simple gestures in communication to their babies (bimodal communication). Let's assume that this intervention can be particularly useful for the communicative development of Down children.

**Methods.** We observed four times 20 children (8 females), aged between 16 and 60 months at the first observation. The parents of 10 children (experimental group) took part, between the first and second observation, in a three hours training on the *Baby Signs® Italy* program; the other 10 (control group) followed the same training between the third and the fourth observation. We used a sequential design, which allowed us to obtain on all 20 children the data related to the training effect (pre- and post-test), although at different times: we then compared the two groups controlling the effect of age. The sequential design also allowed us to respond to the ethical need to guarantee training for all children, even those initially part of the control group. To assess the social and communicative competence of children we used the Questionnaire on Early Social Communication (QCSP: Molina, *in preparation*), filled by parents. The research on the QCSP has been approved by the *Bioethics Committee* of the University of Turin (Protocol of 16/04/2018).

**Results.** On the total sample of 20 children we obtained a significant difference between pre- and post-test, not simply due to age, which testifies to the effectiveness of the training. From a qualitative point of view, we observed a different trend in the two groups: the change appeared at different times, in relation to the period in which the training was carried out.

**Discussion.** Our results show the usefulness of the use of conventional (symbolic) gestures to support the communication of children with Down syndrome. In addition, the sequential design proved to be useful to highlight the effect of the program even with a very small sample.

**Keywords:** Down; communication; parent training ; QCSP; Baby Signs® Italia

## Short Speech – session 10: LEARNING AND COGNITION AT SCHOOL

*Discussant:* Maria Chiara Fastame (University of Cagliari)

### 54 - Building Blocks Training program for the enhancement of visuospatial skills in primary school children

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Visuospatial skills are widely regarded as functional skills for a better learning process. Evidence shows that such skills are malleable and responsive to training (Uttal et al., 2013), especially during early childhood, but several studies also point to the existence of gender-related differences in their development (Lauer et al., 2019).

This study investigates the effect of a sustainable school intervention program, which is aimed at consolidating teachers' practices for enhancing visuospatial skills in their pupils, by including ARTEC© building blocks into the instructional methods during their lessons. The program was implemented by teachers after a three-day training program held by researchers, in 8 primary school classrooms (N = 147; M = 48.3%, F = 51.7%;  $M_{age} = 8.57$ ). A pre-test post-test quasi-experimental design was applied through a battery of cognitive tasks, including measures of visuospatial skills (e.g. Mental Rotation Test - MRT), and compared with a control group (N = 87; M = 55.2 %, F = 44.8%;  $M_{age} = 8.93$ ).

A mixed-model ANOVA was performed to compare the effects of gender and research group (experimental vs control) on pre-post test of MRT scores. Results show a significant interaction effect between pre and post-intervention MRT scores and Group ( $F(1, 220) = 10.94, p = .001$ ), indicating a significant improvement in scores after the intervention in the experimental group. Notably, considering gender, neither main effects nor interaction effects were found to be significant.

The present study provides empirical evidence on the usefulness of designing training programs to help teachers enhance children's visuospatial skills by integrating easily affordable didactic tools into teaching curricula.

**Keywords:** spatial ability, gender differences, primary education, intervention program, teacher training.

## 85 - Exploring the role of executive functions in school-age children

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L'Aquila, Italia <sup>(1)</sup>

**Introduction.** Executive functions (EFs) are a set of top-down cognitive control processes used to manage thought and behavior. These functions include abilities such as inhibition, working memory, cognitive flexibility, and attentional control, and they are thought to be crucial for completing linguistically complex tasks and have been linked to pragmatic language in children. Pragmatic language (PL) refers to the ability to use communication strategies in social interactions. EFs play a crucial role in pragmatic language development. Our main hypothesis is to understand the relationship between EF and PL in school-aged children.

**Methods.** A sample of 25 school-aged children participated in this study (mean age = 9.68 years; SD = 0.57 years; 18 boys). General intellectual ability was assessed using Raven's Coloured Progressive Matrices. Executive function dimensions were evaluated using the following tests: the inhibition component was measured using the numerical Stroop task; working memory with backward span; selective attention with the Trail Making Test; and cognitive flexibility using the Tower of London test. Pragmatic language ability was assessed using the Colour Game sub-test of the APL (Medea Abilità Pragmatiche nel Linguaggio).

**Results.** We conducted a preliminary correlation analysis to understand the relationships between the investigated variables. The analysis showed an association between pragmatic language and two EF components: working memory ( $r=0.32$ ;  $p = 0.03$ ) and inhibition ( $r=0.36$ ;  $p = 0.01$ ).

**Discussion.** The analysis in our pilot study indicates that two EFs are associated with pragmatic language: working memory and the inhibition component. These results, although preliminary, confirm the central role of working memory in pragmatic skills. Working memory allows individuals to hold and manipulate information in mind, which is essential for understanding and producing complex sentences, following conversational turn-taking, and comprehending the intentions of others during communication. Regarding inhibition, this component helps individuals filter out irrelevant information and consider social cues to tailor their language appropriately to the context. Further, more complex analyses, such as multiple regression analysis or network analysis, will be conducted as the sample size is increased.

**Keywords:** children, executive functions, inhibition, pragmatic language, working memory.

## 90 - ShareFUN intervention program for preschoolers: enhancing working memory capacity and executive functions with digital and analogical playful activities

Sabrina Panesi <sup>(1)</sup> - Lucia Ferlino <sup>(2)</sup>

Università di Genova, DISFOR, Genova, Italia <sup>(1)</sup> - CNR, Istituto per le Tecnologie Didattiche (ITD), Genova, Italia <sup>(2)</sup>

**Introduction.** The development of Executive Functions (EF) during preschool years is crucial. For this reason, many studies investigated the effectiveness of EF training in preschoolers, but only few studies investigated EF interventions that integrated digital technologies in the educational context to promote EF in a pedagogically meaningful way. We present the ShareFUN intervention program for preschoolers that combines both digital and analogical materials to enhance EF following a play-based approach. The main aim is to investigate the feasibility and the effectiveness of the ShareFUN intervention for preschoolers.

**Methods.** After conducting a pilot study with 32 children, we conducted the present study. A quantitative, quasi-experimental pre-test–post-test control group design was used. A total of 83 preschoolers took part in the study (45 female; mean = 64.64 months; sd =3.62). They were divided to either a group that underwent the intervention (Experimental group; n = 34) and a group that continued with daily didactic activities (Control Group; n = 49). The intervention lasted for 7 weeks (14 sessions, twice a week) and included both digital and analogical playful activities. Each session ended with a metacognitive reflection phase. Children carried out the activities in small groups.

A battery of EF tasks was administered to all children in the pre and post-test phases. An EF survey and a learning prerequisites survey were filled by teachers in these two phases. In addition, children evaluated all sessions with a visual rating scale.

**Results.** Concerning feasibility, children evaluated all sessions positively. Moreover, teachers' feedback highlighted that the intervention was appreciated by children and compatible with classical preschool curricula.

Concerning effectiveness, the results highlighted children in the experimental group improved especially in the inhibitory control. Teachers also reported some improvements in different EF components, behavioral school attitude, oral expression, metacognition and fine motor skills in children involved in the experimental group.

**Discussion.** Results of the study and future perspectives on how combining digital and analogical playful activities to promote EF in the preschool context could become a powerful tool in classrooms with young children are discussed.

## 140 - Preliminary normative data of ASTRAS, a technological tool for the assessment of executive functions

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**Introduction.** Recently, there has been a growing interest in designing and developing technological solutions for the assessment and training of executive functions in children with neurodevelopmental disorders. Interestingly, the application of game-like elements such as a leaderboard, challenges, and levels of difficulty plays a crucial role in making the cognitive assessment more motivating and engaging. Unfortunately, sometimes these technological solutions lack of an adequate operationalization of the cognitive domains taken into account. Additionally, sometimes they lack of psychometric testing (e.g., normative data), which makes it difficult to estimate the deviation of the performance of a child with a neurodevelopmental disorder as compared to that of a normative sample. In that regard, here we aimed at providing the normative data of the assessment tasks of ASTRAS, a platform for the assessment and training of executive functions of children with neurodevelopmental disorders.

**Methods.** Consistently with the aim of this study, a sample of 600 children has been recruited from different primary schools in southern and northern Italy (min=6, max=10, mean age=8, DS=2). Children were provided the assessment tasks assessing five main cognitive domains: attention, inhibition, working memory, planning, and cognitive flexibility.

**Results.** Here we report the results of the linear regression analysis carried out with the score for each assessment task as the dependent measure, with age and gender as predictors. Furthermore, we report the mean and the standard deviation for each primary school class and for each task.

**Discussion.** Bind together, the results allow for measuring the deviation of the individual performance compared to the normative sample, enabling a clinical understanding of their performance.

## 148 - The role of executive function and working memory in early math skills

Laura Traverso <sup>(1)</sup> - Irene Tonizzi <sup>(1)</sup> - Maria Carmen Usai <sup>(1)</sup> - Paola Viterbori <sup>(1)</sup>  
Università di Genova, Dipartimento di Scienze della Formazione, Genova, Italia <sup>(1)</sup>

**Introduction.** Executive function and working memory are considered key cognitive abilities for the acquisition of math skills (Clements, Sarama, & Germeroth, 2016). There are, however, a limited number of studies examining the relationship between these cognitive abilities and early math skills. Two studies will be presented. In the first study, inhibition and working memory are investigated in relation to number sense skills. In the second study, inhibition and working memory are examined in relation to diverse problem formats.

**Methods.** Study 1. Sample: 143 typically developing children (49% female) from 58 to 72 months of age in their last year of preschool educational services (Mage = 65.01 months, SD = 3.57). Procedure and measures: Children were assessed with five number knowledge tasks from the Numerical Intelligence Battery and four tasks assessing working memory and inhibition. Study 2. Sample: 145 typically developing children (50% female) from 63 and 76 months of age (M = 68.73 months, SD = 3.33 months). Procedure and measures: Children were administered the same addition problems in diverse formats (nonverbal problems, story problems, number-fact problems), diverse number-knowledge tasks (set comparison, number sequence, set to numerals, and count principle tasks), and domain-general tasks (fluid intelligence, language, visuoconstructive skills, working memory, and inhibition tasks).

**Results.** Study 1. First, we examined the interrelationship between different number skills; next, we explored the contribution of working memory and inhibition to different number knowledge skills. The structural equation model showed that working memory and inhibition were differentially related to specific number knowledge skills. Study 2. Results indicated that children were more accurate on nonverbal problems, followed by story problems and number-fact problems. Furthermore, performance on diverse problems was differently associated with the other variables, which suggests that different problem formats draw on different cognitive skills.

**Discussion.** Both studies contribute to the literature on the relationship between executive function, working memory, and early math skills by providing information about the role of these domain-general abilities in relation to specific components of number sense and to specific problem formats.

**SELF-ORGANIZED SESSION 59 - La Psicologia per la Scuola che cambia: ricerca e intervento per la promozione del benessere a scuola**

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La sessione auto-organizzata costituirà l'occasione per riprendere alcune linee di ricerca e di intervento emerse nella sessione del convegno dello scorso anno, accomunate dall'interesse verso la promozione del benessere dei diversi attori presenti nel contesto scolastico. Inoltre, offrirà la possibilità di condividere alcune riflessioni rispetto all'attività sinora svolta dal gruppo tematico, e di progettare iniziative future che caratterizzino ulteriormente le attività del gruppo nel medio e nel lungo termine.

## **SELF-ORGANIZED SESSION 94 - Social and emotional psychological research in contemporary schools: open questions and challenges**

*Andrea Baroncelli* <sup>(1)</sup> - *Valentina Grazia* <sup>(2)</sup> - *Ilaria Grazzani* <sup>(3)</sup> - *Enrica Ciucci* <sup>(4)</sup> - *Santa Parrello* <sup>(5)</sup>  
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The research group of the PRIN PNRR 2022 project "Mapping social emotional learning and school climate in Italian lower secondary schools: Advancing understanding and participation to inform intervention" proposes a reflexive debate on social and emotional psychological research within school contexts in the contemporary landscape. Open questions pertaining *how* we conduct our research beyond *what* we do, common challenges and resources found in working with schools, and how to effectively bring to fruition research advancements will be shared and discussed.

**Keywords:** social development; emotional development; teaching; learning; school.

**SELF-ORGANIZED SESSION 125 - The Practical Evaluation Internship in the scenario of the new qualifying degree**

*Self-organised session in collaboration between the Thematic Group "The dissemination of knowledge in Psychology for teaching in the academic field and for the third mission" and the Executive Committee of the Section*

*Stefano Cacciamani <sup>(1)</sup>*

*Università della Valle d'Aosta, Scienze Umane e Sociali, Aosta, Italia <sup>(1)</sup>*

This self-organized session aims to promote a discussion on new training scenarios introduced by the practical evaluative internship in the qualifying degree in Psychology. It seeks to identify emerging problems and possible solutions, encouraging an exchange of different experiences on the topic.

## **SELF-ORGANIZED SESSION 150 - Designing sensory-friendly environments in educational settings**

*Roberta Fadda* <sup>(1)</sup> - *Giuseppe Doneddu* <sup>(2)</sup> - *Francesco Pinna* <sup>(3)</sup> - *Francesca Musanti* <sup>(3)</sup> - *Caterina Giannattasio* <sup>(3)</sup> - *Sara Congiu* <sup>(1)</sup>

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*- Centro per l'Autismo e Disturbi Correlati (CADC), Nuovo Centro Fisioterapico Sardo, Cagliari, Italia* <sup>(2)</sup> - *Dipartimento di Ingegneria civile, ambientale e architettura, Università di Cagliari, Cagliari, Italia* <sup>(3)</sup>

Sensory stimulations create real barriers to access to education for autistic individuals, with negative impacts on their well-being. This self-organized session aims to present the potential of a collaboration between autistic individuals and professionals in the fields of developmental psychology and education, architecture, and neuroscience, for designing accessible, sensory-friendly environments in educational settings from nurseries to universities.

**SELF-ORGANIZED SESSION 164 - School Psychologist: what is missing for regulatory establishment?**

*AIP Task Force on the School Psychologist*

*Stefano Cacciamani <sup>(1)</sup> - Emanuela Confalonieri <sup>(2)</sup>*

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Following last year's analysis of the school psychologist's role in the post-COVID emergency and various legislative proposals, this self-organized session aims to review the progress of the regulatory establishment of this professional figure. It will discuss the challenges, opportunities, and implications of the new qualifying degree in light of the potential re-configuration of this role, which could arise from the new regulations currently under discussion.

## POSTER + lighting talk session 1 - RESEARCH AND INTERVENTION FOR TEACHERS

*Discussant:* Carla Meloni (University of Cagliari)

### 14 - Effects of active breaks on physical activity levels and attention in pre-service teacher students: a mixed-method study

*Federica Andricciola*<sup>(1)</sup> - *Mariarosaria Guzzardi*<sup>(1)</sup> - *Patrizia Oliva*<sup>(1)</sup>

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**Introduction.** Breaking sedentary time with regular, brief, physical activity has general health benefits, such as helping to control obesity, and may improve cognitive capacity and academic performance in school children. However, little is known about the effects of active breaks in the university context, where students tend to remain passive during lessons. This mixed-method study aimed to analyze the effects of active breaks, implemented into university classes, on physical activity and attention.

**Methods.** A total of 150 pre-service teacher students (75 active breaks group and 75 without active breaks group) participated in the study. The active breaks consisted of 10 minutes of physical activity scheduled every 90 minutes of lecture for two months. Physical activity (IPAQ), cognitive performance (d2R test of attention), and physiological parameters (Vo<sub>2</sub>max) were measured pre- and post-intervention. Post-intervention, students also completed focus group interviews.

**Results.** From preliminary analyses, classes with active breaks showed higher physical activity levels and higher attention post-intervention, compared to classes without active breaks. Also, focus groups revealed that active breaks were perceived to be beneficial for attention, engagement, and productivity.

**Discussion.** Further investigation using a broader representation of the university population is needed prior to generalizing these results.

**Keywords:** active breaks, students, university, physical activity, attention.

## **58 - Teacher perspectives on AI in Education: practices, challenges, and opportunities**

*Paola D'Elia* <sup>(1)</sup> - *Sergio Di Sano* <sup>(1)</sup>

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AI technologies are revolutionizing teaching and learning shifting the focus to teacher education to prepare them with professional knowledge, skills, and ethical orientations due to the lack of clear guiding models (Salas-Pilco et al., 2022). Singh and Jain (2018) highlight the transformative potential of AI in personalised learning, contrasting it with traditional one-size-fits-all models. Ketamo (2018) argues that while AI enhances learning, it does not change the human element of the learning process. This qualitative study explores the perspectives of 20 teachers from Italy, Croatia, Scotland and Poland. Through a questionnaire, we gained input on current practices, challenges, opportunities and concerns. The results show that AI is widely used to personalise learning activities, provide immediate feedback, create educational resources and streamline administrative tasks. Challenges include personalising learning, AI reliability, bureaucratic barriers and ethical considerations. Concerns about maintaining human interaction and the ethical use of AI were highlighted, as well as the importance of professional development and collaboration among educators. The study highlights the need for ongoing training and support for the effective integration of AI into classroom practice.

## 76 - Outdoor Education in Italy: an exploratory study on the dispositions of teachers and students in training

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**Introduction.** Outdoor Education (OE) is an educational approach that considers the outdoor environment as a source of learning that promote healthy child development. Study's aim is to explore dispositions of teachers and students in training about the use of OE and correlations with Nature Relatedness, Mindfulness and Well-Being (WB).

**Method.** 94 teachers (F=92; Mage=42.8) and 100 students in training (F=94; Mage=25.7) completed: Nature Relatedness Scale (NRS); The Mental Health Continuum-Short Form (MHC-SF); Mindful Attention Awareness Scale (MAAS) and ad hoc scale to investigate dispositions to teaching OE. Bivariate correlations were performed, and a simple mediation model was tested to assess the mediating role of MAAS on the relationship between NRS and WB and between NRS and OE teaching dispositions.

**Results.** Results show for both groups (without significant differences  $\Delta\chi^2(12) = 13.69$ ,  $p=0.321$ ) a positive relationship between NRS and MAAS ( $b=.288$ ,  $p=.000$ ), NRS and disposition to OE ( $b=.335$ ,  $p=.000$ ) and a significant indirect effect of MAAS on the relationship between NRS and WB ( $b=.102$ ,  $p=.001$ ).

**Discussion.** The study provides insight into the dispositions of teachers and students in training about OE, suggesting that NRS and MAAS should be considered in OE training pathways.

**86 - Examining the linguistic representations of teacher-student relationships: a comprehensive analysis of children's descriptions, sentiment analysis, and academic outcomes in Italian primary schools**

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This work investigates the relationship between children's linguistic descriptions of teachers, sentiment analysis, and key indicators of relationship quality, mental health, and academic performance among 853 primary school students in Italy, using Latent Dirichlet Allocation (LDA) topic modeling and Sentiment analysis. Pearson correlation also analyzes relationships between linguistic themes, sentiment analysis results, and psychological and educational measures (i.e. Strengths and Difficulties Questionnaire - SDQ scores, Classroom Working Alliance Inventory - CWAI scores, and Student Perceptions of Affective Relationship with Teacher Scale - SPARTS scores). Significant correlations were shown, between how children describe teachers and the emotional tone of descriptions, the perceptions of relationship quality, well-being, and academic achievement; positive correlations between the 'Educational Approach' theme and CWAI scores highlight the role of didactic methods in generating a supportive classroom environment. Correlations between 'Emotional and Supportive Dynamics' and internalizing symptoms underscore the impact of emotional aspects of teacher-student interactions on student well-being.

**Keywords:** teacher-student relationships, sentiment analysis, externalizing symptoms, classroom environment, student well-being.

## 124 - Effectiveness of emotional intelligence training programs for teachers

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Interventions targeting emotional intelligence have gained increasing attention for their potential in enhancing various aspects of individuals' lives. Despite previous research indicating positive outcomes of emotional intelligence training, there remains a need to comprehensively evaluate the effectiveness of these interventions within educational contexts. This study aims to address this gap by examining the impact of such training programs on teachers' well-being. A systematic review was conducted, analyzing 27 studies that investigated the efficacy of emotional intelligence training programs for teachers. The results reveal consistent improvements in intervention groups compared to control groups across the examined studies. Additionally, the training led to improvements in dimensions such as health, well-being, and self-efficacy. However, the coexistence of different theoretical models and measurement methods of emotional intelligence complicates the comparison between studies. The findings underscore the importance of future planning of interventions that align with specific theoretical frameworks and standardized measurement approaches. Additionally, the results of an ongoing meta-analysis on the effectiveness of such interventions will be presented during the congress.

## 154 - The influence of self-compassion, compassion satisfaction, quiet ego and work orientation on teachers' work engagement

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LUMSA, Dipartimento Scienze Umane, Roma, Italia <sup>(1)</sup>

**Introduction.** *Work engagement* (WE) is defined as a positive, rewarding, work-related state of mind characterized by vigor, dedication, and absorption. It represents a crucial dimension of work-related wellbeing, especially in teaching. Its antecedents have been explored in literature, highlighting the role of both individual teacher characteristics and environmental factors. The present study aims to investigate possible effects of Self-Compassion, Compassion Satisfaction, Quiet Ego and Work Orientation on teachers' levels of WE within one model.

**Method.** Our sample comprised 209 teachers (84% female; M = 43 years, SD = 10.03). Length of teaching experience ranged from 1 to 42 years (M = 10, SD = 9.41). The 22.9% of participants taught in kindergarten and primary school, 28.2% in middle school and 48.8% in high school. Participants, after signing informed consent, completed the following questionnaires: Self-Compassion Scale-Revised, the Professional Quality Of Life Questionnaire, the ultra-short version of the UWES scale, the Quiet Ego Scale, and the Work Orientation Questionnaire. Bivariate correlations (Pearson's  $r$ ) were tested to explore associations among studied variables. A linear regression with relative weight analysis was performed with SPSS v.29 to analyze the contribution of the studied variables in predicting teachers' work engagement, controlling for socio-demographic factors.

**Results.** Principal results showed a significant relative contribution of teachers' self-compassion ( $\beta=.139$ ,  $rw=15.91\%$ , 95% CI [0.02, 0.11]), quiet ego ( $\beta=.086$ ,  $rw=15.44\%$ , 95% CI [0.02, 0.12].), compassion satisfaction ( $\beta=.295$ ,  $rw=34.22\%$ , 95% CI [0.07, 0.22]), and work orientation ( $\beta=.263$ ,  $rw=30.74\%$ , 95% CI [0.07, 0.20].), highlighting their positive effects in promoting teachers' work engagement ( $R^2 = .415$ ,  $p < .001$ ).

**Discussion.** The current study contributes to the growing body of literature on teachers' well-being, recognizing the impact that Self-Compassion, Compassion Satisfaction, Quiet Ego and Work Orientation have in fostering a more satisfying working environment, particularly considering teachers' engagement, with clear implications for everyday practices.

## 145 - The associations between prejudices, motivation, and attitude towards inclusion of the future special needs teachers

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Università degli Studi della Campania "Luigi Vanvitelli", Dipartimento di Psicologia, Caserta, Italia <sup>(1)</sup>

**Introduction.** To optimize the school experience of all the students, the attitudes towards the inclusion of special needs teachers play a pivotal role. Thus, it is imperative that pre-service education programs facilitate an introspective examination of their beliefs and motivations. For this reason, the aim of this study was to investigate the associations between modern and classical prejudices towards people with intellectual disabilities, motivation to be a special needs teacher, and attitude towards inclusion.

**Methods.** Participated in this study 355 pre-service special education teachers (66% female), from 19 to 59 years old ( $M = 37.40$ ;  $SD = 8.24$ ).

**Results.** Results revealed significant negative associations between prejudices towards people with intellectual disabilities and the other variables, while a positive association between the motivation to be a special needs teacher and the attitude toward inclusion was visible. Finally, SEM showed indirect associations between prejudices towards people with intellectual disabilities and attitudes towards inclusion through the motivation to be a special needs teacher.

**Discussion.** Overall, findings underscore the importance of a comprehensive exploration of the individual characteristics of future special needs teachers.

**Keywords:** special needs teachers, prejudices towards disability, motivation, attitude towards inclusion.

## POSTER + lighting talk session 2 - RESEARCH AND INTERVENTION FOR TEACHERS

*Discussant:* Mirian Agus (University of Cagliari)

### 17 - School dropout programs: an evidence and gap map

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Reducing the dropout rate is a matter of worldwide concern. If not effectively addressed, dropout jeopardizes the future of young people, exposing them to individual and social risks. Our Evidence and Gap Map (EGM) illustrates the extent and distribution of evidence concerning school-related programs aimed at reducing dropout and improving intermediate outcomes (i.e., educational performance, behaviour, attitude, and social factors). After a systematic selection process, we included 125 studies since 2011, encompassing RCTs, quasi-experiments and systematic reviews. Preliminary results from 86% of records reveal that 39% are prevention, 59% are intervention, and 2% are compensation strategies. Among the included studies, 64% accounted for ultimate outcomes such as dropout and graduation (22.4% measured only these outcomes). Regarding studies reporting intermediate outcomes, 83% incorporated performance measures (e.g., grades), followed by behaviours (e.g., attendance, suspension; 60.1%), attitudes (e.g., engagement, self-efficacy; 27.6%) and social factors (e.g., peer-relationships; 13.2%). By providing a global overview of studies assessing dropout programs, our EGM can support the discoverability of evidence and its use in making informed decisions in practice and policy.

**Keywords:** dropout, K-12, Evidence and Gap Map, research synthesis

## **20 - Talking about sexting with my parents and at school? Italian adolescents' perceptions about the role of significant adults**

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*Università Cattolica del Sacro Cuore, Dipartimento di Psicologia, Milano, Italia* <sup>(1)</sup>

Sexting is a behavior of sexual exploration in adolescence, but it entails several risks. In Italy, there are no qualitative studies directly investigating adolescents' opinions on sexting. The aim of this study is to explore adolescents' perceptions about significant adults and school and the role they may play in relation to sexting. Forty-two Italian adolescents (aged 16-18 years) who participated in 7 single-sex focus groups were involved. Data were analyzed through thematic analysis and 4 themes emerged: "*Who I turn to*" regarding possible figures to confront with, "*Generational gap*" related to the perception of a cultural discrepancy of adolescents with their parents, "*It's a private matter*" describing the tendency to perceive sexting as something intimate and personal and therefore not shareable with others, and "*Need for education*" related to the need to receive education with respect to sexting. Findings suggest that adolescents struggle to see adults as a figure of reference to deal with due to a generational gap and the perception that it is a personal and private matter. It emerged, however, a desire among adolescents to acquire knowledge and competences on the topic at school.

**Keywords:** sexting, adolescents, parents, school.

## **45 - Changing attitudes towards bullying and cyberbullying using counter-narratives: a new online game proposal**

Elena Serritella <sup>(1)</sup> - Andrea Guazzini <sup>(1)</sup>

Università degli Studi di Firenze, Dipartimento di Psicologia, Firenze, Italia <sup>(1)</sup>

Bullying and cyberbullying are relevant international issues, rooted in cultural and shared social norms, which are reflected in the dominant narratives of the reference group. Numerous effective prevention projects have been proposed, primarily through face-to-face methods. However, Information and Communication Technologies (ICTs) have now become real prevention settings of violence, and Gamification has been shown to maximize the potential for change. Based on the literature, a new technological tool called "*Narrative Heroes: Playing to Rewrite the Bullying and Cyberbullying Script*" has been developed to prevent and combat bullying and cyberbullying in adolescents. The online serious game, accessible via smartphones, uses online environments, gamification, digital storytelling, and counternarratives to change shared social norms, attitudes, and behavioral intentions towards bullying and cyberbullying. Through a team discussion of specific issues, in an online and anonymous game dimension, we expect that the intervention will stimulate active change in participants, altering shared social norms and dominant narratives, leading to a change in explicit attitudes, beliefs and behavioral intention towards bullying and cyberbullying, at both individual and group levels.

**Keywords:** bullying, cyberbullying, prevention, online serious game, counter-narratives.

## 172 - "Promoting kindness at school: a review of the literature on school-based interventions"

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**Introduction.** Kindness is an attitude that fosters emotional and physical support, improving relationships and the school climate (Malti, 2021). However, there are a few studies on educational programs and measurement instruments in this area (Binfet et al., 2016; Kaplan, 2016). This work is part of my Phd under the supervision of prof.ssa Enrica Ciucci, with the aim of presenting a literature review on interventions to promote kindness in primary schools.

**Methods.** The search combining the terms “kindness”, “primary school” and “interventions” on PsycInfo (430 results), Education Search (319 results), Pubmed (5.325 results) resulted in the selection of 13 articles. Empirical studies interventions focusing on kindness at school were included, excluding age-inappropriate targets and grey literature.

**Results.** Most school programs focus on bullying and social-emotional learning, with only a few programs on kindness in school (Flook et al., 2015). The strengths and weaknesses of these programs will be discussed, and proposal for structuring kindness education in primary schools will be presented.

**Keywords:** kindness, school kindness intervention, primary school.

## POSTER + lighting talk session 3 – PARENTING AND INFANCY

*Discussant:* Paola Molina (University of Turin)

### 18 - The impact of ostracism on 8-month-olds' behavior and attentional disengagement from faces

Giada Basset <sup>(1)</sup> - Ermanno Quadrelli <sup>(1)</sup> - Hermann Sergio Bulf <sup>(1)</sup>  
*Università degli Studi di Milano-Bicocca, Dipartimento di Psicologia, Milano, Italia <sup>(1)</sup>*

**Introduction.** Research has demonstrated that infants are sensitive to social cues, which are crucial to socially interacting with others. However, little is known about whether and how social signal processing can be affected by self-experienced ostracism during infancy. This study aims to explore whether being included or ostracized during a live triadic ball-tossing game impacts 8-month-old infants' behavioral and physiological reactivity during the game and the subsequent attentional disengagement from faces.

**Methods.** We implemented a ball-tossing game in which we recorded infants' heart rate while they were either included or ostracized from the game. Following the game, infants participated in an Overlap task with centrally presented neutral and scrambled faces, while their eye-movements were recorded with an eye-tracking system. The preliminary sample is composed of eighteen 8-month-old infants (8 females, Mage = 254 days, SD = 9 days; N = 9 included and N = 9 ostracized).

**Results.** Results show that 8-month-olds were slower to disengage from central stimuli when ostracized vs. when included, while behavioral reactivity showed a decrease in the positive emotionality expressed by infants when ostracized.

**Discussion.** Data collection and analysis on heart rate are still ongoing; however, these preliminary results underline that ostracism affects infants' behavior and attentional disengagement from social stimuli from very early in life.

**Keywords:** ostracism, behavior, faces, disengagement, infants.

## **21 - Effects of ostracism on attentional gaze cueing and behavioral reactivity in children and adults**

*Giada Basset<sup>(1)</sup> - Alessia Testa<sup>(1)</sup> - Ermanno Quadrelli<sup>(1)</sup> - Hermann Sergio Bulf<sup>(1)</sup>  
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Being ostracized is a negative experience that induces considerable cognitive and behavioral changes. Literature demonstrated that ostracism influences social signal processing in adults, but little is known about how self-experienced ostracism influences children's behaviour and processing of social signals. The aim of the study was to explore whether being included or ostracized in an online ball-tossing game (Cyberball) influences the attentional processing of gaze in 6- and 10-year-old children and adults, and their behavioral reactivity during the game. Participants played Cyberball being either included or ostracized. Afterwards, they completed a gaze-cueing task, where a central human face directed their attention with its gaze. The sample is composed of forty 6- and forty 10-year-old children, and 50 adults. Results revealed that ostracism affected participants' attentional processing of gaze: ostracized children and adults were slower to respond to incongruent targets compared to included ones. Also, ostracism impaired 10-year-old children's accuracy in responding to the target. Moreover, behavioral results demonstrated that both children and adults were more disappointed during the ostracism vs. inclusion condition. Current findings demonstrate that self-experienced ostracism can impact children's and adults' behavior and social signals processing.

**Keywords:** ostracism, cyberball, faces, gaze, children.

## 47 - Parenting style, emotional well-being, and executive functions: what is the connection?

Michela Mellone <sup>(1)</sup> - Francesca Federico <sup>(1)</sup>

Sapienza Università di Roma, Dipartimento di Psicologia dei Processi di Sviluppo e Socializzazione, Roma, Italia <sup>(1)</sup>

**Introduction.** This study explores the links between executive functions and some factors hypothesized as potential mediators: parenting style and emotional well-being in children and adolescents.

**Methods.** 184 children and adolescents participated (male = 86; female = 98; Half = 126 months, SD = 25.5, range = 86-179 months) recruited in some schools in Rome. Raven's matrices (standard and colored) were used to exclude participants with IQ<85. All participants and their parents were administered some questionnaires (BRIEF, Alabama parenting questionnaire, Short Well-being Questionnaire, the MacArthur Scale of Subjective Social Status, and an ad hoc questionnaire for the detection of some socio-linguistic and contextual characteristics)

**Results.** The correlations showed a negative association between emotional well-being and executive functions and between the latter and parenting styles; associations confirmed by the path model show how as well-being decreases, the executive deficit increases, just as negative parenting styles are associated with executive fragility.

**Discussion.** These results expand the studies investigating the effects of socio-cultural variables on the development of executive functions and allow the construction of ad hoc interventions at school and in the family that can strengthen executive functions, promote emotional well-being, and promote more conscious parenting.

## 68 - Maternal distress and maternal behavior: the impact of infants' neurodevelopmental disability diagnosis

Laura Cordolcini <sup>(1)</sup> - Annalisa Castagna <sup>(2)</sup> - Eleonora Mascheroni <sup>(2)</sup> - Elisa Rosa <sup>(2)</sup> - Niccolò Butti <sup>(2)</sup> - Rosario Montiroso <sup>(2)</sup>

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**Introduction.** Children with neurodevelopmental disability (ND) face specific developmental challenges, possibly influencing maternal stress and the quality of the mother-child relationship. Here we present data about stress reported by mothers of children with ND, and maternal behaviors during mother-child free play interaction.

**Methods.** 26 children with ND and 25 typical developmental (TD) children aged 3 to 36 months and their mothers participated in the study. Each mother filled in the Parenting Stress Index Short Form questionnaire; a 10-minutes interaction was video-recorded for later coding using PICCOLO.

**Results.** Preliminary results revealed that mother in the ND group reported higher stress scores ( $p = ,001$ ) than mothers in the TD group. Mothers of children with ND also obtained lower score in PICCOLO domains (emotional closeness:  $p = ,014$ ; responsiveness:  $p = ,001$ ; encouragement:  $p < ,001$ ; and teaching:  $p = ,001$ ) compared to mothers of children with TD. Correlational analyses also revealed that the higher the stress scores, the lower the PICCOLO scores in responsive ( $r = -,338$ ), encouraging ( $r = -,397$ ), and teaching domains ( $r = -,316$ ).

**Discussion.** These evidences suggest that motherhood in the ND condition is more challenging than in the TD condition on emotional and behavioral levels.

**Keywords:** PICCOLO, maternal stress, neurodevelopmental disability.

## 159 - Maternal Mindful eating and children's eating behaviors: the role of mothers' feeding practices

Caterina Laganà <sup>(1)</sup> - Martina Gallo <sup>(1)</sup> - Francesca Cuzzocrea <sup>(1)</sup>

Università degli Studi Magna Graecia, Dipartimento di Scienze della Salute, Catanzaro, Italia <sup>(1)</sup>

**Introduction.** Family eating habits can influence the relationship children establish with food, but studies that deepen the associations between maternal Mindful eating, mothers' feeding practices, and children's eating behaviors are still lacking.

This study aims to investigate the relation between the maternal mindful eating and the use of food as a reward, children's Enjoyment of food and Emotional undereating.

**Methods.** 102 mothers (M=41.25; SD=6.35) with one child aged between 8 and 12 years completed the *Mindful Eating Questionnaire*, the scale of Food as reward of the *Comprehensive Feeding Practices Questionnaire*, and the scales of "Enjoyment of food" and "Emotional undereating" of *Children's Eating Behaviour Questionnaire*

**Results.** Results showed that maternal Mindful eating is negatively associated with the use of food as a reward ( $\beta=-.21$ ). This maternal feeding practice is positively associated with children's behaviors of emotional undereating ( $\beta=.31$ ) and negatively with their enjoyment of food ( $\beta=-.22$ ).

**Conclusion.** The mothers with increased Mindful eating make less use of food as a reward, and this is associated with more functional eating behaviors in children.

**Keywords:** mindful eating, food as reward, enjoyment of food, emotional undereating.

## POSTER + lighting talk session 4 – NEURODEVELOPMENTAL DISORDERS

*Discussant:* Sara Congiu (University of Cagliari)

### 70 - Effectiveness of video-feedback intervention on parenting behaviour and state anxiety in mothers of infants with neurodevelopmental disabilities

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Neurodevelopmental disability (ND) is an adverse condition for child's development and is associated with impairment in several developmental areas and consequences on parental behaviors, psychological well-being, and the quality of parent-child interactions. Early parenting support interventions, such as video feedback intervention (VFI), can improve parental sensitivity and, indirectly, infants' development even in the case of an ND. This study examines the effects of VFI (six weekly 45-minute sessions) on maternal behaviors and emotional state assessed before (T0) and after (T1) VFI. 34 mother-infant dyads participated in the VFI. At T0 and T1, 10 minutes of free play interaction were recorded and coded with PICCOLO to assess parenting behaviors. Mothers also filled in: State Trait Anxiety Inventory (STAI), Beck Depression Inventory (BDI), and Parenting Stress Index (PSI). Pre-post comparison analysis revealed that in T1 a) mothers had improved in some PICCOLO domains (Responsiveness  $p=.001$ ; Encouragement  $p<0.001$ ; Teaching  $p=.001$ ); b) mothers reported a lower level of state anxiety ( $p=.007$ ). Our findings highlight the potential effectiveness of VFI for supporting parents of infants with an ND.

**Keywords:** neurodevelopmental disability, mother-infant interaction, PICCOLO, video-feedback intervention.

### **143 - Relationship between socio-communicative competencies and narrative skills in children with Autism Spectrum Disorder**

*Anna Ferrari*<sup>(1)</sup> - *Beatrice Toso*<sup>(2)</sup> - *Paolo Meucci*<sup>(3)</sup> - *Laura Zampini*<sup>(2)</sup>

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Social communication and interaction skills represent a significant area of impairment in individuals with Autism Spectrum Disorder. Since producing a good story requires pragmatic and socio-communicative skills, narrative competencies are a central feature of this disorder. The study tests the relationship between the socio-communicative functioning profile of children with autism and their narrative skills. The participants of the cross-sectional study are 49 children involved in psycho-educational treatment groups. The children were assessed with Raven Matrices, an index of nonverbal intelligence, and Narrative Competence Task to evaluate the production of a story supported by pictures. At the same time, the educator filled out two questionnaires to profile the children's social skills: the Autism Spectrum Disorders Behavior Inventory and the Stanford Social Dimensions Scale. Data analysis showed that participants with better social skills, especially related to motivation, affiliation, and communication, produce better narrative performance in micro and macro-structural terms. The significant correlation between social skills and narrative competence in children with autism suggests that these aspects should be taken into account to identify different functioning profiles.

**Keywords:** autism spectrum disorder, child, social skills, narration, communication

## **144 - A longitudinal study on the benefits of Athletics: an enabling activity proposed to children with Autism Spectrum Disorders**

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There is a positive correlation between the practice of sports and mental health. Few studies investigate the benefits of sport in children with Autism Spectrum Disorder, a neurodevelopmental disorder that affects quality of life. This longitudinal study aims to evaluate the positive effects of the athletics project that engaged seven autistic children involved in a psycho-educational treatment group at the Mafalda Luce Center, Milan. The children were assessed using the Movement Assessment Battery for Children Second Edition to verify their oculomotor and balance skills and the Multidimensional Assessment of Self-esteem Test to check the body's self-esteem level. A semi-structured interview was proposed to parents and children to investigate the project's impact on the family's quality of life. The reference educators have verified the target objective of acquiring greater autonomy through checklists. The results show an improvement in the coordination skills of the group of children and the acquisition of greater body awareness and better independence in everyday life skills. Families showed enthusiasm and satisfaction. Athletics is a sports activity that adapts each intervention to one's characteristics and can be considered suitable for enabling autistic children.

**Keywords:** autism spectrum disorder, child, athletics, sports, rehabilitation.

## 157 - Parenting school-aged children with Autism Spectrum Disorder

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**Introduction.** This PRISMA review explores parenting school-aged children with Autism Spectrum Disorder (ASD), considering the interrelation of children, parents, and environmental variables.

**Methods.** PsychINFO, PsycARTICLES, and PubMed databases were searched with the algorithms: "Parenting practices" AND "Autism"; "Parenting styles" AND "Autism". Inclusion criteria: school-aged children with ASD (6-12 years); focus on parenting. Exclusion criteria: pre-schoolers and adults with ASD; epidemiological and genetic studies; studies not considering parental practices; literature reviews and meta-analysis. Papers in English published from 2010 to 2024 were eligible.

**Results.** From 908 records, we excluded 32 non-English papers, 450 articles not focusing on school-aged children with ASD, and 38 duplicates. The remaining papers were screened on title and abstract, and 138 were selected and full-text screening. Of the 119 papers included, 32% focus on parents' well-being, 24% on parenting styles. Only 5% are longitudinal studies, 11% focus on the family system, 3% consider cultural aspects, and 8% involve fathers.

**Discussion.** Children's and parents' features and social factors play a role in parental practices. Future research should adopt a multidimensional, socio-cultural, and ecological perspective.

## POSTER + lighting talk session 5 – RISK AND PROTECTIVE FACTOR IN THE LIFESPAN

*Discussant:* Donatella Petretto (University of Cagliari)

### 6 - Interpretation Bias and Personality traits: a preliminary study

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Variations in cognitive ability and personality significantly impact how individuals engage with their environment, affecting outcomes ranging from interpersonal relationships to educational attainment, career success, income levels, and lifespan. Researchers typically classify individual differences into five major categories: Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism. Furthermore, cognitive theories propose that various cognitive biases play a relational role in the development and persistence of different psychopathologies. This preliminary study aims to explore potential connections between cognitive biases and personality traits in a non-clinical sample. Specifically, we examined Interpretation Bias, which refers to the tendency to consistently interpret ambiguous information in either a negative or positive manner. We recruited 40 participants aged 18 to 30 without neurological, psychiatric, or neurodevelopmental disorders. Personality traits were assessed using the Big Five Inventory (BFI) and we used the Word-Sentence Association Paradigm (WSAP) to evaluate interpretation bias. Our preliminary analysis revealed significant correlations between certain personality traits and interpretation bias. Higher levels of Neuroticism were associated with a stronger tendency towards negative interpretation bias ( $r = 0.45, p < 0.01$ ), while higher levels of Extraversion ( $r = -0.32, p < 0.05$ ) and Agreeableness ( $r = -0.28, p < 0.05$ ) were linked to more positive interpretation biases. Furthermore, we expect that specific personality traits may predict interpretation indices. Finally, we aim to analyze whether age significantly influences these relationships.

**Keywords:** interpretation bias, personality, development, bias, cognition.

## 27 - Sibling Relationship and Pediatric Cancer: A Systematic Review

*Cristiana Punzi* <sup>(1)</sup> - *Laura Guidotti* <sup>(1)</sup> - *Paola Corsano* <sup>(1)</sup>

*Università di Parma, Dipartimento di Discipline Umanistiche, Sociali e delle Imprese Culturali, Parma, Italia* <sup>(1)</sup>

In the literature, the experience of siblings of children and young people with cancer has been widely investigated. It can be traced back to two main lines of study: the psychological impact of the cancer on the healthy siblings and the support interventions for them. Less investigated is the effect on the siblings' relationship.

This systematic review aims to identify research specifically focused on the siblings' relationship to verify whether and how it changes during the illness and its impact on other family relationships. The review is based on the guidelines of the PRISMA statement. A search of extant literature resulted in seven studies.

Results were sorted into methods employed and topics investigated. Most articles used quantitative methods (questionnaires) for data collection, with only two employing qualitative methods (interviews and focus groups), particularly with healthy siblings. Siblings perceive changes in their relationship in an ambivalent way, noting both a generic worsening and greater closeness, as well as a connection with their parents' relationship.

Data suggest a need for further study into the specific impact that cancer has on the sibling relationship, using qualitative methods to better understand the quality of the changes and focusing on both healthy and sick siblings.

**Keywords:** cancer, sibling relationship, children, young people, systematic review.

## 44 - The Impact Of Stressful Historical Events On Future Orientation: A Systematic Review

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**Introduction.** Future orientation is the complex process of thinking, planning, goal setting, and acting about the future (Seginer, 2005), which is often associated with personal mental health and wellbeing (Chua et al., 2015). In recent years, stressful negative events of great magnitude (e.g., war, pandemic, etc.) could have damaged people's future orientation by creating feelings of hopelessness and lack of control (So et al., 2018). The present study aims to investigate the state of the art of literature about the impact of stressful historical events on future orientation.

**Methods.** A systematic literature review following the PRISMA guidelines (Moher et al., 2009) was conducted on Scopus, Web of Science, PsycInfo, and PubMed databases in January 2024; 1335 articles were identified and 16 were finally selected.

**Results.** The COVID-19 pandemic was the focus of half of the selected articles, with few studies examining how war and economic crises influence people's future orientation. Just one paper paid attention respectively to tsunamis, terrorist attacks, and climate change. Out of all the analyses, 68.18% showed that stressful historical events had a negative impact on future orientation, 27.27% a no significant one, and only 4.55% a positive one.

**Discussion.** Practical implications of these findings are discussed, considering future studies and possible interventions.

**Keywords:** stressful historical events; future orientation; systematic review.

## 77 - Fear of Missing Out (FoMO) and sexting motivations among young adults: the role of age, gender, and sexual orientation

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**Introduction.** Fear of Missing Out (FoMO) refers to a strong urge to stay constantly connected and aware of what peers are doing. Many studies have identified FoMO as a risk factor for problematic social media use and risky behaviors. Only few studies investigated its relationship with sexting. The purpose of this research is to investigate the relationship between FoMO and motivations for sexting among young adults.

**Methods.** An online survey was administered to 911 Italian young adults, comprising both heterosexual and LGB+ individuals, aged 18-30 years ( $M = 22.3$ ;  $SD = 2.57$ ; 74% women; 70.4% heterosexual).

**Results.** There were no significant differences between men and women in sexting for sexual purposes. Nevertheless, women were more likely to engage in sexting for body image reinforcement, while men reported more instrumental/aggravated motives. LGB+ people, demonstrated a higher propensity for engaging in sexting both for sexual and non-sexual reasons.

**Discussion.** In conclusion, FoMO has proven to be a strong predictor of sexting for non-sexual reasons, particularly among individuals who identify as LGB+. It is of crucial importance to develop preventive and intervention programs addressing topics such as relationships, online communication, and sexting.

**Keywords:** FoMO; sexting; body image; aggravated.

## 104 - Patterns of risk factors for youth Cyber Dating Violence perpetration and victimization

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**Introduction.** Cyber Dating Violence (CDV) is an increasingly widespread problem in the digital age and represents a substantial threat to the well-being of adolescents. Despite its relevance, the phenomenon needs further investigation in order to investigate possible pattern of risk factors for CDV perpetration and victimization.

**Methods.** 195 high school students (Female= 36.4%) with an average age of 15.06 years (SD=1.24, age range=13-18) participated in the study. They completed a set of questionnaires assessing CDV, empathy, difficulties in emotion regulation, school bullying, cyberbullying and attitudes towards violence.

**Results.** More than 65% of the students reported experiencing CDV victimisation, while approximately 64% admitted to having committed such behaviour. Regression analyses revealed that empathic affective dissonance and justification for female and peer aggression were significant predictors of the perpetration of CDV ( $F_{(11)} = 5.798$ ,  $p < .001$ ). In contrast, CDV victimization was significantly predicted by justification for female aggression and cybervictimization ( $F_{(11)} = 4.963$ ,  $p < .001$ ).

**Discussion.** These results enrich our understanding of CDV, given the high prevalence of CDV, there is a need to raise awareness of this issue among students, educators and parents. Furthermore, the significant predictors of CDV identified in this study, such as empathic affective dissonance and justification of aggression, should be addressed in intervention strategies. Future studies could explore other potential risk and protective factors for CDV, maybe taking into account the existence of gender differences. The findings will be discussed in terms of practical implications to prevent and reduce youth involvement in both CDV perpetration and victimization.

## **127 - Correlations between gustatory, olfactory, cognitive function, and age in healthy women**

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Aging is a progressive physiological degeneration associated to a decline in chemosensory processes, cognitive abilities, and reduction in synaptic plasticity. This study aimed to evaluate the occurrence of age-related changes affecting the chemosensory function (gustatory and olfactory) and general cognitive abilities and their potential associations in women. To this aim, 319 women (age range from 18 to 92 years) were recruited and divided into four different age groups: 18-34 years, 35-49 years, 50-64 years, and  $\geq 65$  years. Our results confirm that in women gustatory, olfactory, and cognitive functions decline, though in different manner during aging. Olfactory and cognitive function showed a slight decline along the first three age-classes with a dramatic decrease after age 65 years, while gustatory function decreased more gradually. Olfactory and gustatory deficits may have a high degree of predictivity for general cognitive function as well as for specific cognitive subdomains such as visuospatial/executive abilities, language, memory, and attention. Our study highlights the importance of using chemosensory assessments for the early diagnosis of cognitive decline and for the development of appropriate personalized risk prevention strategies.

## POSTER + lighting talk session 6 – EDUCATION AND ADOLESCENTS

*Discussant:* Luca Milani (Università Cattolica del Sacro Cuore, Milano)

### **22 - Adolescents' Future Orientation: The Link with Self-Efficacy and Perceived Academic Achievement**

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Future orientation is the conscious image that individuals create of their own future, and it is crucial during adolescence due to the need to prepare for adult life. To analyze the relationships between future orientation, self-efficacy, and perceived academic achievement, a study was conducted in the post-pandemic period on 388 high school students (199 males and 189 females, average age = 16.49 years, SD = 0.96). The instruments include the Future Orientation and Life Course Perspective questionnaire, the Problem-Solving Self-Efficacy Scale, and a question on perceived academic achievement. In line with the literature, positive, albeit moderate, correlations emerged between future orientation and self-efficacy ( $r = 0.33$ ,  $p < 0.01$ ) and perceived academic achievement ( $r = 0.22$ ,  $p < 0.01$ ). The role of both self-efficacy ( $\beta = 0.22$ ;  $p < 0.001$ ) and work and career future orientation ( $\beta = 0.12$ ;  $p < 0.001$ ) in predicting perceived academic achievement was also demonstrated. These results suggest that psychological interventions focused on professional future orientation and self-efficacy may promote school success.

## 62 - Parental psychological control and school engagement in adolescents: a longitudinal study

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**Introduction.** Engagement in school activities is a fundamental factor for academic progress and to push adolescents to work hard at school, parents may use manipulative strategies such as psychological control. However, parental psychological control has shown deleterious effects and potentially could have a critical effect on student engagement as well. This study explore the longitudinal relations between school engagement and parental psychological control.

**Method.** 100 adolescents aged 13-18 years ( $M=13.78$ ;  $DS=1.71$ ) completed the Inventory of Parental Psychological Control and the Multidimensional Engagement Scale in two different occasions during the school period.

**Results.** A two-wave cross-lagged model was used. Results showed good fit for the data:  $\chi^2(234) = 297.27$ ,  $p < .01$ ,  $Y-B\chi^2(234) = 266.42$ ,  $p < .01$ ,  $R-CFI = .97$ ,  $SRMR = .07$ ,  $R-RMSEA (90\%CI) = .04 (.00, .06)$ . The model showed significant paths for the stability across time: psychological control from T1 to T2,  $\beta = .71$ ,  $p < .01$ , school engagement from T1 to T2,  $\beta = .64$ ,  $p < .01$ . Furthermore, psychological control at T1 is related to school engagement at T2,  $\beta = -.28$ ,  $p < .01$ .

**Discussion.** Overall, the results support the negative role of parental psychological control and extend previous studies on the reduction of school engagement.

**Keywords:** school engagement, adolescents, psychological control.

## **69 - Ethnic microaggressions: a systematic review of measures of assessment in educational settings**

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*Università di Firenze, Department of Education, Languages, Interculture, Literature and Psychology, Firenze, Italia* <sup>(1)</sup>

Ethnic, racial, microaggressions (ERM) are subtle daily manifestations of interpersonal racism that may communicate harmful messages and disrespectful behaviors toward individuals belonging to marginalized groups. Following Sue et al. (2007) seminal publication, studies on this topic have increased rapidly. However, less attention has been devoted to measurement issues and to the specificity of the educational context. Following PRISMA guidelines, the study aims to conduct a systematic review on this topic examining both the theoretical dimensions and the psychometric properties of the instruments adopted in studies on students' population. The systematic search was conducted in March 2024; 8406 articles were identified and a final set of 83 papers has been selected. 28 different instruments, both multi- and mono-dimensional, have been identified, but just few of them specifically measure experiences of ERM that happens in the educational setting. Additionally, just few support of the psychometric validity of these instruments emerged. While there is a wealth of research on university students, just few studies focused on younger students. Additionally, the prevalence of measures developed within the USA context raises concerns about their adaptability to diverse contexts.

**Keywords:** ethnic microaggressions; measurement; systematic review; ethnic minorities; students; educational settings

## 78 - Autonomy and relatedness in parent-adolescent disagreements: an observational study

*Eliana De Salvo* <sup>(1)</sup> - *Sonia Ingoglia* <sup>(2)</sup> - *Francesca Liga* <sup>(3)</sup> - *Costanza Baviera* <sup>(4)</sup> - *Maria Grazia Lo Cricchio* <sup>(5)</sup>

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**Introduction.** The parent-child relationship is relevant topic in developmental psychology. Particularly during adolescence, youths are called upon to meet a double challenge: to develop autonomy and at the same time maintain relatedness with parents. Allen et al. (2003) developed an observational procedure to investigate these dimensions in the parent-child relationship. The purpose of this contribution is to use observation to examine these two aspects in Italian parent-child dyads.

**Method.** 29 mother-child dyads participated in this observational moment designed to assess autonomy and relatedness through a confrontation on family matters recognized as disagreement points.

**Results.** The observational procedure evaluated interactions within 10 individual scales, from which was possible to obtain a measure of 4 global dimensions for mother-adolescent interactions: autonomy promotion/inhibition, relatedness promotion/inhibition. Mothers show greater autonomy promotion ( $M=2.68;SD=.66$ ) and inhibition ( $M=1.61;SD=.61$ ) and relatedness promotion ( $M=1.72;SD=.66$ ) than adolescents.

**Discussion.** This observation highlights the importance of everyday moments of discussing opinions between parents and adolescents, which can reveal the acquisition of autonomous relatedness or attempts to inhibit it.

**Keywords:** parent-child dyad, observation, autonomy, relatedness, family functioning.

## **109 - Iowa Gambling Task: a preliminary comparison between different analysis strategies on a sample of Italian adolescents**

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*Consiglio Nazionale delle Ricerche, Istituto per le Tecnologie Didattiche, Genova, Italia* <sup>(1)</sup>

The Iowa Gambling Task (IGT) is one of the most common paradigms used to assess decision-making and executive functioning. In this task, participants draw cards from four decks, each with different win/loss ratios and magnitudes. The task assesses participants' loss aversion, memory for past payoffs, and response consistency. Traditionally, performance on the IGT is measured by the net difference between draws from 'advantageous' and 'disadvantageous' decks. However, this simple metric doesn't consider reaction times, exploration-exploitation strategies, or speed of learning. In this study, we present two alternative methods of analysis of the IGT – the expectancy-valence model and the drift-diffusion model. In a preliminary analysis, we compared them with the difference metric using a convenience sample of 227 14-to-19-year-old Italian students (148 females; age =  $16.9 \pm 1.54$  years) who completed a shortened version of the IGT task. We show that the alternative models allow including reaction time analysis, as well as a hierarchical parameter estimation. Results are discussed by weighing relative model performance, interpretability, ease of implementation, and estimate uncertainty, to guide researchers in choosing an approach for their studies.

## 152 - Friend or foe? social coordination strategies and their socio-cognitive correlates in young adolescents

Elvis Kurtisi <sup>(1)</sup> - Gabriele Chierchia <sup>(1)</sup>

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**Introduction.** Peer relations become increasingly important during adolescence, yet little is known about their association with coordination abilities.

**Methods.** 189 adolescents (age 10-15) completed two economic coordination games with an anonymous peer to maximize “gold coins”. Both games involved choices between two options: a lower-paying safe option (e.g., 4 coins) and a potentially higher-paying but “risky” one (15 or 0). In a cooperative game, coins were maximized if both players risked together. In the competitive game, both players' risks resulted in 0 coins for both. We measured peer relationships via peer nomination, Theory of Mind (ToM) through Strange Stories and Silent Films, and non-verbal intelligence with a matrix reasoning task (MaRs).

**Results.** Competitive but not cooperative risk-taking, as well as faster competition, were related to peer rejection in the classroom ( $r = 0.211, p = 0.011$  and  $r = -0.115, p < 0.001$ , respectively). Risky competition was also related to lower non-verbal IQ and ToM scores. Yet the association between competitive risk-taking and social rejection persisted when controlling for non-verbal IQ but not ToM.

**Discussion.** Coordination abilities among peers, especially in competitive contexts, are associated with the formation of social relations, above non-verbal reasoning abilities.

**Keywords:** adolescence, peer relationships, socio-cognitive development, coordination, competition.

## POSTER + lighting talk session 7 – WELL-BEING IN THE LIFESPAN

*Discussant:* Ugo Pace (Kore University, Enna)

### **8 - The role of coping strategies and resilience in the perception of well-being among school-aged children**

*Marcella Caputi* <sup>(1)</sup> - *Ilaria Suman* <sup>(1)</sup> - *Sandra Pellizzoni* <sup>(1)</sup> - *Maria Chiara Passolunghi* <sup>(1)</sup>  
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Several studies showed that individuals perceiving themselves as resilient are more likely to experience a sense of well-being. However, few studies assessed how coping styles chosen and used by children in facing daily difficulties can be associated with resilience and, consequently, with perceived well-being in this age group. The present study investigated the role played by coping strategies and resilience in the perception of well-being among school-aged children. A total of 335 children (188 boys), attending the 4th and 5th grade of primary school (M = 10 years; SD = 7 months), participated in the study and were asked to complete self-report questionnaires on the target constructs. Correlation analyses confirmed a significant association between the perception of well-being and resilience. In addition, resilience and well-being were positively related to adaptive coping strategies, and negatively associated with maladaptive strategies. Mediation analyses revealed that resilience partially mediates the relationship between internalizing coping strategies and perception of well-being. Therefore, to promote well-being and resilience in primary school, guiding children towards the use of adaptive coping strategies and discouraging dysfunctional strategies could prove effective.

**Keywords:** resilience; well-being; primary school; coping strategies; mediation.

## 19 - The effect of perceived social support on psychological well-being and PTSD symptoms in earthquake victims: the role of the post-traumatic cognitive and emotion regulation strategies

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**Introduction.** In the literature about seismic events, cognitive/emotional regulation strategies affect the victim's well-being and PTSD. Although several studies showed the role of social support for psychological adjustment, only a few studies explored its effect in cognitive/emotional strategies. Considering this gap, this study explored the indirect effects of family/friend support on well-being and PTSD, through the mediation of cognitive/emotional regulation strategies.

**Methods.** Fifty-seven adult earthquake victims completed the *Cognitive Emotion Regulation Questionnaire*; the *PTSD Inventory for DSM-5*; the *Perceived Social Support Scale*, and the *Life Events Checklist for DSM-5*.

**Results.** Mediation analyses indicated that family support predicted PTSD through the mediation of the negative cognitive emotion regulation strategies ( $\beta = -.03$ ; LLCI-ULCI:  $-.052$ ;  $-.003$ ). Both family ( $\beta = .10$ ; LLCI-ULCI:  $.018$ ;  $.206$ ) and friend support ( $\beta = .09$ ; LLCI-ULCI:  $.011$ ;  $.235$ ) promoted the participants' well-being through the mediation of positive cognitive emotion regulation ( $\beta = .10$ ; LLCI-ULCI:  $.018$ ;  $.206$ ). Again, age moderated the association between friends' support and cognitive/emotional regulation (Int.Coeff.  $= -.02$ ,  $p < .05$ ).

**Discussion.** Negative and positive cognitive/emotional regulation strategies exerted a distinct effect on participants' well-being and PTSD. For younger participants, friends' support had a higher protective role on their cognitive/emotion reactions.

**Keywords:** earthquakes, PTSD, well-being, social support, cognitive emotion regulation strategies.

### **31 - Cognitive reserve, motor, and cognitive efficiency for aging well. what do older individuals living in the Sardinian Blue Zone teach us?**

*Benedetta Brandas*<sup>(1)</sup> - *Massimiliano Pau*<sup>(2)</sup> - *Maria Chiara Fastame*<sup>(1)</sup>

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*- Università degli Studi di Cagliari, Dipartimento di Ingegneria Meccanica, Chimica e dei Materiali, Cagliari, Italia*<sup>(2)</sup>

**Introduction.** The Sardinian Blue Zone is one of the five validated areas in the world characterized by a higher longevity and successful aging of its inhabitants. There is evidence that the maintenance of cognitive and functional efficiency is crucial for aging well and that cognitive reserve (CR) contributes to it (e.g., Litkouhi et al., 2023). Indeed CR encompasses a set of mental resources and strategies that contrast cognitive decline (Stern et al., 2020). This study mainly intended to examine the impact of CR, motor and cognitive resources on a self-reported depressive index assessed in late adulthood and the age effect on those measures. **Methods.** 95 community-dwellers ( $M_{\text{age}} = 84.9$  years,  $SD = 6.7$  years) of the Sardinian Blue Zone completed a battery of tests evaluating global cognitive functioning, executive functions, CR, motor efficiency, and depressive symptoms.

**Results.** Age selectively impacted the motor and psychological scores. Moreover, statistically significant correlations were found among depressive symptoms, CR, cognitive, and motor measures. Finally, 26% of the variance in the GDS condition was explained by CR and executive functioning.

**Discussion.** The maintenance of a cognitively stimulating and active lifestyle is essential for aging well.

**Keywords:** successful aging, executive functions, cognitive reserve, motor efficiency.

## **56 - Social-emotional health of school psychologists in Slovakia: the study protocol on the subjective experience of stress and resilience**

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**Introduction.** A relevant topic in the Slovak healthcare policy involves the health of psychologists working in the school environment. The perspective of positive psychology has emphasized the importance of social-emotional health, stress, and resilience. The aim of this study protocol is to examine the mental health of school psychologists with particular attention to social-emotional health in relation to subjectively experienced stress and resilience in primary and secondary schools in Slovakia.

**Methods.** Approximately 200 Slovak school psychologists will be involved in the study. The following assessment tools will be used: SEHS-T (Social emotional health survey - teachers)(Furlong, Gajdosova, 2018), Stress level questionnaire (Henning and Keller, 1996), Resilience scale (Wagnild, Young,1993). The research design is quantitative, exploratory-confirmatory.

**Discussion.** The results of the study will provide recommendations to improve the living and working conditions of school psychologists, including a reflection on the training and undergraduate and postgraduate education currently offered, as well as on the preparation of both face-to-face and online interventions in schools.

**Keywords:** social-emotional health, stress, resilience, school psychologist.

## 99 - A Short Version of the Jyvässkylä Active Aging Scale (UJACAS-BR) for the Italian Population

*Michele Savino*<sup>(1)</sup> - *Annalaura Nocentini*<sup>(1)</sup> - *Federica Stefanelli*<sup>(1)</sup> - *Ersilia Menesini*<sup>(1)</sup>  
*Università degli studi di Firenze, FORLILPSI (Formazione, Lingue, Intercultura, Letterature e Psicologia), Firenze, Italia*<sup>(1)</sup>

This research evaluated the construct validity and reliability of a short version of the University of Jyvässkylä Active Aging Scale (UJACAS) in a large sample of Italian elders (N = 471), using CFA and IRT analyses. The UJACAS includes 17 repeated items for the four subscales assessing: willingness to act, ability to act, opportunity to act, and frequency of action. Each statement was rated on a 5-point Likert scale. Initially, the proposed 4-factor structure was tested using confirmatory factor analysis (CFA), including correlated error terms for relevant items across subscales. Subsequently, an item response theory analysis identified 7 items for removal due to poor discrimination parameters. CFA was then conducted on the revised 40-item UJACAS. The data showed good fit to the revised 4-factor model (RMSEA=0.05; CFI=0.93;  $\chi^2=1466.716$ ,  $p<0.001$ ). Factor loadings ranged from 0.509 to 0.806, with moderate factor intercorrelations ( $r=0.605-0.810$ ). High internal consistencies were observed across subscales ( $\alpha=0.86-0.99$ ). The study supports the validity and reliability of the UJACAS-short version in assessing active aging in the Italian population through multidimensional construct validity. Overall, the UJACAS confirms its promise as a comprehensive tool for active aging assessment.

**Keywords:** active ageing, elders, construct validity, confirmatory factor analysis, item response theory.

## 97 - The role of pro-environmental behaviours in the association between personality and psychological well-being. A pilot study

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Different studies have sought to identify the main factors and strategies that promote individual well-being. In the field of environmental psychology, researchers have extensively investigated the potential link between personality traits and individual attitudes. Specifically, they have examined how personality traits relate to eco-sustainable behaviours, attention to environmental issues, and a profound sense of connection with nature and the surrounding environment. Research also highlighted that behaviours aimed at preserving the natural environment contribute to individual psychological well-being by enhancing a sense of agency, responsibility, and positivity. Based on this notion, the present study explored the relationship between personality and psychological well-being, also addressing the potential involvement of pro-environmental behaviours. The research included 100 participants (M=21.55 years; SD=1.76 years) who were administered a brief battery consisting of the Big Five Inventory, the Pro-environmental Scale, and the Psychological Well-Being Scale. The statistical analysis revealed that pro-environmental behaviours mediate the association between personality and psychological well-being, only when openness ( $B = 1.94$ , BootSE = 1.10, BootCIs 95% [0.167, 4.377]) and agreeableness ( $B = 3.13$ , SE = 3.65,  $t = 0.86$ , CIs 95% [-4.077, 10.331]) are included as the independent variables. These findings contribute to identifying the main mechanisms through which personality contributes to individual psychological well-being, providing fruitful insights for the development of programs and interventions aimed at supporting individual and community well-being.

**Keywords:** personality, pro-ecological behaviours, well-being, youth.

## POSTER + lighting talk session 8 – EDUCATIONAL INTERVENTIONS AT SCHOOL

*Discussant:* Marina Camodeca (University of Udine)

### 25 - Student agency's definition in secondary school research: a systematic review

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**Introduction.** Psychological research and political agendas have increasingly focused attention on student agency, a specific form of active student participation that is considered an essential 21<sup>st</sup>-century learning skill. Despite the consensus on its importance for both educational success and individual wellbeing, previous reviews highlighted that there is no such clarity regarding its conceptualisation. This systematic review therefore aims to explore how quantitative and qualitative research conducted in secondary school context has defined student agency, and the methodologies and aims with which it has been studied.

**Methods.** We searched and selected studies published in Scopus and PsycINFO following the PRISMA 2020 guidelines. We conducted a thematic analysis of the definitions given to student agency using Atlas.ti 24 software, and a narrative analysis of the methodologies and objectives of the selected studies.

**Results.** What emerges is that quantitative and qualitative studies tend to define student agency in slightly different ways, giving different attention to its active and transformative component and its dynamic and interactive nature.

**Discussion.** Discussion of the results will provide an overview of the state of the art in the field and point to the more relevant gaps.

**Keywords:** student agency, secondary school, systematic review.

### **39 - Developmental Trajectories of Fluid Intelligence in Terms of Accuracy and Error Types Using a New Digital Tool: MatriKS**

Noemi Mazzoni <sup>(1)</sup> - Matilde Spinoso <sup>(1)</sup> - Sara Giovagnoli <sup>(1)</sup> - Matteo Orsoni <sup>(1)</sup> - Sara Garofalo <sup>(1)</sup> - Mariagrazia Benassi <sup>(1)</sup>

Università di Bologna, Dipartimento di Psicologia, Cesena, Italia <sup>(1)</sup>

Fluid intelligence (FI) is the ability to think logically and solve problems in new situations. It is generally assessed using non-verbal tasks (e.g., Raven's Matrices). FI accuracy has been shown to improve with age, yet there is a paucity of evidence about changes in type of errors during development. This study investigates the developmental trajectories of FI in terms of accuracy and type of errors measured with MatriKS, a new digital tool. MatriKS was administered to 590 children (M=311, F= 279) aged 4-11 years (M= 8,39, SD=2,19). Overall, accuracy improves ( $z=-29.06$ ,  $p<0,001$ ) and the errors number decrease with age ( $z=-23,58$ ,  $p<0,001$ ). Then, ANOVA was used to compare the effects of different type of errors across age groups (2 years steps). Results showed significant effects of error type ( $F_{(5,561)}= 30,91$ ,  $p<0,001$ ), age ( $F_{(4,561)}= 89,64$   $p<0,001$ ), and their interaction ( $F_{(11,1300)}= 5.94$ ,  $p<0,001$ ). Specifically, the number of errors decreased with age in all the distractor types, but not in "Difference". In conclusion, MatriKS proves to be effective in detecting FI developmental changes, both in terms of accuracy and error types. The information about error types and how they change with age is pivotal for planning personalized interventions in clinical populations.

**Keywords:** developmental trajectories, fluid intelligence, digital assessment.

## **71 - PROSPERIA: Valutazione di impatto del Game Based Learning nei comportamenti prosociali degli studenti di 11 - 14 anni**

*Matilde Sparacino* <sup>(1)</sup> - *Andrea Piazzoli* <sup>(2)</sup> - *Alessio Magnolfi* <sup>(2)</sup> - *Leonardo Boncinelli* <sup>(2)</sup>

*Università degli Studi di Firenze, Dipartimento di Formazione, Lingue, Intercultura, Letterature e Psicologia (FORLILPSI), Firenze, Italia* <sup>(1)</sup> - *Università degli Studi di Firenze, Dipartimento di Scienze per l'Economia e l'Impresa (DISEI), Firenze, Italia* <sup>(2)</sup>

In a society dominated by consumerism and capitalism, "Prosperia" emerges as an innovative game that introduces the concept of shared value, promoting cooperation and sustainability as keys to a collectively prosperous future. The study involves 800 students aged 11 to 14 and adopts a pre-test and post-test experimental design to assess the game's impact on prosocial behaviors and engagement. This is achieved through the administration of Boncinelli's Playful Questionnaire, the GUESS-18, and the GEQ (Game Experience Questionnaire), quantified using a Likert agreement scale from 1 to 7. Data was collected anonymously with a unique code (i.e., class/section, initials of mother's name, and date of birth). Through correlation matrices, Paired T-Test, ANOVA, and regressions, we aim to identify significant differences, before and after the intervention, in prosocial intentions and behaviors (e.g., cooperation vs. competition) and to verify if the experience elicited a high level of engagement. The implications of this study suggest the evolution of teaching methods towards a gamification-based learning model and lay the foundation for more interactive and inclusive approaches.

**Keywords:** education, gamification, cooperation, engagement.

## **117 - Examining gamified learning through the lens of the Self-Determination Theory: a systematic review**

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Gamification is the application of game design principles and gaming elements in a non-gaming context (Deterding et al., 2011). The typical gaming elements used in gamification may include points, avatars, teammates, levels, goals, challenges and badges. These elements are generally used to create fun environment to motivate people to take specific actions and maintain their commitment in the long term (Sailer et al., 2017). In this perspective, the Self Determination Theory (SDT) as psychological theory that focuses on motivational process that drive human behaviour and that has proven its effective application in the educational field, could provide a framework for the understanding of these psychological process. For this reason, the main goal of this study, through a systematic literature review, is to investigate how the characteristics of gamified learning in the educational context can be integrated in the SDT. Following PRISMA guidelines papers from PubMed, Web of Science and Scopus databases, were examined. Overall, the literature shows that SDT has been adopted as a framework to investigate gamification in a growing number of studies, which provide evidence for the value of several aspects of SDT for this field of research.

## **169 - Argumentation, reasoning, and critical thinking: an educational tool for the development of text-analysis skills in university students**

*Monica Mollo* <sup>(1)</sup> - *Giuseppina Marsico* <sup>(1)</sup> - *Giulia Savarese* <sup>(2)</sup> - *Luna Carpinelli* <sup>(2)</sup>

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**Introduction.** Studies in developmental and educational psychology have explored the role of argumentation in knowledge construction processes in education (Rigotti, Greco, 2010; Arcidiacono, 2015; Schwarz, Baker, 2017); in interactional contexts, argumentation hides a learning mechanism that allows people to change their position on a topic, expand and acquire new knowledge, and thus change their point of view. This study aims to demonstrate the role of argumentation as a tool to support and strengthen critical thinking.

**Methods.** The research is of a qualitative, descriptive, and exploratory nature 25 university students participated in the research. The students were involved in specially designed activities that required them to use reasoning and argumentation skills in problem-solving situations.

**Results.** The students' answers would show an improvement in their reasoning and argumentation skills between the first and second tests. This would result in the students adopting a different approach to understanding the text, activating a process of transformation of previous knowledge and modes of analysis.

**Discussion.** The analysis of the argumentative responses deliberately adopted an evolutionary orientation, focusing on the process of becoming and understanding how the argumentative skills of the students who participated in the teaching activity were transformed.

## **SYMPOSIUM 88 - Inside The Body: Interoception In Typical And Atypical Development**

*Proponents:* Margaret Addabbo<sup>(1)</sup> - Letizia Della Longa<sup>(2)</sup> - Maria Spinelli - Valentina Torchia - Giulia Gaggero - Greta Chiodi (Università Cattolica del Sacro Cuore, Dipartimento di Psicologia, Milano, Italia<sup>(1)</sup> - Università di Padova, Dipartimento di Psicologia dello Sviluppo e della Socializzazione, Padova, Italia<sup>(2)</sup>)

*Discussant:* Maria Spinelli (University G. D'Annunzio Chieti-Pescara).

Interoception refers to the processing and perception of our internal bodily signals arising from visceral organs and skin (i.e., heart rate, affective touch, and visceral sensations) and, from a developmental perspective, is an essential prerequisite for maintaining optimal physiological balance and efficiently interacting with the surrounding environment. Through a multi-method approach, this symposium will describe multiple measures and tools to assess interoceptive abilities and discuss the implications of interoceptive dysregulations in typical and atypical development. The first talk (Torchia & Canino, UNICZ) will delve into the importance of accurately assessing interoceptive abilities in school-age children by using different validated tools that allow distinguishing between different processes related to interoception (i.e., accuracy and sensibility). The second talk (Addabbo, UNICATT) will investigate the link between interoceptive sensibility and vulnerability to media addictive behaviors, discussing the developmental consequences associated with interoceptive hypersensibility in atypically developing children. The third talk (Gaggero, UNIBZ, UNITN) will provide evidence in support of the relationship between interoception and emotional dysregulation, showing that alexithymia, a construct indicating low emotional awareness, correlates with interoceptive measures among diverse nationality samples. The fourth talk (Della Longa, UNIPD) will show that affective touch, a skin-based interoceptive submodality, is effective in increasing heart rate variability, an index of vagal activity associated with autonomic regulation, among preschoolers, indicating that affective touch may represent a sensory support for the development of self-regulation mechanisms. The last talk (Chiodi, UNIMIB) will investigate the stress-buffering effect of affective touch in pediatric diabetes suggesting the importance of tactile interactions in managing stress and enhancing well-being among clinical populations. Overall, this symposium will examine interoception across the lifespan (preschool and school age, adolescence, and adulthood), documenting current knowledge about interoceptive development in typical and atypical populations and highlighting the implications of interoceptive dysregulation early in life.

## The assessment of interoceptive sensibility and accuracy in school-age

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**Introduction.** Following Garfinkel et al. (2015), two of the main interoceptive dimensions are interoceptive accuracy (IA; the process of accurately detecting bodily sensation) and interoceptive sensibility (IS; one's tendency to focus on interoceptive signals). Although interoception is a key element for mental health during childhood and adolescence, limited information exists regarding its developmental assessment. This study aims to investigate the different dimensions of interoception in school-aged children using specifically developed and validated tools, while also comparing them with an adolescent sample.

**Methods.** The study data involved 36 children (17 girls, age  $8.89 \pm 1.19$ ) and 54 adolescents (33 girls, age  $13.31 \pm 0.75$ ). The IS was assessed using the Self-Awareness Questionnaire for Children (SAQ-C), comprising 35 items with a total score range of 0 to 140 (higher scores indicate a higher tendency to self-report bodily signals). IA was evaluated using an adapted version of the Heartbeat Tracking Task (HTT), measuring the accuracy in perceiving and counting heartbeats using time intervals of 15, 18, and 20 seconds.

**Results.** The SAQ-C and adapted HTT accurately assessed both interoceptive constructs in school-aged children. Comparisons between groups highlighted that the children showed a significantly higher level of IA compared to adolescents, as confirmed by the scores at HTT ( $U = 580$ ;  $p = 0.018$ ), while adolescents had higher IS both on the total SAQ score ( $U = 727$ ;  $p = 0.001$ ) and on visceral ( $U = 679$ ;  $p = 0.016$ ) and somatosensorial factors ( $U = 681$ ;  $p = 0.017$ ). Spearman's correlation analysis showed significant negative correlations between IA and total SAQ-C score ( $r_{\text{rho}} = -0.212$ ;  $p = 0.044$ ), and visceral SAQ-C factor ( $r_{\text{rho}} = -0.235$ ;  $p = 0.026$ ).

**Discussion.** These results highlight the efficacy of our adapted HTT test and SAQ-C in assessing IA and IS in school-aged children, shedding new light on interoception development in childhood. Indeed, children in this age range show better IA in detecting bodily signals than adolescents. Moreover, the findings align with evidence demonstrating the discrepancy between interoceptive subdimensions.

## Interoception and media addiction in children with developmental disabilities

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**Introduction.** Interoception dysfunctions could be considered a predisposing factor for engaging in impulsive and addictive behaviors. Very little is known about the role of interoception in the emergence of media addiction and screen time in typical and atypical developmental populations. The present study aims to explore whether interoceptive skills are associated with media addiction symptomatology and screen time in a group of atypical (i.e., Attention-Deficit/Hyperactivity Disorder, ADHD; learning disabilities, LD) and typical developing children.

**Methods.** Seven to 13-year-old children's (N = 23) interoceptive sensibility and accuracy were measured through the Self-Awareness Questionnaire for children (SAQ\_C) and the Heart-beat Tracking Task (HTT), respectively. Children's impulsivity and non-verbal IQ were also assessed through the delay discounting questionnaire (DD) and the Raven's Progressive Matrices Test. Further, media addiction (Problematic Media Use Measure, PMUM), screen time (SCREENS\_Q), and children's psychological functioning (Strength and Difficulties Questionnaire, SDQ) were measured through specific parent-report questionnaires.

**Results.** Preliminary linear regression analysis conducted only in the atypical-developing group showed that both the somatosensorial SAQ\_C subscale ( $\beta = .427$ ,  $p = .03$ ) and the inattention/hyperactivity subscale of the SDQ ( $\beta = .487$ ,  $p = .01$ ) were positively associated with children's media addiction symptomatology (PMUM) ( $R^2 = .390$ ,  $p = .01$ ). Further, the visceral SAQ\_C subscale ( $\beta = .386$ ,  $p = .05$ ) and the impulsivity DD score ( $\beta = .393$ ,  $p = .05$ ) were positively associated with children's screen time (PMUM) ( $R^2 = .343$ ,  $p = .02$ ). Thus, increased interoception sensibility seems to be related to increased media addiction symptoms and children's screen time. The study is still ongoing and further analysis will be conducted to assess the possible association between media addiction/screen time and children's interoceptive accuracy (HTT) in both atypical- and typical-developing populations. Discussion. Overall, preliminary analyses suggest that, in a group of atypical developing children, hypersensibility to interoceptive signals might be related to increased exposure to screen media and media addiction symptoms.

## Clarifying the relationship between subjective interoception and alexithymia

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**Introduction.** Interoceptive deficits – i.e. deficits in perceiving internal bodily states – have been extensively investigated in conjunction with emotion dysregulation. However, the exact relationship between interoception and alexithymia, a construct indicating low emotional awareness, is still debated.

**Methods.** Our contribution to this issue relies on self-reported data collected from the adult population residing in Italy, the US, and Singapore ( $N= 814$ ). Several analytical approaches (i.e., correlation, machine learning techniques, and network analysis) were applied to explore the association between different self-report measures of alexithymia and interoception in these samples.

**Results.** Results from correlation analyses showed a consistent relationship between interoception and alexithymia between the diverse nationality samples. People presenting high alexithymia were, especially, revealing a tendency to ignore sensations of pain or discomfort. However, it is worth noticing that the magnitude of the relationship between alexithymia and interoception was strongly influenced by the specific self-report measures used to assess the two constructs.

**Discussion.** These results suggest that interoceptive deficits are a core component of alexithymia and emotion dysregulation. However, the exact relation between bodily and emotional awareness has been obscured so far by several methodological problems in the assessment of interoception. The main threats to the validity of such a construct will be discussed, underlying the need for an agreed definition of interoception.

## The role of affective touch in promoting self-regulation in preschool-age children

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**Introduction.** Affective touch, mediated by activation of C-tactile afferents, has been recently reconceptualized as an interoceptive modality that provides information about the internal affective states of the body and fosters autonomic self-regulation in situations of distress in early infancy and across the lifespan. The preschool period represents a critical transition from a parent-mediated regulatory environment toward children's independent capacity to control their own behavior and emotions. Thus, affective touch represents a crucial sensory input that may facilitate this transition by supporting physiological vagal activity, which eventually becomes integrated into processes of emotional and behavioral self-regulation and bodily awareness. The present study aims to investigate whether affective touch modulates heart rate variability (HRV), which is considered an index of vagal activity associated with autonomic regulation, among young children after watching neutral and emotional (crying scene) cartoons.

**Methods.** Preschool children (N=68, age range 3-6 years) were presented with cartoons of a neutral scene (first block) and of a child crying (second block - emotional condition). Each video lasted 2min and was followed by 2min of touch, either affective (slow stroking with a brush) or non-affective (gentle tapping with the brush handle) as between-subject condition. Moreover, parents filled out the Children's Behavioural Questionnaire (Rothbart, 2001) to assess children's temperament.

**Results.** Results revealed a larger increase of HRV during tactile stimulation in children perceiving affective touch compared to children exposed to non-affective touch, in both experimental blocks, suggesting the specific role of affective touch in enhancing vagal activity. Temperamental traits modulated such effect. Specifically, children with lower scores of effortful control, meaning the ability to manage attention, and inhibit or activate behaviors as needed to adapt, showed more sensitivity to affective touch.

**Discussion.** Overall, affective touch has been shown to increase HRV in both neutral and emotionally salient conditions, possibly supporting autonomic self-regulation. Importantly, our results indicate that affective sensory stimulation may be particularly beneficial for children with vulnerability in behavioral self-regulation.

## The effects of affective touch on emotional, behavioral, and physiological responses in adolescents with Type 1 Diabetes

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**Introduction.** Emotion processing is associated with changes in blood glucose, as evidenced by studies revealing that by simply presenting arousing pictures, blood glucose levels increase, in association with changes in mood and stress responses. The relationship between emotion regulation and blood glucose levels appears to be further corroborated by studies conducted in individuals with Type I diabetes, a chronic condition that typically affects children and adolescents, who typically present heightened stress and emotion dysregulation. Growing evidence has shown that a particular caress-like interpersonal touch, called Affective Touch (AT) has buffering effects on stress responses, both in the developmental and adult population. Studies have revealed that AT modulates the stress response in individuals exposed to arousing or socially unpleasant situations, mitigating the perception of stressful events.

**Methods.** This study aims to investigate whether AT can ameliorate perceptual responses to emotional and arousing stimuli and downregulate the blood glucose level in 19 adolescents with Type I diabetes and 14 healthy controls (aged 11-18 years). We assessed the effects of AT vs. non-AT (fast stroking) on behavioral responses (verbal ratings) and physiological activity (blood glucose levels, heart rate) when exposed to arousing videos.

**Results.** Preliminary results show that AT is generally perceived as more pleasant than non-AT across participants ( $F(1, 35) = 10.07, p < .001$ ), replicating the pleasant sensations associated with AT in adolescents. Interestingly, non-AT is perceived as more pleasant by adolescents with diabetes than controls ( $t(35) = 2.21, p = .03$ ), likely because patients are used to painful procedures that increase their tactile pleasantness threshold. At a physiological level, both AT and non-AT seem to maintain glucose stability with a specific downregulation within non-AT condition ( $F(3, 54) = 3.695, p = .017$ ).

**Discussion.** Overall, these findings suggest the importance of tactile interactions in managing stress and enhancing well-being among pediatric diabetes, supporting the stress buffer hypothesis through affective touch.

## **SYMPOSIUM 66 - Adolescents' Peer Relationships And Aggressive Behaviors In Online And Offline Contexts**

*Proponent:* Federica Angelini , Università di Padova

*Discussant:* Antonella Brighi, Libera Università di Bolzano

Adolescents' peer relationships encompass a variety of behaviors, including aggressive ones that can happen both online and offline. In this vein, bullying and cyberbullying are prominent examples of such behaviors, characterized by an imbalanced relationship between the bully and the victim. Additionally, problematic internet and social media use often pose a risk factor for adolescents' involvement in aggressive behaviors. This risk is particularly acute when combined with psychological and emotional challenges, such as difficulties in regulating emotions. Interestingly, these same challenges can also manifest within healthy peer relationships, such as friendships. Nowadays, many of these friendships are established and maintained online, especially through social media. Within this context, aggressive behavior among friends may lead to conflicts. However, when these conflicts are resolved effectively, they become an important indicator of the quality of friendship as perceived by the adolescents involved. Therefore, the aim of this symposium is to promote a discussion about the dynamics of peer relationships during adolescence, by focusing on the complex interplay between social contexts (i.e., offline and online), cognitive processes (e.g., attention), psychological factors (e.g., emotion regulation), and behavioral outcomes (i.e., aggressive behavior). The symposium consists of four compelling studies using different methodologies and both cross-sectional and longitudinal designs. Specifically, in the first study attention patterns among different roles in bullying scenarios are explored using eye-tracking technology, and results emphasize the impact of real-life bullying experiences on attentional processes. The second study investigates the association between fake profiles, time spent online, and increased cyberbullying during the COVID-19 pandemic, and highlights the need for interventions targeting fake profile usage. The third study delves into problematic Internet use and its association with sleep quality and difficulties in emotion regulation, as significant risk factors for aggressive behavior among adolescents. Lastly, the fourth study explores conflict and conflict resolution strategies in friendships in the online context, focusing on the role of social and emotional skills, with social media features moderating these associations. Overall, these works aim at offering valuable insights for educators, policymakers, and mental health professionals striving to support adolescents in navigating the complexities of peer interactions during adolescence.

## Watching Bullying: Differences In Visual Attention Among Victims, Bully/Victims, And Uninvolved Individuals

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**Introduction.** Previous research described differences in how bullies, victims, bully/victims, and outsiders react to bullying situations. Yet, limited research investigated attention patterns among these roles in exploring bullying scenes. The present study aimed to explore attentional differences among students categorized as bullies, victims, bully/victims, and outsiders in real life while observing bullying drawings with eye-tracking technology. **Methods.** We involved 73 students ( $M_{age} = 11.18$  years,  $SD_{age} = 0.30$ ). Each student observed nine drawings of different bullying scenarios, including all the roles (bully, victim, pro-bully, defender, and bystander). Students were classified into three distinct groups—victims, bully/victims, and those not involved—according to their experience of bullying in real life. For each portrayed role, we analyzed differences among the three groups in their fixation count (number of times the participant fixates on a role) and visit count (number of times a participant transitions in and out of a specific role). We then conducted Kruskal-Wallis and pairwise comparisons to analyze differences among the three groups in the two attentional indexes.

**Results.** Concerning fixation count, a significant effect emerged for the portrayal of the bully ( $H = 6.070$ ,  $p = .04$ ) and the pro-bully ( $H = 6.729$ ,  $p = .03$ ), as victims exhibited lower fixation than bully/victims for both roles. Similarly, visit counts revealed a similar effect for the portrayal of the bully ( $H = 6.847$ ,  $p = .03$ ) and the pro-bully ( $H = 7.709$ ,  $p = .02$ ), where again, victims recorded fewer visits than bully/victims. Uninvolved students exhibited no significant differences in these measures compared to the other two groups.

**Discussion.** Our research reveals that victims and bullies/victims had different attentional patterns, confirming that the experience of bullying in daily life can change how they explore bullying situations. Enhancing our comprehension of how engaged students direct their attention towards various cues in bullying scenarios can provide valuable insights for addressing more effective and powerful interventions.

## **Fake Profiles And The Effect Of The More Time Spent Online During The Pandemic Period: A Risk For Cyberbullying?**

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<sup>1</sup> *Università degli Studi di Pavia*

<sup>2</sup> *University of Stavanger*

**Introduction.** During the COVID-19 pandemic, young people were overexposed to social media and to instances of cyberbullying. In the context of social media, a fake profile refers to an unrecognizable identity: the person behind it pretends to be someone else or shares personal information that is not real. A legitimate user can create a fake profile using another user's data and photos or simply create a fictitious profile: the aim of a fake profile is to mislead the victim. The aim of this study was to determine whether the anonymity afforded by fake profiles and the longer hours spent online led to an increase in cyberbullying.

**Methods.** The survey involved a sample of 4338 students (52.4% girls; age range, 11–19 years,  $M = 14.1$   $SD = 1.6$ ) attending lower and upper secondary schools. The questionnaire items are a part of a larger set for screening within the broader scope of the project. All items in the present study were created ad-hoc to limit questionnaire length and difficulties in understanding and completing it.

**Results.** Multiple regression analysis with mediation effects to test our hypotheses showed a direct and positive association between having a fake profile and perpetration of cyberbullying (B log odds 1.10; se 0.18;  $p < .001$ ) and a positive and direct association between having a fake profile and time spent online (B log odds 0.54; se 0.06;  $p < .001$ ). There was a positive indirect association between having a fake profile and cyberbullying through mediation of time spent online (B log odds 0.07; bootstrap se 0.03; CI 0.01–0.15) and a positive direct effect between time spent online and cyberbullying (B log odds 0.13; se 0.63;  $p < .05$ ). Finally, there was a statistically significant and positive association between sex (B log odds 0.11; se 0.04;  $p < .01$ ) and age (B log odds 0.12; se 0.01;  $p < .001$ ) and time spent online. **Discussion.** Having a fake profile can become a risk for cyberbullying. Our study also underscores the relevance of digital technologies for blocking fake profiles. Such measures could benefit both cyber victims and cyberattackers alike, who often act out of ignorance without realizing the possible consequences of their actions.

## **Problematic Internet Use And Aggressive Behaviors: The Role Of Sleep Quality And Difficulties In Emotion Regulation**

*Claudio Longobardi<sup>1</sup>, Matteo Angelo Fabris<sup>1\*</sup>, Shanyan Lin<sup>1</sup>*  
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**Introduction.** In the era of information technology, internet usage has become an integral aspect of adolescent life, serving both educational and recreational purposes. Within this context, the issue of problematic internet use among adolescents has garnered significant attention and concern due to its potential effects. This study aims to investigate problematic internet use and its potential impact on aggressive behaviors, as well as the underlying mechanisms involved.

**Methods.** Participants were 977 students from middle schools located in the northern Italy, including 505 females (51.7%) and 472 males (48.3%). The mean age of the participants were 12.38 years (SD = 0.94, 11 to 15 years). They were from three Grades in middle schools: Grade 6 (n = 300, 30.7%), Grade 7 (n = 345, 35.3%), Grade 8 (n = 332, 34.0%). Participants completed questionnaires regarding demographic information, problematic Internet use, aggressive behaviors, sleep quality, and difficulties in emotion regulation.

**Results.** Results indicated that problematic Internet use was positively related to adolescent aggressive behaviors. In addition, sleep quality and difficulties in emotion regulation were significant mediators in this relation. Specifically, problematic Internet use exert influence on aggressive behaviors not only through the simple mediating effect of difficulties in emotion regulation, but also through the chain mediating effects of sleep quality and difficulties in emotion regulation.

**Discussion.** Lower sleep quality and more difficulties in emotion regulation might play an important role in the relationship between problematic Internet use and more aggressive behaviors among adolescents. The findings of this study hold implications for students struggling with internet use and behavioral issues, as well as for intervention program developers, educators, and policymakers.

## Longitudinal Associations Of Social And Emotional Skills On Social Media With Friendship Conflict And Conflict Resolution During Adolescence

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**Introduction.** Friendship quality in adolescence is a crucial area of study, with conflict and conflict resolution strategies among friends being an underexplored indicator, particularly in association with adolescents' social and emotional skills in the context of social media. Methods. A total of 947 Italian students (59.3% F, Mage=15.97 years, SD=1.43) completed an anonymous online survey at two times points, six months apart. A moderated mediation model was employed to examine the longitudinal associations of social and emotional skills on social media (i.e., emotion e-regulation and social e-competence) and both the frequency of conflict with friends and the perceived efficacy to solve them. Different conflict resolution styles (i.e., conflict engagement, positive problem solving, withdrawal and compliance) were included in the model as mediators. In addition, the perceived functioning of social media as a context—represented by three social media features (i.e., asynchronicity, availability, and cue absence) – was used as moderator factor in the tested associations. Gender differences were also explored.

**Results.** Higher social e-competence were directly associated with higher levels of conflict resolution, and indirectly with lower frequency of conflict via positive problem solving. Further, higher emotion e-regulation increased conflict resolution via positive problem solving and decreased the friendship conflict via both conflict engagement and positive problem solving. Finally, availability moderated the association between emotion e-regulation and positive problem solving, while both asynchronicity and cue absence moderated the associations between emotion e-regulation and withdrawal. Significant differences across gender groups emerged.

**Discussion.** The current study sheds light on social media as a context for studying the dynamics of friendship conflict. Practical implications are discussed for supporting adolescents in navigating the complexities of digital friendships.

## **SYMPOSIUM 146 - Cultivating the Future: Students' Well-Being from School to University**

*Proponent:* Giacomo Angelini, Department of Human Sciences, LUMSA University of Rome

*Discussant:* Stefano Cacciamani, Department of Social and Human Sciences, University of Valle d'Aosta

The transition from adolescence to young adulthood is a period of rapid changes which may impact well-being. These transformations are shaped by personal, environmental, and social factors. The current Symposium delves into some factors that may influence the choices, vision of the future, and overall well-being of adolescents and young adults.

The first three contributions move from this perspective. *Angelini et al.* examine the relationship between career-related parental interference, school burnout, and depressive symptoms in high school students. This contribution aims to offer practical recommendations for designing career counseling interventions that support adolescents' autonomy in academic decision-making and reduce depressive symptoms. *Sorrenti et al.* explore the role of decision-making strategies in relation to self-efficacy, motivation, and pre-university orientation. Their findings demonstrate the association between these factors, psychological well-being, and an increased ability to make appropriate study choices, enhancing pre-university orientation. *Gullo et al.* investigate different profiles of university students, showing that self-efficacy and academic motivation serve as protective factors against academic stress and mental health issues. Their work highlights the need for including psychological counseling programs that strengthen protective factors and enhance student well-being within the university services.

Since this transition phase involves the development of personal identity and individual perspectives on life, *Diano et al.* investigate the process of vocational identity development in relation to meaning and satisfaction in life. Concurrently, the process of identity development is intertwined with the process of reflecting on existential issues regarding the future. Given young people's concern about the potential effects of climate change, *Romano et al.* examine the relationship between climate anxiety and a hopeful outlook on the future in a sample of young activists.

The common thread that binds all the contributions is the significance of reflecting on the need to structure school orientation and career counseling interventions based on students' resources and inclinations. A more comprehensive support system will better equip adolescents to navigate the challenging task of growing up.

**Keywords:** adolescence, students, well-being, future, school orientation, career counseling.

## Parental interference, School burnout, and Depressive symptoms: a path analysis model on risk factors for student well-being from school to university

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**Introduction.** Adolescence is often characterized by increased levels of school burnout and depressive symptoms, with repercussions on self-efficacy, motivation, and the choice of future careers. parental behaviors play a crucial role in adolescents' well-being concerning career-related decisions. The present study investigates the relationship between career-related parental interference, school burnout, and depressive symptoms. Furthermore, the mediating role of adolescents' career decision self-efficacy and school anxiety is assessed. The following hypotheses were formulated: Career-Related Parental Interference was positively associated with School Burnout and Depressive Symptoms (H1); Career Decision Self-Efficacy (negatively) and School Anxiety (positively) mediate this relationship (H2). **Methods.** The study involved 134 Italian high school students (F=75%; M<sub>age</sub>=18.14 years, SD=0.65). The following self-report instruments were administered: Parental Career-related Behavior Questionnaire (PCB), Career Decision Self-Efficacy scale (CDSES-SF), Italian Test Anxiety Inventory (PAF-I), Burnout Assessment Tool (BAT-C), Center for Epidemiological Studies Depression Scale (CES-D).

**Results.** Findings confirm our hypotheses: parental interference behaviors are positively associated with school burnout ( $r=0.245$ ,  $p<0.01$ ) and depressive symptoms ( $r=0.380$ ,  $p<0.01$ ). Furthermore, career decision self-efficacy and school anxiety mediate the relationships of parental behavior interference with school burnout ( $R^2=0.41$ ) and depressive symptoms ( $R^2=0.60$ ). The path analysis model shows good fit indices:  $\chi^2_{(1)}=3.855$  ( $p=0.50$ ), GFI=0.989, NFI=0.982, CFI=0.986, SRMR=0.021.

**Discussion.** Findings from the present study can provide useful information for designing career counseling interventions that can pursue a dual purpose: 1) promoting adolescents' autonomy in academic choice and 2) reducing school anxiety, burnout, and depressive symptoms resulting from parental interference in their children's career choices.

## Motivation and self-efficacy in university orientation: the mediating role of decision making

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**Introduction.** The decision to enroll at university can be seen as a complex process involving the student's desire to continue formal education. The choice of a university course may depend not only on the process by which goal-directed activity is initiated and supported (Motivation), but also on the different decision-making strategies adopted and the students' perceived school self-efficacy at the end of higher education. To date, however, there is no explanatory model that considers the relationship between all these variables together in high school students. Following the motivational perspective of Self-Determination Theory, the study analyses the mediating role of decision-making strategies in the relationship between self-efficacy and motivation, and pre-university orientation.

**Methods.** We applied a structural equation model in a sample of 1823 students in the fourth and fifth years of high school. Participants responded to an online survey that assessed school self-efficacy, school motivation (Demotivation, Extrinsic Social Regulation, Extrinsic Material Regulation, Introjected Regulation, Identified Regulation), decision-making strategies (Avoidance, Vigilance, Preoccupation, and Superficiality), and pre-university orientation.

**Results.** The results show the mediating role of Vigilance in the relationship between self-efficacy [ $\beta=0.09$ ,  $p<0.001$ ], Material Extrinsic Motivation [ $\beta=0.02$ ,  $p<0.01$ ], Introjected Regulation [ $\beta=0.02$ ,  $p<0.01$ ], and Identified Motivation [ $\beta=0.02$ ,  $p<0.01$ ], and pre-university orientation. Furthermore, the mediating role of preoccupation in the relationship between self-efficacy [ $\beta=0.03$ ,  $p<0.01$ ], and social extrinsic motivation [ $\beta=-0.01$ ,  $p<0.01$ ], and pre-university orientation is observed.

**Discussion.** Vigilance and Preoccupation-based decision-making strategies play a mediating role. School efficacy, Material Extrinsic Regulation, Identified and Introjected Regulation promote a student's tendency to clarify goals earlier and to gather information to make effective decisions (Vigilance), thus increasing pre-university orientation. In addition, Extrinsic Social Regulation increases the tendency to Preoccupation when making decisions, which reduces pre-university orientation. Several studies have shown that the variables examined could promote appropriate study choices and are predictive of students' psychological well-being.

## Adaptive and maladaptive academic profiles: the interplay between personality and mental health in university students

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**Introduction.** University education has a significant role in shaping the educational aspirations, academic engagement, and employment prospects of young adults. However, academic fears and expectations contribute to increasing the risk of developing psychological problems such as anxiety and depression, which can adversely affect learning outcomes, reduce enthusiasm and enjoyment for learning, and lead to academic failure. These relations are mediated by personality and motivational factors such as resilience and self-efficacy, and reinforced by contextual factors, such as emotional experiences linked to the recent pandemic. The study aims to describe different profiles emerging on personality traits, state-trait anxiety, general self-efficacy, academic motivation, and fear of COVID-19 in a sample of university students, applying cluster analysis to identify possible homogeneous subgroups.

**Methods.** We applied a two-step cluster analysis in a large sample of 1028 university students ( $M_{age}=21.10$  years,  $SD=2.45$ ; range: 18–30 years; 78.4% females). Participants responded to an online survey exploring neuroticism, trait/state anxiety, general self-efficacy, academic motivation, fear of COVID-19, the impact of the COVID-19 pandemic on physical and mental health, and help requests.

**Results.** Results showed two significant clusters of students having a Maladaptive Academic Profile [MAP] ( $n=456$ ; 44.4%) or an Adaptive Academic Profile [AAP] ( $n=572$ ; 55.6%). Significant differences were found between the two clusters, where MAP students reported higher levels of neuroticism, higher dispositional and situational anxiety, fear of COVID-19, and lower self-efficacy and academic motivation than AAP students. In addition, more physical or mental health problems and help requests were found in the MAP cluster. **Discussions.** Self-efficacy and academic motivation might act as protective factors in modulating the perceived stress for academic learning activities. Self-efficacy might have helped sustain students' academic motivation, which is known to play a protective role against university students' mental health-related risk factors. Thus, it is hoped that universities offer counseling services to reinforce students' protective factors, such as self-efficacy and academic motivation.

## Meaning in life and life satisfaction as correlates of Vocational Identity Configurations: a person-centered approach with Italian university students

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**Introduction.** Vocational Identity is a core psychological construct related to the study of the career development of young people. It is one of the major components of overall identity. The process of vocational Identity development is relevant for university students. While multiple commitments might already have been taken, students are still engaged in the process of exploring their career opportunities and questioning and re-defining what their previous projects were. Emerging adulthood is also a stage in life in which people are focused on developing their perspective on life, its meaning, and its implications related to their specific existence. Since the identity process in the vocational domain is intertwined with the process of questioning and reflecting on existential issues, the aim of this study was to assess the relationship between the different configurations of vocational Identity, the presence of meaning, and the search for meaning dimensions and life satisfaction.

**Methods.** 326 university students (218 females, 106 males, 2 unspecified;  $M_{age}=23.77$ ) completed the Italian version of the Vocational Identity Status Assessment, Meaning in Life Questionnaire, and Satisfaction with Life Scale.

**Results.** In the first step, identity status clusters were created using a hierarchical cluster analysis. Results showed six profiles: Achieved ( $n=39$ ), Searching moratorium ( $n=43$ ), Moratorium ( $n=52$ ), Foreclosed ( $n=52$ ), Diffused ( $n=49$ ), and Undifferentiated ( $n=91$ ). Second, a MANOVA on meaning in life and life satisfaction as dependent variables with the identity configurations as independent variables was performed. Results showed that dependent variables were significantly affected by identity configurations (Wilks'  $\lambda=0.65$ ,  $F_{(15, 878.26)}=9.76$ ,  $p<0.001$ ,  $\eta^2=0.13$ ). Post-hoc analysis showed higher levels of presence of meaning in the Achieved and Foreclosed configurations, and higher levels of search for meaning in the Searching moratorium and Moratorium. Students with Achieved configuration have higher levels of life satisfaction, while lower levels are present for the Searching Moratorium.

**Discussion.** The results show that meaning in life and satisfaction correlate with vocational identity configurations. Practical implications will be discussed.

## Climate anxiety and hope for a better, sustainable world: Examining the moderating role of pro-environmental movement engagement in a sample of youth climate activists

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**Introduction.** Climate anxiety is defined as a negative emotional experience characterized by an intense state of worry about the effects climate change may have on our planet. Previous studies have shown how climate anxiety can have conflicting outcomes on young activists in pro-environmental movements/organizations. In detail, although previous studies show how it can motivate and reinforce protest actions and participation in movement actions, other studies have shown that climate anxiety can undermine an optimistic and hopeful outlook on the future, leading to states of eco-paralysis with associated coping strategies of avoidance or denial. The aim of the present study was to investigate, in a sample of young activists, the relationship between climate anxiety and hope towards the effectiveness of actions aimed at reducing the impact of climate change. Furthermore, the moderating role of engagement in the pro-environmental movement/organization was explored. It was hypothesized that high levels of climate anxiety could undermine activists' hopeful outlook and that this is most evident for low levels of engagement.

**Methods.** The study involved 136 activists in pro-environmental movements/organizations, aged 16-30 years ( $M_{age}=23.24$ ,  $SD=3.87$ ), of whom 69 (51.9%) identified themselves as female, 59 (43.6%) as male and 6 (4.5%) as non-binary. Participants completed an anonymous online questionnaire via Google Form. Analyses were conducted using SPSS Macro PROCESS v. 21 with percentile bootstrap procedures and 5000 resamples.

**Results.** The results revealed that the interaction term climate anxiety\*engagement is significant ( $b=0.19$ ,  $SE=0.06$ ; 95% percentile CI=0.06 to 0.33). In detail, the simple slope analysis showed that at low levels of engagement, the relationship between climate anxiety and hope is negative and significant ( $b=-0.24$ ,  $SE=0.08$ ; 95% percentile CI=-0.41 to -0.07).

**Discussion.** Our study highlights the importance of working on individual and contextual factors that can implement engagement in activists, in light of its protective role towards negative states, and in fostering hope toward the reduction of climate change impact.

## **SYMPOSIUM 119 - Shedding light on teachers' individual characteristics and competences: Research evidence to inform training practices from kindergarten to secondary school**

*Proponents:* Andrea Baroncelli<sup>1</sup>, Anna Di Norcia<sup>2</sup> (<sup>1</sup>Department of Philosophy, Social Sciences and Education, University of Perugia, <sup>2</sup>Developmental and Social Psychology Department, La Sapienza University of Rome)

*Discussant:* Valentina Grazia, University of Parma

Developmental and educational psychology is increasingly paying attention to the processes through which the individual characteristics and the social and emotional competences of teachers promote adaptation within the school system at different systemic levels. In fact, teachers are part of a complex emotional arena in which they have to establish adaptive relationships and to implement professional practices: to date, there is an imbalance in favor of giving attention to students' emotional and relational processes, while it is not explored enough if teachers possess the necessary resources (i.e., personal as well as professional) to deal with the complexity of their role. The aim of the present symposium is to collect a series of results from research that give centrality to the study of the individual characteristics of teachers, in order to have up-to-date tools and knowledge to advance this field and to guide the pre-service and the in-service training of these professionals. Grazzani and Pepe, starting from the consideration that remains a dearth of validated instruments for assessing teachers' social and emotional skills, present the psychometric characteristics of the Italian version of the Social-Emotional Competence Teacher Rating Scale (SECTRS) proposed to teachers from kindergarten to secondary school. Vecchio and colleagues further contribute to providing psychological research with tools to be addressed to teachers from primary to secondary school, by presenting the development and the initial validation of the Use of Psychological Constructs in Schools (UPCS) Questionnaire - which assesses individual differences in teachers' opinions on the use of psychological knowledge and skills in teaching. Moreover, Di Norcia and colleagues present results from a multi-informant research focused on how different profiles of primary school teachers in their perceptions of emotional intelligence relate to the quality of student-teacher relationship (assessed by students themselves) and the behavioral characteristics of their students (assessed by their parents). Finally, Ciucci and colleagues present preliminary results of a new line of research investigating how pre-service teachers approach the transition to direct internship within schools in terms of expectations for their future professional skills, including their social and emotional functioning.

**Keywords:** teachers, social and emotional competence, individual differences, well-being, school.

## **A tool to assess teachers' social and emotional competence: The Italian validation of SECTRS-14**

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**Introduction.** Despite growing interest in evaluating the social and emotional learning of students from different school levels and the development of standardized assessment tools for this purpose, there remains a dearth of validated instruments for assessing teachers' social and emotional skills. We set out to address this knowledge gap by investigating the psychometric characteristics of the Social-Emotional Competence Teacher Rating Scale (SECTRS) questionnaire, an instrument originally developed and validated in North America. Methods. As part of an international research project, Italian participants were 324 teachers (21 schools) from northern regions coming from urban and rural areas. They were predominantly women (91.0%; mean age: 45 years) and recruited in kindergarten, primary and secondary schools; they completed an online version of the SECTRS to be rated on a 6-point Likert scale. We performed confirmatory factor analysis (CFA) procedures to validate a four-factor model measuring Teacher-student relationships, Emotion regulation, Social awareness, and Interpersonal relationships.

**Results.** The data supported this factorial structure, with a total of 14 items included in the final model (SECTRS-14).

**Discussion.** We discuss these findings in relation to selecting appropriate and dependable instruments for assessing the social and emotional skills of teachers in relation to different research and training objectives.

**Keywords:** teachers, social and emotional competence, questionnaire, assessment, school.

## Attitudes towards psychological knowledge use in teaching: Results on Italian teachers

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**Introduction.** Psychological sciences have contributed to the improvement of teaching and learning as they are closely related to the social and behavioral factors of human development, including cognition, motivation, social interaction, and communication. Other important contributions concern effective teaching, school environments that promote learning, and the appropriate use of assessment. In this regard, the Coalition for Psychology in Schools and Education of the American Psychological Association (APA, 2015) identified the “top 20” principles of psychology for use of psychological knowledge and skills in teaching by teachers of primary and secondary school. Based on this theoretical framework, we built the Use of Psychological Constructs in Schools for Teachers questionnaire (UPCS-T; 66 items). The present study is part of a larger research in five European countries (Italy, Lithuania, Romania, Slovenia, and Sweden) and investigates the internal and construct validity of the UPCS-T dimensions and their reliability on a sample of Italian teachers.

**Methods.** Participants were 786 teachers, 81.3% females, from primary school (32.1%), lower secondary school (21.9%) and upper secondary school (46.1%), mainly from the center-north Italy. Confirmatory factor analyses (CFAs) were performed on each five areas of the UPCS: Thinking and learning (8 principles), Motivation (4 principles), Social and emotional aspects (3 principles), Classroom management (2 principles), and Assessment (2 principles). The internal consistency of UPCS dimensions and correlations with Teachers’ self-efficacy Scale (TSES; Tschannen-Moran & Woolfolk Hoy, 2001); Teacher’s Educational Practices Questionnaire (TEP-Q, Catalano et al., 2014); Constructive Conceptions of Intelligence Scale (CCIS; Albanese & Fiorilli, 2003) were also investigated.

**Results.** The CFAs carried out on the items of the first three groups confirmed the hypothesized factors. For the fourth and fifth groups, only one factor emerged for each group. Reliability was good for all dimensions. Reliability was good for all dimensions. Correlation results revealed interesting relationships with the other constructs.

**Discussion.** The UPCS-T questionnaire can be an important tool for teachers' self-reflection on their teaching practices to improve student learning, school climate, and the well-being of students and teachers themselves.

**Keywords:** teachers’ psychological knowledge, top 20 principles, teaching and learning, assessment, school.

## Different profiles of emotional intelligence in primary school teachers: relationship with students and children's behavior

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**Introduction.** This study investigates how different profile of teachers in their perceptions of Emotional Intelligence (EI) relate to student-teacher relationships (STR) and behavioral characteristics of their pupils.

**Methods.** Participants were 22 teachers (21 women) of 316 primary school children (age  $M=8.8$ ;  $SD=.73$ ; 169 boys) and their parents. Teachers filled the Emotional Intelligence Scale (EIS; Schutte, et al. 1998; Grazzani et al., 2009), the Student-Teacher Relationship Scale (STRS; Pianta 1999; Molinari & Melotti 2010), and Strengths and Difficulties Questionnaire Scale to evaluate Prosocial Behaviour (SDQ, Goodman, 1997); parents filled all the five SDQ scales to assess children's emotional and behavioral characteristics; Children filled the STRS scale for children. The EI scores were used to perform a Cluster analyses using Ward method and 3 profiles of teachers emerged. Profiles were used in different ANOVAs with STRS and SDQ scores and dependent variables.

**Results.** Three teacher profiles emerged from cluster analyses: (1) High total EI (HEI), higher than others in all the scales; (2) High emotion Regulation (HER), higher in emotion regulation than other scales; (3) high emotion regulation only with others (HOR). As regard age, HEI was more frequent for teachers aged 40-50 than lower and older ages. ANOVAs showed that HOR teachers perceived STR at the same time more conflictual and closer with their students; HEI teachers have students with more behavioral problems (externalization, internalization) and less prosocial behavior as evaluated from their parents (they do not differentiate in prosocial behavior as perceived by teachers); finally, children perceive a closer relationship with HOR teachers (all the ANOVAs are significant with  $p<.001$ ).

**Discussion.** In conclusion, our results seem to show that teachers who are more sensitive in the STR are the ones more focused on other feelings than their own. While the teachers who evaluate themselves higher in EI have classes with more problematic students. This study has an important limit to have a small sample of teachers, but the strength is the multi-informant approach. Probably, teachers with more differentiated scores in EIS have a better awareness of their socioemotional competences; in fact, their pupils feel better with them. The collection of further data is still ongoing and will allow for a better interpretation of the results.

**Keywords:** emotional intelligence; teachers; student-teacher relationship; students' behaviors; school.

## Exploring pre-service teachers' expectations for their social and emotional functioning as future teachers

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**Introduction.** Pre-service teachers in the first year of the master's degree program in Primary Education Sciences have just faced the transition from high school to university and are preparing for a further transition: direct internship within schools. They approach these transitions with different expectations for their future professional skills, including social and emotional competencies related to the development of relationships with others (e.g., pupils, colleagues, and pupils' families). The main objective of this study is to present, for the first time, preliminary analyses of the self-report version of areas 1 and 4 of the S3PI Model (Bandini et al., 2018). The questionnaire invites pre-service teachers to imagine themselves lowered in the role of in-service teachers, and investigates how much they imagine themselves to be able to exercise empathy, listening, self-control, sensibility to differences, and sense of responsibility (i.e., values and attitudes) and how much they are motivated to belong to the professional community of teachers, accepting related ethical standards (i.e., sense of belonging to the professional community). Two measures of self-efficacy were also collected: self-efficacy as emotional socializers towards pupils (i.e., in which they were again asked to imagine themselves in their future role of teachers) and emotional self-efficacy toward their own current emotions in everyday life (i.e., not limited to school context).

**Methods.** 49 student pre-service teachers from Central Italy took part in the study (47 girls, M age = 21.16 years, SD = 5.94 years); they were attending the first year of the master's degree program in Primary Education Sciences, and they had no previous professional experience as a teacher.

**Results.** pre-service teachers' values and attitudes were positively correlated to self-efficacy toward their own current emotions ( $r = .36, p < .05$ ); moreover, imagining oneself as a teacher motivated to belong to the community of teachers positively correlated with self-efficacy toward their own current emotions ( $r = .42, p < .01$ ) and with self-efficacy as future emotional socializers ( $r = .25, p < .10$ ).

**Discussion.** These results have implications for the training experience of pre-service teachers and for an in-depth caring of the transition between university and the internship experiences in school contexts.

**Keywords:** teachers, pre-service, social and emotional competence, self-efficacy, school.

## **SYMPOSIUM 100 - Early predictors of language development: Genetics, perceptual skills, and parental interaction**

*Proponent:* Viola Macchi Cassia, Department of Psychology, University of Milano-Bicocca, Italy

*Discussant:* Chiara Suttora, Università degli studi di Bologna

The development of language skills in early childhood is a complex process influenced by multiple factors, including genetics, the child's cognitive abilities, and the environment. Understanding these factors and how they interact is crucial, as this knowledge can help us identify both risk conditions and factors that promote the development of strong language skills, starting from the first year of life. This symposium presents four studies investigating how individual differences in basic processes during the first year of life can have long-term consequences for language acquisition, and how environmental factors, specifically those related to parental interaction styles, can further modulate these effects. The first two studies (Bettoni, Dondena) focus on fundamental perceptual and cognitive abilities, such as grasping patterns in sights (Bettoni) and sounds (Dondena) and processing sounds over time. They examine how these abilities influence language acquisition in children at familial risk and not at risk for language and learning disorders. The last two contributions (Nardozza, Raspanti) shift the focus to closer environmental influences on language development by focusing on the role of parent-child interactions. One contribution (Nardozza) examines how coordinated interactions between mother and child (dyadic synchrony) between mother and child impacts language development. The last study (Raspanti) investigates how the combined effects of visual-manual exploration of objects, caregiver behavior and vocal input shape language acquisition trajectories in both full-term and preterm infants. This symposium aims to stimulate reflection on the conditions that influence the development of language and communication skills in early years. By understanding these factors, we can develop non-medicalized and highly adaptable intervention strategies.

## The learning brain:neural entrainment to visual structures and its link to early language development

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**Introduction.** Infants possess a remarkable ability to extract, represent and generalize visual rules from their environment. Recent studies suggest this "visual rule learning" (RL) mechanism may play a key role in the development of emerging language skills (Bettoni et al., 2020). Here we investigated the temporal dynamics of RL by exploiting neural entrainment, a phenomenon where brain activity synchronizes with the rhythm of external stimuli (Choi et al., 2020). We measured neural entrainment to rule-like structures embedded in sequence of visual items and its connection to emerging language abilities.

**Methods.** We measured brain activity (EEG) in 31 9-month-olds and 33 adults while they viewed 2-min sequences of shapes (6 Hz) containing a repeating pattern (ABA, 2 Hz). The EEG signal was analyzed at occipital electrodes in the frequency domain. Language skills were evaluated at 20 months in a subsample of 10 infants (Caselli et al., 2016).

**Results.** Both infants and adults showed brainwave entrainment to the shape and the triplet frequencies already during the first 10 seconds of exposure (Z-scores > 2.33). Interestingly, infants displayed stronger entrainment responses compared to adults ( $ps < .001$ ), suggesting that they might have an initial learning advantage for extracting patterns from visual stimuli. Preliminary data also indicated a positive correlation - infants with stronger early entrainment produced a larger number of words at 20 months.

**Discussion.** This study provides initial evidence for an infant-specific advantage in learning abstract patterns. This powerful learning mechanism may lay the foundation for developing more complex cognitive skills, like language.

## The role of auditory processing in early language development: focusing on neural entrainment to rhythmic stimuli

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**Introduction.** A longitudinal study has been ongoing at the IRCCS "E. Medea" for several years, focusing on processing abilities of acoustic stimuli as a potential early marker for language disorders. Over the years, these skills have been found to be impaired in infants at familial risk for language disorders, and predictive of early lexical and phonological development (e.g., Cantiani et al., 2023). Recent theoretical frameworks (e.g., Fiveash et al., 2021) hypothesize that (a)typical language development may be associated with neural entrainment mechanisms, whereby the rhythms of brain activity synchronize with rhythmically structured acoustic stimuli, such as music and language. This component of auditory processing develops early: studies have shown that infants are already sensitive to rhythm during the first years of life.

**Method.** The present study aimed to investigate infant neural entrainment to complex, rhythmically structured, speech and musical stimuli; specifically, speech in the form of a nursery rhyme, and a piece of music with matching rate. We performed developmental analyses to explore potential similarities and differences between infants' and adults' ability to entrain to the stimuli; we then compared infants from general population with a subsample of infants at higher risk of developing language impairment, i.e., infants at familial risk.

**Results.** EEG spectrum analysis revealed clear responses above the noise floor at frequencies corresponding to the stimulus rhythm envelope, suggesting that – similarly to adults – infants without familial risk are capable of entraining to the incoming complex musical ( $p < .001$ ) and speech ( $p = .018$ ) stimuli. Conversely, infants at familial risk do not show synchronization responses to stimulus envelope ( $p > .05$ ), suggesting early anomalies in neural entrainment mechanisms for both speech and musical rhythms.

**Discussion.** Overall, we showed that measures of neural synchronization to complex auditory stimuli are a powerful tool to characterize speech and rhythm perception/synchronization in early (a) typical development. Furthermore, such measures seem appropriate for the investigation of the effect of early music/rhythmic training in infancy (e.g., Dondena et al., 2021).

## The role of bio-behavioural synchrony on child language development: a longitudinal study from infancy to toddlerhood

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**Introduction.** During the first years of life, infants rely on cues from their caregivers to acquire foundational communication skills. The quality and nature of mother-infant interactions can significantly impact a child's ability to understand and produce language. Research shows that responsive and attuned communication from mothers creates a supportive environment for language learning. Following the recent field of studies aimed to explore the role of dyadic synchrony not only at a behavioural but also at a physiological level on infant and child development, the present longitudinal study explored how early patterns of bio-behavioural synchrony are associated with language development.

**Methods.** 40 mother-child dyads participated in the study. At 6 and 9 months of infant age, the dyad was video-recorded during face-to-face interaction. Behavioural attention and affect were coded with the Relational Coding System and the ICEP to assess dyadic synchrony. The respiratory sinus arrhythmia (RSA) of both partners was computed from data collected with ECG sensors. Mother's and infant's RSA association was considered as a measure of physiological synchrony. To evaluate language development, the short form of the PVB Gesti e Parole was administered at 20 months.

**Results.** Interesting associations emerged between dyadic interactive behaviors during infancy and subsequent language development. Better comprehension and production skills at 20 months were predicted by a more dyadic symmetric co-regulation, indicating more shared attention and affect, at 6 months. Better production skills were predicted by more moments of alignment between child's environmental exploration and the mother's vocal expressions at 9 months. Close to significant results suggested that infants who experienced both behavioural and physiological synchrony at 9 months have better language development at 20 months.

**Discussion.** Results of this study highlight the importance of detailed behavioural and physiological analysis of early interactions to understand the role of dyadic experiences in child language development. Since improved bio-behavioural synchrony is driven by mother's ability to self-regulate and respond to her infant's needs, interventions should aim to enhance these skills, not only for fostering emotional development, but also for promoting better communication skills in children.

## **It takes four hands: a dyadic headcam study to explore how mother-infant exploration of physical objects shapes language development in preterm infants**

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**Introduction.** Every year, approximately 5% of infants in developing countries are born preterm (PT, before 37 weeks' gestation), facing higher risks for suboptimal communicative-linguistic abilities compared to full-terms (FT). The mechanisms underlying language delays in PT infants remain unclear, but reduced manual exploration of objects might be a factor (Zuccarini et al., 2017). Research have also highlighted the protective role of adults' behavior and vocal input in promoting language outcomes in both typical and at-risk infant (Suttora et al., 2020). To date, research has rarely examined the combined influence of mother-infant interactions with objects and caregiver behavioral and vocal input on language acquisition in PT infants. The study aims to: (a) compare visual and manual exploration of physical objects between FT and PT infants at 18 months corrected age (CA); (b) examine the link between infants' exploration behaviors and language development at 18- and 24-months CA; (c) evaluate how maternal verbal and behavioral inputs relate to infants' exploration behaviors and language outcomes.

**Methods.** PT and FT infants and their mothers participate in a 10-minute videotaped interaction session at 18 months CA, engaging in dyadic play with familiar and unfamiliar objects. Both infants and mothers wear head-mounted cameras during the play interaction, capturing first-person perspectives of the interaction, while an external camera provided a third-person view. Video footages from the cameras are merged for offline coding using micro-analytically Noldus Observer XT. At 24 months, infants' language skills are assessed using the Primo Vocabolario del Bambino (Caselli et al., 2002).

**Results.** Data collection is ongoing and will continue until we reach a sample size of 20 mother-infant dyads per group. Preliminary data suggest that specific communicative inputs (gestural and vocal) by the caregiver associate with (a) infant manipulation of physical objects and (b) language outputs (i.e., vocabulary) at 18, 24 months.

**Discussion.** This research sheds light on the combined influence of dyadic object exploration and caregiver behavioral/vocal input on PT language development, holding promise for designing early parenting support programs based on joint parent-infant exploration.

## **SYMPOSIUM 118 - How infants navigate the social world by paying attention to faces**

*Proponent:* Roberta Bettoni, Department of Psychology, University of Milano Bicocca

*Discussant:* Elisa di Giorgio, Department of Developmental Psychology and Socialisation, DPSS, University of Padova

Infants learn social behaviors and complex cognitive skills, like language, through interactions with others. During these interactions, they learn by reading facial cues and using this information to focus on important things in their environment. But caregivers' behavior is also crucial in guiding how infants navigate the world and allocate attention within their environment. This symposium presents four studies investigating how genes, environment, and individual differences influence how infants explore and deploy attention to social cues, like the face. The first two contributions (Sperati, Riva) focus on infants' exploration of facial features. Sperati examines individual differences in Environmental Sensitivity and how they relate to how infants explore faces. Riva examines how infants integrate audio-visual information from talking faces to develop specific-looking patterns, particularly in relation to autism risk. The last two studies (Bettoni, Calignano) focus on joint attention, which is when the caregiver and the baby allocate attention to the same object. Bettoni explores how the infant's temperament affects this process, while Calignano examines broader environmental factors, such as cultural differences and family migration background, in multicultural families. Together, these studies offer a nuanced understanding of the multifaceted factors shaping infants' early interactions with social cues, highlighting the critical role of individual differences and early experiences in fostering healthy developmental outcomes.

## Is environmental sensitivity trait associated with early facial emotion discrimination? A first evidence on 3-month-old infants

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**Introduction.** Individuals differ in the degree to which they process and respond to environmental stimuli, with some showing a heightened Environmental Sensitivity (ES; Pluess, 2015). Empirical evidence on older children and adults showed high ES associated with greater awareness and recognition of facial emotional details (Acevedo et al., 2014; Tabak et al., 2022). Yet, during infancy, this association remains unexplored, likely due to the lack of direct measures of ES during early life. We aim to explore associations between infants' ES and infants' facial emotion discrimination during a peekaboo task.

**Methods.** N=50 3-month-old infants (42%F) took part in an in-lab visit. ES was assessed observationally by eliciting reactivity to positive, negative, and sensory stimuli developed ad hoc (Sperati et al., in prep). Then, the experimenter involved infants in a peekaboo task. Based on the habituation-dishabituation paradigm, a series of facial expression changes across seven trials, such as 3 smiling faces, 1 fearful face and 3 smiling faces, was used to assess infants' emotion discrimination as captured by looking time and arousal (Montague et al., 2001). We run bivariate associations and multi-level models for repeated measures.

**Results.** Infants' reactivity to stimuli was normally distributed. Infants' reactivity to positive, negative, and sensory stimuli coded with the ES measure were associated with each other moderately (from  $r = .31$  to  $r = .45$ ). Multi-level modelling including looking time in peekaboo showed an interaction effect between ES and negative facial exposition ( $B = .14(.10)$ ,  $t = 1.36$ ), with infants higher in ES showing an increasing looking time across first smiling faces and the fearful one. When considering arousal, ES interacted with negative facial exposition ( $B = .10(.06)$ ,  $t = 1.61$ ), with highly sensitive infants' showing greater arousal response during the fearful face.

**Discussion.** Infants' high in ES seem to be unaffected by the habituation effect, maintaining interest across face stimuli compared to less-sensitive ones. Findings suggest a greater activation of highly sensitive infants' than less-sensitive ones during the negative face exposition. This is potentially related to the deeper processing and awareness of facial details, characteristic of high ES, which could be potentially considered markers of early social cues discrimination.

## Developmental pathways of audiovisual processing in infants at elevated likelihood of autism during the first year of life

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**Introduction.** Sensory processing refers to how we perceive, process, filter, and react to sensory stimuli in the environment. Atypical sensory reactivity is now considered a diagnostic criterion of autism spectrum disorder (ASD), and autistic individuals perform poorly during conditions that require integration across multiple sensory modalities, such as audiovisual (AV) integration. However, longitudinal studies of AV speech integration in the first year of life using experimental techniques are still scarce. The main goals of this study are: (1) to track developmental trajectories of AV integration skills at 6, 9, and 12 months in typically developing (TD) infants and in infants at elevated likelihood for autism (EL-ASD); (2) to characterize specific looking patterns to facial features of talking faces (eyes and mouth) in the two groups.

**Methods.** This research is part of a larger longitudinal study on EL-ASD infant siblings. At age 6, 9, and 12 months, AV integration skills in EL-ASD ( $n = 51$ ) and TD infants ( $n = 59$ ) were characterized in an eye-tracking preferential looking paradigm measuring the McGurk effect. Infants' looking behavior was recorded using the Tobii ProSpectrum 300Hz. The proportion of total looking time for congruent/incongruent faces and towards specific areas of interest (mouth vs eyes) will be computed for each condition.

**Results.** The results showed no significant differences between groups for congruent and incongruent stimuli and the two groups showed similar looking time for both faces. Taking into account the looking time toward the mouth area of interest (mouth/mouth+eyes), the results showed a main effect of Time-Point and a main effect of Group. In both groups, looking behavior toward the mouth increased during development (from 6 to 12 months), and this pattern is stronger in TD infants. In addition, a significant Condition X Time-Point X Group interaction was found. At 6 months, TD and EL-ASD groups showed different gaze patterns when watching incongruent videos, when auditory and visual stimuli cannot be integrated into a fusible percept and when the percept violates permissible phonetic rules of the infant's mother tongue.

**Discussion.** These findings may allow researchers to better understand (a)typical trajectories in autism and clinical implications in the development of more individualized and specific supports.

## Behind the gaze: exploring attentional processes in responding to joint attention through pupillometry

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**Introduction.** Responding to Joint Attention (RJA) is a crucial social skill where infants shift their gaze based on an adult's social cues, like gaze direction (Seibert et al., 1982). This ability involves complex attentional processes, including focusing on the face, following the gaze, and attending to the referenced object. Research has primarily relied on looking times to measure RJA. Here, we use pupillometry, a more sensitive measure of the attentional resources allocated to the task, to examine attention dynamics during RJA and explore how individual differences in temperament influence this process.

**Methods.** We assessed RJA in 19 infants (10-12 months old) using a computerized eye-tracking procedure. Each trial involved three phases: (1) a central dynamic face flanked by two objects, (2) the face orienting towards one object (target), and (3) the object moving after a variable delay from when the infant's eyes fixated on it. Temperament was measured using the IBQ-R questionnaire (Putnam et al., 2014).

**Results.** Infants showed sustained attention to the face across all phases, evidenced by longer fixations and larger pupil dilation compared to the objects ( $p < .001$ ). Looking times for both the face and the cued object decreased across delays ( $p < .001$ ), with the face receiving more attention throughout ( $p < .001$ ). Interestingly, pupil dilation decreased across the delays but remained similar for the face and the target object. This suggests efficient allocation of attention between the agent and the referenced object. Furthermore, analysis revealed a link between temperament and pupillary responses. Infants with a positive/organized temperament displayed a broader distribution of attention across the scene, while those with a negative temperament focused more on the face and target object.

**Discussion.** By combining eye-tracking with pupillometry, this study highlights the value of this approach in understanding the cognitive processes underlying RJA and its modulation by individual differences in temperament.

## Communicative development on the move between Minority and Majority worlds

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**Introduction.** The demographic landscape of the world is being reshaped by global migration patterns from the Majority World to the Minority World, which are also reshaping societies. While migration is often perceived as challenging, it also brings various benefits for the hosting country in terms of psychosocial and economic aspects. Nonetheless, the focus of developmental psychology has predominantly been on the Minority World, biasing our understanding of cognitive development. This study aims to fill this gap by exploring Responding to Joint Attention (RJA) skills - the ability to coordinate attention with a partner to share a common reference - in Nigerian infants living in Italy.

**Methods.** Data collection will continue until we reach a sample size of 60 2-to-18-month-old infants per group (Italian, Nigerian). RJA is assessed using web-based eye-tracking (Labvanced software) task, with each trial involving three phases: (1) a central dynamic face (Italian or Nigerian) flanked by two objects, (2) the face orienting towards the target object, (target), and (3) the object moving after a variable delay (200-1000 ms) from when the infant's eyes fixated on it. Socioeconomic status and acculturative stress are also assessed using the SAFE Acculturative Stress Measure (Mena et al., 1987).

**Results.** Preliminary results from the Italian sample show more fixations on the face compared to the objects in Phases 1 and 2, with no significant difference between the face and the target object in Phase 3. An age effect was also observed, indicating that older infants displayed increased fixations overall. Finally, the number of fixations on the face increases with increasing delays, while fixations on the target decrease. We anticipate similar findings in the Nigerian sample and that reduced caregivers' perceived level of inclusion and social support may negatively affect infants' RJA.

**Discussion.** This study will provide valuable data on how caregivers' socioeconomic and psychosocial statuses influence infants' development of RJA. By following principles of open data sharing, this research will broaden our understanding of communication and language development in diverse populations, including migrant families, contributing to a more inclusive developmental psychology paradigm.

## **SYMPOSIUM 106 - Digital technologies and learning: problems, opportunities and research perspectives in the "new normal"**

*Proponents:* Stefano Cacciamani<sup>1</sup>, Maria Beatrice Ligorio<sup>2</sup> (<sup>1</sup>Università della Valle d'Aosta, <sup>2</sup>Università degli Studi di Bari)

*Discussant:* Martina Benvenuti (Università di Bologna)

The experience of facing the COVID-19 pandemic has left us a legacy of a widespread presence of digital technologies in school and university contexts and a greater widespread competence in their use. The rapid need to mobilize digital solutions that schools and universities faced during this period opened new perspectives into research about education in the "new normal" era of digitalisation (Fülöp; 2023; Nilsberth, et al. 2012). The objective of this symposium is to outline the new investigation problems inherent to the relationship between digital technologies and learning, the emerging opportunities, and the new research perspectives in this area, in the post-COVID "new normal". Three lines of research are considered here: the use of digital technologies to analyze learning processes, the construction of learning environments supported by digital technologies, the perception of teachers on the use of such technologies. The first contribution, by Tarchi et al., investigated, through a software which helps visualizing writing processes, the recursive behavior of Italian university students as they wrote argumentative syntheses while reading conflicting sources. The second contribution by Cacciamani et al. aims to study how to promote Students' Agency in Higher Education through a method of teaching called the Progressive Design Method, supported by an online environment, inspired by the Knowledge Building model and combining peer feedback and project-based learning. The third contribution, by Ponticorvo et al., intends to analyze some strategies that can help overcome dropout, to favor motivation and to keep people in the MOOC process to exploit its educational potential. The fourth contribution, by Crescenzo et al. aims to analyze the relationship between the use of educational technologies, the development of burnout syndrome, emotional styles, and some personal characteristics of teachers. The fifth contribution, of Rega and Nappo, explores the usability from the teachers' point of view of a software designed for the assessment and training of the executive functions in children with neurodevelopmental disorders in the scholastic context.

## Visualising students' writing processes through digital tools

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**Introduction.** In university settings, writing argumentative essays from reading conflicting source texts is a common task for students. In performing this synthesis task, they must deal with conflicting claims about a controversial issue as they develop their own positions. Argumentative synthesis is characterized by writers' back-and-forth moves between reading source texts and writing their own texts—a self-regulatory process that can be termed recursivity. The present study investigated the recursive behavior of Italian university students as they wrote argumentative syntheses while reading conflicting sources.

**Methods.** The 43 graduate students participating in the study read four source texts on a controversial topic, evaluation in academe, with the goal of writing an argumentative essay. Reading of the sources was studied through a think-aloud procedure, and recursivity in writing the syntheses was recorded through Inputlog software, which helps visualizing writing processes. Comparisons were made between 22 high-recursive and 21 low recursive writers for the quality of their argumentative essays and for the critical strategies that they had used in reading the sources.

**Results.** Descriptive and nonparametric analyses produced the following three findings: (1) The strategies most employed in prereading were all related to synthesis-related activities: voicing opinion, expressing agreement, and expressing doubts. (2) Recursivity occurred most often in the middle of the synthesis process, as writers developed their arguments, instead of at the beginning or end. (3) High-recursive writers surpassed low-recursive writers by producing argumentative essays of higher quality and obtained better recall scores. They also employed more critical processing relevant to synthesis when reading the sources.

**Discussion.** This study provides insight on how recursivity is involved in argumentative writing but still there is need for further research. Importantly, this study provides indirect evidence about the usefulness of visualizing students recursive processes. We also conducted a pilot study to investigate the usefulness of visualizing students' interactions when co-writing. In this presentation, we will discuss the educational potential of technological tools for visualizing processes as learning analytics underlying deeper cognitive processes.

## Promoting students' agency in higher education through the progressive design method: a case analysis

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**Introduction.** Research on higher education highlights the importance of preparing students to be agentic individuals (Klemenčič, 2017). Recently, the Progressive Design Method (PDM) has been developed to promote students' agency in higher education (Cacciamani, 2017). PDM is inspired by the Knowledge Building model (Scardamalia & Bereiter, 2010) and combines Project Based Learning and peer feedback to strengthen students' agency. The research questions of the study are:

- 1 Is PDM effective in promoting student agency?
2. Is agency maintained at the same level by each student throughout PDM activities?

**Methods.** Eighteen students, 17 females (age:  $M = 21.39$  years;  $SD = .61$ ), have been involved in the study. Students worked with PDM in teams to develop projects about using digital technologies at school, with the support of an online environment called Knowledge Forum (Scardamalia, 2004). The activity consisted of four design steps. In each step, student agency was measured through a social network measure called Degree Centrality (Tabassum et al., 2018), which represents the number of messages a particular student sent plus the number of messages that students received from peers. Student agency in PDM activity development was assessed by comparing their Degree Centrality across steps using *t*-tests. Student agency stability was assessed through a correlational analysis of their degree centrality in each step using Spearman's Rho coefficient.

**Results.** A significant increase in Degree Centrality from step 0 to step 1 ( $t(17) = -3.89, p < .01$ ), and a decrease from step 2 to step 3 ( $t(17) = -2.62, p < .05$ ) were found. Also, a significant correlation was found between the step 0 and step 1 ( $Rho = .508, p < .05$ ), step 0 and step 2 ( $Rho = .528, p < .05$ ), step 1 and step 2 ( $Rho = .506, p < .05$ ), and step 2 and step 3 ( $Rho = .689, p < .01$ ).

**Discussion.** Working on project development in teams with peer feedback starting in step 1, may have activated and promoted student agency in step 2. In addition, each student maintained the same level of agency from the beginning until step 2.

The study's implications concern the possibility of designing working methods, such as PDM, in higher education to promote student agency.

## Stay in MOOCs: strategies to prevent dropout integrating technologies and educational approaches

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**Introduction.** Massive Open Online Courses (MOOCs) play an important role in education allowing to learn in an equitable way, overcoming barriers, time limitations, and geographical constraints. However, MOOC present some drawbacks, including a critical one: the dropout rate. Some strategies help overcome dropout, to favor motivation and to keep people in the MOOC process to exploit its educational potential. Here we present three different strategies that were employed during the Erasmus+ projects: ADA, MOOW CODE and NEFELE.

The first one is called All Digital Academy and has the goal to upskill adult educators on key digital emerging technology: in this case, the strategy consists in generating a waterfall effect that spreads from adult educators to adult learner.

The MOOW project (Massive Open Online Week for Collaborative Digital Education) combines the strengths of traditional MOOCs with the university Entrepreneurial Weeks and online idea-stage accelerators and bootcamps. The third one is NEFELE, Neet prevention in Education systems through positive Future vision Enhancing Learning and teacher Education aims to improve innovative teacher methodologies for middle school teachers in supporting adolescents career construction' based on Massive Open Online Courses, Tangible User Interfaces, and Open Educational Resources.

**Methods.** ADA was attended by 1026 adult participants, average age 53.5 years. MOOW involved 101 university students in the first pilot, average age 23.4 years, NEFELE involved 150 teachers and high school students from different countries, average age 16.7. MOOCs: for each project, the MOOC was integrated with specific tools.

**Results.** We report impact measures. The results indicated that participants did not drop the MOOCs, with very high rated of activity completion. ADA had a very high passing rate, as average quiz scores were almost always higher than passing grade (average > 6). In MOOW 100% of students completed the activities. Moreover, for NEFELE project we measured the MOOC appreciation with a 5-item questionnaire on a 7 points Likert scale: it resulted higher for the ones who interacted with the game too (average = 6.2 dev.st.1.3; average 5.5, dev.st. =2.5).

**Discussion.** These experiences confirm that complementing MOOCs with other educational resources can be useful to reduce the dropping rate in different contexts and ages.

## Technology use and teachers' emotions

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**Introduction.** The educational use of technology is often considered an essential element of teachers' profession (Gondwe, 2021). This requires complex processes of transformation of teaching, often becoming a source of teachers' stress, arousing negative emotional experiences and contributing to increasing the risk of burnout (Fernández-Batanero et al., 2021). The emotional processes connected to these changes have been little investigated. In recent years, in order to investigate the management of emotions, the construct of emotional style has been developed (Davidson & Irwin, 1999) which, associated with the personal characteristics of teachers, could play an important role in understanding the emotional processes connected with the use of educational technology.

**Methods.** The objective of this study is to analyze the relationship between the use of educational technologies (ET), the development of burnout syndrome (BOS), emotional styles (ES) and some personal characteristics of teachers. A non-probability sample of 379 Italian teachers of different levels completed an online questionnaire composed of socio-demographic questions, an ad hoc scale to evaluate the use of teaching technologies, and the Italian versions of the questionnaire on emotional styles and of the Maslach Burnout Inventory Educator Survey. Data were analyzed with descriptive statistics, Mann-Whitney U tests, Kruskal-Wallis and linear regression models.

**Results.** The results show that the use of technology does not influence the risk of burnout. This may be due to the fact that participants had experienced the greatest technostress during the pandemic, whereas our data were collected later. Furthermore, age is a predictor of technology use, indicating a generational gap in exploiting mediated teaching opportunities. Finally, with respect to emotional styles, sensitivity to context and perspective, i.e. the ability to sustain positive emotions over time, are predictors of the use of technology as support for social interaction. In contrast, the resilience dimension is associated with low use of technology.

**Discussion.** These findings can provide useful theoretical and practical feedback and pave the way for further research relating to the impact of technologies on teachers and their practices.

## **Application of a platform for the assessment and training of the executive functions in the scholastic context: usability data from teachers' perspective**

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**Introduction.** Executive functions (EFs) refer to a set of cognitive processes that play a crucial role in goal-directed behavior and individual adaptation to the environment. There is a growing set of evidence reporting to what extent EFs support learning processes (e.g. math and comprehension abilities). For example, some studies have identified a significant impact of EFs on academic achievement, particularly in math, reading, comprehension and writing. Consistently with this bunch of evidence, it may sound plausible the implementation of cognitive training programs in scholastic context. In fact, research consistently highlights the importance of training that focuses on executive functions in both healthy students and students with neurodevelopmental disorders (e.g. ADHD, Autism spectrum disorder). Additionally, it cannot be underestimated the need for teachers to have a strong understanding of executive functions and the barriers to supporting them in the classroom.

In the present work we report the results about the application of the software ASTRAS (i.e. designed for the assessment and training of EFs in children with neurodevelopmental disorders) in the scholastic context. Specifically, we sought to explore the usability of the software from the teachers' point of view.

**Methods.** A survey was used to obtain the opinion of 100 teachers at different primary school of the south Italy. The survey investigated: a) usability (i.e., comprehensibility, simplicity of the software and the usefulness of its feature); b) the clinical validity of the tasks; c) the attractiveness of the tasks for the children; d) their general opinion about the software.

**Results.** Results demonstrated satisfying responses of the teachers about the software: they considered ASTRAS easy to use and adapt to assesses and train executive functions in their students. Furthermore, they reported that children well reacted to the software and specifically they were more likely to be engaged in training games than in assessment tasks.

**Discussion.** Bind together, our results show that ASTRAS is usable for teachers and engaging for their students, which makes it promising for its application in the scholastic context.

## **SYMPOSIUM 60 - Enhancing Research Practices In Developmental Psychology: A Bridge From Theory To Statistical Methods**

*Proponents:* Giulia Calignano, Tatiana Marci, Department of Developmental and Social Psychology, University of Padova

*Discussant:* Massimiliano Pastore, Department of Developmental and Social Psychology, University of Padova

The field of psychological science has faced substantial challenges over the past two decades, including issues of replicability, validity, and the recent theoretical crisis. These issues have raised concerns about the coherence and explanatory power of theoretical frameworks used to understand human development and behavior, requiring robust methodologies, transparent reporting standards, and the use of valid and reliable measures. The symposium aims to foster an interdisciplinary dialogue within developmental psychology research to promote rigor and transparency, and to help researchers interpret study results. In particular, with four contributions covering different development topics and populations at different stages of the life cycle, the symposium will focus on four key areas:

(a) the importance of well-formulated theories for the development of effective measurement tools in order to maintain the credibility of research findings;

(b) the benefits of a multi-method approach to the study of developmental processes (e.g., children's language processing) in order to triangulate findings, increase confidence in results, and lead to a more comprehensive understanding of underlying mechanisms;

(c) the joint contribution of variable and person-centered approaches to a more nuanced analysis of developmental processes;

(d) the importance of calculating, reporting, and interpreting critical effect size values for a given study.

By underscoring the importance of theory and method integration, the symposium will stimulate discussion on best practices that strengthen the validity of research findings in developmental psychology. It will also encourage reflection on strategies to increase the transparency of research findings, thereby promoting the use of critical interpretation tools that can enhance our understanding of the complex mechanisms underlying human behaviour.

## **From theory to the validation of psychological constructs: an illustrative case of misalignment**

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Well-formalized theories are paramount for developing valid and reliable instruments. In developmental psychology, questionnaires are among the most frequently used tools for assessing psychological constructs and studying their complex relationships. Furthermore, adapting questionnaires for use with children and adolescents from instruments originally proposed for adults is a widespread practice, often, however, without proper evaluation of the underlying theory and validity. For illustrative purposes, in this study, we considered the Metacognitions Questionnaire for Children (MCQ-C; Bacow et al., 2009), a self-report questionnaire - recently adapted from the MCQ-30 for adults - aimed at assessing metacognitive beliefs in children and adolescents aged between 7 and 17 years. Based on theoretical reasons, the instrument was reduced from 30 to 24 items distributed across five and four factors, respectively. Despite increasing use, evidence on MCQ-C validity is extremely lacking. This study aimed to test the factorial validity of the MCQ-C in a sample of 1053 Italian children and adolescents (47% female, mean =12.3 years,  $ds=1.7$ ). Confirmatory factor analysis performed separately on children ( $n=497$ ) and adolescents ( $n=556$ ) showed several similar critical issues across models. Given these results, we performed a series of exploratory factor analyses on the whole sample, considering 1 to 6 factors. Inspection of the percentage of variance explained, item saturations, and the Bayesian Information Criterion (BIC) values showed that the five-factor was more parsimonious than the four-factor solution ( $BIC_{4factors}=-526$ ;  $BIC_{5factors}=-627$ ). However, the low and insufficient number of items on two factors (3 and 2) suggested that the four-factor model was more appropriate. In this latter, only two out of four dimensions substantially overlap with the originals, with 5 out of 6 items confirmed as related to the theoretically proposed factor. The remaining items showed a mixed association with the other two factors, failing to validate the original alignment of the item pool with the intended factor. The results raise concerns about the validity of the instrument in the Italian context, suggesting the need for significant revisions and highlighting the importance of sound theoretical foundations for the development and adaptation of psychological instruments.

## **Integrative approaches in child language processing: examining word meaning disambiguation by applying language corpora to behavioural experiments**

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Understanding how real-life experiences affect children's development is crucial but challenging due to the difficulty of isolating impacts from highly correlated naturalistic variables. We explored this issue in a case study on how English-speaking children disambiguate word senses—a crucial skill since most English words have multiple meanings (e.g., object/music band). We focused on verbs, central to early language development, which help disambiguate via top-down semantics (e.g., it is more plausible to play in a music band than an elastic band) and bottom-up associations (e.g., “playing in a band” frequently references a music group in conversation). These variables are entangled in naturalistic settings, making it difficult to understand their role in previous studies. To address this issue, we used ChiSense-12 (Cabiddu et al., 2022), a large corpus of 15,581 child-directed speech utterances tagged for alternative senses of 12 words. We created verb-object frames absent in the corpus that clearly disambiguate through top-down semantics (e.g., “twist a band” only refers to an object) and identified frames that are semantically neutral but often context-specific (e.g., “get a band”, typically referencing an elastic band in ChiSense-12). Using a within-subject forced-choice experiment with 45 four-year-olds, we tested the distinct roles of these variables. We used mixed-effects logistic modelling, pre-registering hypotheses and sample size from power simulations. Our results show that four-year-olds can use verb semantics (*Odds Ratio* = 7.39 [3.62, 15.11],  $p < .001$ ) and verb-object associations (*Odds Ratio* = 4.68 [2.31, 9.49],  $p < .001$ ) to discern word senses. Exploratory analyses show that parent-reported verb knowledge predicts success with verb semantics (*Odds Ratio* = 3.36 [1.08, 10.49],  $p = 0.037$ ), and the frequency of verb-object co-occurrence in ChiSense-12 predicts success with verb-object associations (*Odds Ratio* = 1.78 [1.25, 2.55],  $p = .001$ ). These findings support theories that children integrate naturalistic top-down and bottom-up knowledge from an early age, highlighting the benefits of combining naturalistic and experimental methods in developmental psychology. We discuss how expanding this approach to include naturalistic corpora tagged with diverse variables (e.g., multimodal and social communication) can advance child development research.

## **Using variable-centered and person-centered approaches as complementary, not competitive, methods: an exemplification study**

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The variable-centered approach in the social sciences elucidates relationships among variables within a presumed homogeneous population by gathering data from numerous participants and summarizing common associations. It furnishes a general set of averaged parameters that are easily interpretable but lack specificity. In contrast, the person-centered approach concentrates on subpopulations within a sample, categorizing participants based on selected variables to unveil intricate insights. While it offers more specific descriptions by yielding multiple sets of parameters representing distinct subpopulations, interpretation can be challenging. Integrating both approaches may offer a comprehensive exploration of human processes, balancing specificity and parsimony. To demonstrate the effectiveness of this integration, we utilized real data derived from a study conducted within the Positive Youth Development framework. In 2020, we examined how Italian emerging adults coped post-COVID-19 lockdown in terms of anxiety and societal future expectations, considering personal factors such as cognitive reappraisal and optimism, as well as ecological factors like community support during quarantine. We analyzed 565 participants aged 18-29 through an online questionnaire on these measures and employed both cluster analysis (person-centered approach) and cross-lagged modeling (variable-centered approach). The cluster analysis revealed four profiles based on personal and ecological resources during quarantine. The “promotive assets” profile, characterized by high scores in all variables, exhibited better post-quarantine adaptation, including optimistic societal expectations and lower anxiety levels. The cross-lagged model demonstrated that only community support during lockdown inversely correlated with post-quarantine anxiety. These findings underscored that, amid the pandemic, psychological well-being and hopes for the future of society increased especially when personal resources aligned with supportive social environments. Such insights would not have been attainable without the adoption of both person- and variable-centered approaches. This exemplificative study underscores the importance of combining person- and variable-centered methods to better comprehend the interplay between personal and contextual factors affecting young adults’ adaptation during COVID-19 pandemic.

## Critical effect size values and why to report them

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Critical effect size values represent the Minimum Significant Effect detectable given a certain sample size. Estimating these values does not require specifying a plausible effect of interest, making their use largely versatile. Consider these two real-life examples:

a. With a small sample size of  $N = 20$ , the critical values are  $r = \pm 0.44$ . This value is likely larger than many true effects in psychology, cautioning against interpreting possible lack of statistical significance as evidence for a lack of an effect of interest.

b. With a large sample size of  $N = 2000$ , the minimum detectable significant effects are  $r = \pm 0.04$ . Effect sizes this small may even reflect mere procedural artifacts. Here, the critical values serve as a priori warning that the focus should be on the estimated effect size, while statistical significance alone is too loose for a meaningful interpretation.

Reporting critical values may be especially useful when adopting NHST (Null Hypothesis Significance Testing) but the sample size has not been planned a priori or when the expected effect size is highly uncertain.

To assist researchers in computing critical values, we have developed a tool that enables them to evaluate the minimum effect size of significance given their study design and sample. This tool is an R package that allows for reporting the critical values of model parameters and is implementable for group comparisons, correlations, linear regression, and meta-analysis.

What we propose could benefit researchers during the planning phase of the study, as it will allow them to understand the limitations and strengths of their research design, but also as a retrospective tool to possibly reframe original interpretations.

Finally, from a didactic perspective, understanding minimum significant effects can help students and trainees better grasp research topics such as scientific significance and effect sizes and how they are linked and yet can diverge at the same time.

## **SYMPOSIUM 52 - Making sense of social experiences: children's representations through drawings**

*Proponents:* Ilaria Castelli , Federica Bianco, Dipartimento di Scienze Umane e Sociali, Università degli studi di Bergamo

*Discussant:* Roberta Fadda, Dipartimento di Pedagogia, psicologia, filosofia, Università di Cagliari

The emergence of the representational ability is a key achievement in human development, as it allows to master the distinction between the external and the internal world, to build shared meanings about social world, and to have access to the functioning of the mind (Bruner, 1990; Piaget, 1923; Vygotskij, 1978). Drawing is a complex activity involving perceptual, motor, cognitive, emotional, communicative, and relational skills (Luquet, 1927; Oliverio Ferraris, 2012): it is one of the symbolic systems that children master to build and share social meanings (Pinto, 2016). So, drawing is a classical tool used to access children's representations of the world, allowing them to master potentially emotionally difficult events without being overwhelmed (Cannoni, 2003; Longobardi et al., 2015).

The goal of this Symposium is to focus on the representations of primary school-aged children about different types of experiences in their life context through drawings.

Starting from the closest social world, three contributions investigate children's representations of their relationships with siblings with typical development – TD, neuromotor disabilities – ND, and autism spectrum disorder – ASD (Incognito, Pinto); with teachers (Cannoni, Mannola), and more broadly with school (Andolfi, Lombardi, Traficante). The representation of the relationship between siblings (1<sup>st</sup> contribution) with ASD shows greater emotional commitment compared to the one with siblings with NM disability, which is closer to that with TD. As regards school, the ability to represent challenging situations is a significant determinant of well-being (2<sup>nd</sup> contribution), in line with the results of the 3<sup>rd</sup> contribution, showing significant differences in the drawings of children who experience a low level of well-being compared with those who experience a high level of well-being.

Widening the perspective to the broader social world, the other contributions explore children's representations of natural environment (Longobardi, Fabris, Mastrokoulou), and of an indirect war scenario (Cornaggia, Bianco, Castelli), in order to assess their environmental awareness and future views on nature, and their concepts of peace and war. Results show age-related differences in children's environmental perceptions (4<sup>th</sup> contribution), and qualitative and quantitative differences in the representations of peace and war (5<sup>th</sup> contribution).

Methodological and educational implications of drawing will be discussed.

## **Conflict and harmony in siblinghood: drawing's contribution to research on interpersonal relationships in typical and atypical development**

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**Introduction.** Children's drawings proved to be a useful tool for understanding their relationships (Di Norcia et al., 2022) and among them siblinghood (Guidotti et al., 2020; Zaidman-Zait, 2020). This study adopts the Pictorial Assessment of Interpersonal Relationships (PAIR, Bombi et al., 2007), a method for analyzing the drawings that children make of the sibling relationships in which they are involved, to answer two sets of questions: (1) How children represent the sibling relationship when their siblings have typical or atypical developmental characteristics? (2) How does their representation of siblinghood change in situations of harmony and conflict?

**Methods.** Eighty-one participants, including 31 children (M-age=10.2) with siblings with typical development (TD), 31 children (M-age=9) with siblings with neuromotor disabilities (NM), and 19 children (M-age=9.47) with siblings with autism spectrum disorder (ASD), made two drawings: one shows their representation of siblinghood when the relationship goes in harmony, the other when the relationship is conflicting. PAIR scores measuring dimensions: Cohesion, Distancing, Similarity, Value, and Emotional Climate, were analysed with ANOVA and Chi-square.

**Results.** The results show that there are no differences in the representation of siblinghood between children with siblings with NM and typical development in any dimension and in any condition. However, the representations of the two groups differ from those of children with siblings with ASD. This group shows significantly less Similarity ( $F(2,78)=7.41, p<.001$ ) in harmony, less Value balance ( $F(2,78)= 3.67, p<.05$ ) in conflict, and in Emotional Climate they have less shared emotion ( $\chi^2= 6.93, p<.05$ ) and more neutrality ( $\chi^2=8.60, p<.05$ ), both in harmony and in conflict.

**Discussion.** The representation of the relationship between siblings with NM disability is substantially overlapping with that with TD. In contrast, the siblinghood with ASD presents a specific configuration where it is mainly characterised by greater emotional commitment. Furthermore, drawing proves to be a tool that contributes to the understanding of the relationship dimensions, which other research tools do not do as well.

## Children's drawings of their relationship with teachers and well-being in primary school

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**Introduction.** It is known that Student Teacher Relationship (STR) is crucial for psychological development in general and academic success (Vandebrouke et al, 2018). Although students' perspectives on their relationship with teachers are very important, few studies take them into account in primary school. Our study aims to investigate how students depict the relationship with their teachers through drawing and the relation between this representation and children's wellness at school.

**Methods.** Participants were 48 boys and 31 girls (mean 8,67; SD=.59) from 4 classes in third and fourth grade of primary school. Each child filled out the Questionnaire of School Wellbeing (QBS, Tobia and Marzocchi, 2015) and made two drawings of him/herself with their teachers: "when things are going well" (W) and "when things are not going well" (NW). Drawings were coded with PAIR scales: Cohesion, Distancing, and Emotional Climate (Bombi, Pinto, Cannoni, 2009).

**Results.** Some correlations emerged between well-being at school and drawings dimensions. School satisfaction ( $r = .23$ ;  $p < .05$ ), peer relationships ( $r = .23$ ;  $p = .04$ ), and total wellbeing score ( $r = .25$ ;  $p = .03$ ) positively correlate with Distancing in NW situations. ANOVA showed that concordant Emotional Climate in NW was more frequent than opposite or unilateral emotions.

**Discussion.** These results indicate that students who were more capable of representing their autonomy (as shown by pictorial Distancing) in negative interactions with teachers feel better well-being at school, also in peer relationships. Correspondingly, alignment with teachers' emotions in NW situations appears to be more common in these children who are doing well in class. These first results confirm the potential of drawing as a means of assessing young students' perception of their relationship with teachers and, in particular, the ability to represent challenging situations appears to be a significant determinant of well-being at school. In this study, further administrations and analyses of the drawings are underway, which will allow us to enrich and better understand these already promising results.

## Drawing at school: exploring its role in children's well-being

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**Introduction.** This study delves into the significance of drawing as an expressive tool in understanding children's well-being within the school context. Grounded in Positive Psychology, the research seeks to uncover how children's drawings reflect their school experiences, particularly concerning their interactions with teachers, and how these experiences impact their overall well-being. From a methodological point of view, data on children's well-being come from school documents, international statistics, or government reports. However, these sources, in addition to being limited to specific topics, leave open the question of measuring subjective experiences such as values and quality of life, which must be grasped from the perspective of the children.

**Methods.** Employing a mixed methodology, the study involved 216 children. Children were from 7 to 11 years old ( $M = 9.98$ ;  $SD = 1.2$ ; mean age in months  $M = 119.81$ ;  $SD = 14$ ; 50.9% female). Children were invited to create drawings portraying joyful events or situations at school, accompanied by brief descriptions. Assessment tools included also the administration of the *Comprehensive Inventory of Thriving for Children* (CIT-child; Andolfi et al., 2017), and the *School Well-being Questionnaire* (QBS; Tobia & Marzocchi, 2015).

**Results.** Analyzing the Drawing characteristics through a coding scheme (Analysis of the graphic, formal, and content-related characteristics of the drawings, *Cohen's K range: .60-.98*) and investigating the relationships between general and school well-being, results revealed that there were significant differences in the specific characteristics of drawings produced by children who experience a low level of well-being compared with children who experience a high level of well-being (*Chi squares range: 3.60-6.9*). Notably, children who reported positive school relationships depict scenarios in their drawings characterized by collaboration and positivity with their teachers and peers.

**Discussion.** The study highlights the role of drawing as a means of expression and reflection on children's school experiences. By interpreting children's drawings, educators can gain insights into the quality of student-teacher relationships and their impact on well-being. The implications of these findings will be discussed within the framework of Positive Psychology, emphasizing the importance of nurturing supportive environments in schools to promote children's holistic development and thriving.

## Tracing environmental awareness: a study of age-related differences in children's drawings from northern Italy

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**Introduction.** The intricate relationship between children and their ecological environments can be profoundly deciphered through their artistic expressions (Dai, 2017; Howlett & Turner, 2023). A valuable insight into fostering a deeper connection with nature is offered by recent investigations into how children perceive their environment through drawings (Profice et al., 2013; Villarroel et al., 2018). The objective of this research is to analyse the content and emotion in nature drawings by children with a view to assessing their environmental awareness and future views on the natural environment.

**Methods.** The study surveyed 240 children from primary schools in Northern Italy, chosen to represent a broad socio-demographic spectrum. Participants, with a mean age of 9 years ( $SD = 2.01$ ), were divided into three age groups: 6-8 ( $n=80$ ,  $M_{age}=7.5$ ,  $SD=0.82$ ), 9-10 ( $n=80$ ,  $M_{age}=9.5$ ,  $SD=0.51$ ), and 11-12 ( $n=80$ ,  $M_{age}=11.5$ ,  $SD=0.51$ ) years. Each participant produced two drawings under the themes 'Nature Today' and 'Nature Tomorrow'. Using NVivo, we systematically categorized thematic elements in the children's drawings, which were then analyzed digitally for thematic content and emotional sentiment. Chi-square tests and ANOVA were used to identify age-related differences in environmental perceptions.

**Results.** The ANOVA revealed significant age-related differences in children's environmental perceptions as depicted in their drawings ( $F(2,237) = 5.34$ ,  $p < .01$ ). Specifically, the oldest age group (11-12 years) demonstrated a notably more complex understanding of environmental degradation and conservation efforts compared to younger age groups. NVivo thematic categorizations showed that depictions of flora and fauna were common throughout all ages, yet the representation of environmental threats and conservation measures was significantly more frequent among 11- to 12-year-olds. Moreover, a trend analysis designated a linear increase in the complexity of environmental themes with age ( $R^2 = 0.76$ ,  $p < .001$ ), suggesting a developmental progression in ecological awareness.

**Discussion.** The natural evolution of ecological awareness with age is highlighted by the fact that children are maturing in their view of the environment. A higher awareness of environmental degradation and conservation efforts has been shown in older children, notably those aged 11 to 12. The evolution underlines the critical role that age plays in shaping environmental consciousness. Insights from this research emphasize the value of integrating environmental education that evolves in complexity to meet the developmental stages of children's cognitive and emotional growth, leveraging art as a powerful medium to foster an early and engaging dialogue on environmental stewardship.

## Peace and War in the eyes of children with an indirect exposure to war: an analysis of Italian children's drawings

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**Introduction.** Peace and war are complex concepts that children acquire, influenced by their experience with the violence of conflict, their cultural background, and their relational context. The indirect exposure to war could have an impact on children's representations of these constructs. The main goal of the present study was to investigate Italian children's representations of the concepts of peace and war, following the beginning of the war between Russia and Ukraine, by observing the contents and expressive connotations of their drawings. We also explored connections of drawings with family experiences of indirect exposure to the ongoing war.

**Methods.** The sample was composed of 38 Italian children ( $M = 9.43$ ,  $SD = 1.47$ ) who were asked to draw their idea of peace and war during the spring of 2022. Parents were asked to fill in a socio-demographical questionnaire and to provide information on their previous spontaneous talks about the war with their children.

**Results.** Results showed that most of the parents dialogued on the topic of war with their children following the start of the conflict in Ukraine ( $N = 88.9\%$ ), and that the age of children who took the initiative to talk on this topic was higher than that of children who took up the topic after the initiative of their parents,  $U = 18.00$ ,  $p = .022$ . In peace drawings, 7.9% vehicle the idea of peace as a religious issue, 10.5% as a natural scenario, 36.8% as positive actions, and in 44.7% the meaning of peace is communicated as the negation of war. In war drawings, 1 represents war with reference to peace images; 31.6% with weapons or soldiers; 31.6% through typical war activities; in 18.4% war is represented via its consequences; and in 15.8% through negative emotions. Peace drawings were more coloured than the war ones,  $\chi^2_{(1)} = 5.12$ ,  $p = .024$ , and in this kind of representation, there was mostly a positive connotated expressivity. The war drawings represented objects and activities typical of war, and were negatively connotated with sad facial expressions.

**Discussion.** Educational implications about children's representations of peace and war are discussed, as the tool of drawing allows for identifying children's views and needs starting from children's experiences.

## **SYMPOSIUM 115 – “Moving between”: school transitions as critical contexts of development**

*Proponent:* Ada Cigala , Dipartimento di Discipline Umanistiche, Sociali e delle Imprese Culturali, Università di Parma

*Discussant:* Emanuela Rabaglietti , Università di Torino

Some studies indicate that adaptive school transition experiences can promote academic performance and well-being of individuals, while challenging transitions can result in maladaptive behaviors, low self-esteem, and poor academic and occupational performance (Hirst et al., 2011; Lazzari et al., 2020; Mashburn & Pianta, 2006). The processes of transition involve numerous changes for the child/young/young-adult in transition on three different but interconnected levels: individual, interactive, and contextual (Niesel & Griebel, 2005). All these changes imply for individual complex processes of negotiation between consolidated skills, relational modalities and self-images and new skills, relational modalities and self-images that they must acquire. These processes involve continuous micro-transitions through which the individuals actively co-construct changes and their development in relationships and daily environments (Cigala et al., 2013). The different individual trajectories in school transitions and their outcome depend on the mutual interaction between the representations and practices of the different protagonists involved: individuals in transition, teachers and parents. Starting from these premises highlighting how school transitions represent a critical event for the development of individuals, this symposium aims to discuss some contributions which analyzed, through different methods and subjects of different ages, various processes of school transitions. In particular, the first contribution (*Degli Esposti et al.*) studies the transition from kindergarten to primary school by examining the representations and practices of teachers. The contribution of *Majorano et al.* considers the same school transition by focusing on the relationship between language production and early literacy in preschoolers with cochlear implants. The third study by *Parrello et al.* aims to analyze the transition between the first classes of high school in the Neapolitan suburbs through the students' point of view, focusing on the relevant theme of dropout risk. In the contribution of *Baroncelli* a cross-sectional research design is adopted and the school transition is conceptualized in term of meta-emotion philosophy in teachers coming from kindergarten, primary school and middle school. Finally, in the study by *Corsano et al.*, the transition to the university in off-site students is investigated with a particular focus on homesickness.

**Keywords:** school transitions; transition practices; transition's representations; multi-methods approach; academic performance; well-being; adjustment; off-site students; dropout risk; meta-emotion philosophy; early literacy

## The transition processes from kindergarten to primary school: the teachers point of view

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The transition from kindergarten to primary school represents a critical event that affects the socio-emotional and cognitive children's development. Several interconnected aspects contribute to children's adaptation to the new context. Some previous researches pointed out the role played by the practices and representations of teachers. In light of these premises, the present study investigated the transition processes to primary school from the point of view of the teachers. In particular, the study focused the teachers' representations, emotional experiences, and practices that characterize this school transition. A group of 234 teachers (111 kindergarten teachers-KT- and 123 primary school teachers-PT-, 3 males, age mean age 45 years) responded to a questionnaire constructed ad hoc starting from previous studies.

From the multivariate analysis, both aspects of continuity and discontinuity emerged. Curiosity was the emotion that most characterized the transition for both KT and PT, followed by the emotions of worry and uncertainty. The emotions of nostalgia [ $F_{(1,232)} = 21.48$ ;  $p < .001$ ] and sadness [ $F_{(1,232)} = 13.60$ ;  $p < .001$ ] connoted more the experience of KT, while anxiety more that of PT [ $F_{(1,232)} = 25.67$ ;  $p < .001$ ]. Regarding the concerns, the main ones pertain the change in demands on children with respect to learning methods (e.g. sitting for a long time and longer lessons), with greater apprehension among PT regarding the disinterest of parents [ $F_{(1,225)} = 69.32$ ;  $p < .001$ ]. The factors that revealed the greatest impact on the transition processes were the spaces and materials of the new school and the family's ability to adapt, followed by the children's cognitive skills. PT attributed greater importance to the influence of the KS on the transition process [ $F_{(1,217)} = 7.98$ ;  $p < .01$ ]. Meetings between teachers of the two levels of school before the transition appeared to be the most used practice to support the transition, while individual meetings with families were implemented more in kindergarten than in primary school [ $F_{(1,218)} = 17.99$ ;  $p < .001$ ]. The number of activities proposed after the transition that involve KT and PT was significantly lower. These results, although preliminary, generate many important reflections on the school transition processes and suggest some practical indications for professionals.

## The relationship between language production and early literacy in children with cochlear implants: a study on the transition between preschool and primary school

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**Introduction.** The transition to primary school could be a complex developmental challenge for children with developmental difficulties/disorders. Children with cochlear implants (CIs), although benefiting from access to sound, may have expressive language difficulties and early literacy problems, which could delay the acquisition of reading skills in primary school. The present study examines (1) the expressive language skills (with a particular focus on phonetic-phonological features) and early literacy of children with CIs compared to age-matched children with normal hearing (NH) and (2) the relationship between these developmental skills assessed for each group in the last year of preschool, prior to the formal acquisition of literacy.

**Method.** Sixteen children with CIs (mean chronological age=61.0 months; DS=6.50) and 20 NH peers (mean chronological age=64.0 months; DS=4.30) participated in the study. Standardized tests were administered to assess phonetic and phonological skills and early literacy skills (syllable segmentation and blending). Syllable and vowel recognition were assessed using multimedia tasks.

**Results.** Data analysis showed significant differences between the groups in phonetic-phonological skills and early literacy. Specifically, children with CIs showed a lower number of correctly produced words ( $U=56.5$ ,  $p=.039$ ) and lower syllable segmentation scores ( $U=48.5$ ,  $p=.014$ ) compared to the NH group. Furthermore, NH children showed significant correlations between the number of vowels recognized and: (1) the number of simplified words produced ( $r(19)=-.49$ ), and (2) the number of phonological processes produced ( $r(19)=-.52$ ). In contrast, no significant correlations emerged in children with CIs.

**Discussion.** The present study confirms difficulties in phonetic-phonological skills and early literacy in children with CIs. However, correlational analysis suggests different approaches to assessing literacy between the two groups. The findings may provide important indications for early literacy support in the transition to primary school for children with CIs, adopting an inclusive perspective.

## Dropout risk in the transition between the first classes of high school: a study in the Neapolitan suburbs

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School dropout is a complex, multifactorial phenomenon (Gubbels et al., 2019; Vinciguerra et al., 2021; Parrello, 2023). In Italy, in 2022, its percentage was 11.5% (Openpolis, 2023) and in Campania 16.4% (Vita.it, 2022). From the ecological perspective, environmental events and conditions, external and internal to the school, influence the intention to leave (Dekkers & Claassen, 2001). In particular, the transitions from one school level to another appear to be the period with the greatest risk of dropout (De Witte et al., 2013): in Italy, between the years 2020 and 2022, in the transition between middle and high school, 7327 students dropped out (MIUR, 2023). The present exploratory study investigated some relational and individual dimensions connected to the risk of dropping out in the 9<sup>th</sup> and 10<sup>th</sup> grade of school in the eastern suburbs of Naples. Participants, 645 students (M=49,92%; M age=14,64; 9<sup>th</sup> grade=60%) from 5 high schools were asked to answer a self-report questionnaire.

A series of hierarchical regressions were performed to evaluate whether attending the 9<sup>th</sup> or the 10<sup>th</sup> grade is associated with different levels of: *individual dimensions* like self-efficacy, motivation and future orientation; *relational dimensions*, like relations with students and teachers; and *intention to leave*. Firstly, *gender* and *failures in previous years* were introduced as control variables. Secondly, we introduced the *grade* as a predictor, while self-efficacy, motivation, future orientation, student relations, student-teacher relations and intention to leave were alternatively introduced as dependent variables. Results evidenced that the grade significantly predicts all considered dependent variables except student-teacher relations, with students in 10<sup>th</sup> grade scoring higher on self-efficacy ( $\beta=.14$ ), future orientation ( $\beta=.15$ ) and student relations ( $\beta=.14$ ), and lower on amotivation ( $\beta=-.10$ ) and intention to leave ( $\beta=-.11$ ). In sum, our findings suggest a positive picture of the transition from the 9<sup>th</sup> to the 10<sup>th</sup> grade, with students acquiring a better understanding of their efficacy and of the reasons why they go to school, together with better relations with classmates ( $\beta=.14$ ), and appearing more oriented to the future and less likely to leave school. However, the lack of improvement in the quality of student-teachers relations should also be noted.

## **Different contexts, same psychological processes? The construct of meta-emotion philosophy in teachers coming from kindergarten, primary school, and middle school**

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The construct of meta-emotion philosophy indicates that adults' thoughts and feelings about their own emotions have a central role in the way they approach and socialize children's emotions. This construct, originally developed in the child-parent relationship, was later explored among crèche educators, and a specific assessment tool (i.e., the Crèche Educator Emotional Style Questionnaire - CEESQ; Ciucci et al., 2015) was validated. CEESQ consists of two sections: CEESQ-Children's Emotions (i.e., comprising items representing crèche educators' coaching and dismissing styles toward children's emotions, as well as crèche educators' self-efficacy as emotional socializers) and CEESQ-Individual Emotions (i.e., comprising items related to crèche educators' personal emotional competence toward their own emotions, in terms of emotional self-efficacy and denial of emotions). The present contribution illustrates the applicability of the meta-emotion philosophy in teachers coming from kindergarten, primary school, and middle-school. After a theoretical introduction, analyses exploring the psychometric properties of the CEESQ within school contexts were provided. Specifically, 815 female teachers (M teaching experience = 20.08 years, SD = 10.84 years) took part to the study. Results indicated that: (a) the original 5-factor structure of the CEESQ was confirmed, and its specific factors presented correlations in line with the construct of meta-emotion philosophy; (b) a specific item that originally contributed to dismissing of students' emotions among crèche educators did not emerge among teachers, and it was discussed in light of differences in emotion socialization practices; (c) mean differences within the three school levels here considered were found (Wilks' Lambda = .952,  $F(10, 1616) = 4.008$ ,  $p < .001$ ,  $\eta_p^2 = .02$ ) and discussed: specifically, middle school teachers - compared to colleagues coming from kindergarten and primary school - reported lower levels of both coaching approach toward students' emotions and self-efficacy as emotional socializers. These results are placed within literature exploring the role of teachers as emotional socializers, and further suggest the strict connection between teachers' personal emotional world and emotion-related educational practices adopted toward students.

## **The transition to the university in off-site students and homesickness: an exploratory study**

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Enrolling in university is considered a milestone in the transition toward adulthood, but for students leaving home, college life can be challenging (Nghiem et al., 2021). Homesickness is a normal reaction to being away from home and it is commonly experienced by off-site students, especially girls and younger ones, but in some cases it can lead to negative outcomes such as depression, anger, loneliness, and sleep difficulties (Biasi et al., 2018; Stroebe et al., 2015). Extensive literature has focused on contextual, individual, and family factors associated with homesickness, primarily investigated through questionnaires. The present study aimed to explore by a narrative approach the psychological experience of a group of off-site students and the areas in which they feel homesick. Forty-seven off-site students (33 F;  $M_{age}=23$ ;  $SD=2.6$ ) completed a socio-demographic form and produced a narrative text about their university experience, focusing on changes in family and friends relationships, emotions, difficulties away from home, and academic and social life. Thematic and Bruner's self-indicators analysis revealed that, while distance does not weaken family and friends ties, students struggle with adjusting to university life and the new city without their support. Moods described are mostly negative and associated with the fear of losing friends due to distance and failure to share everyday life. Most students experience nostalgia for their "land of origin" and homesickness, feeling burdened by managing organizational aspects that their parents had always taken care of. Bruner's self-indicators of social reference are most present in the narratives, with girls emphasizing new friendships as a resource for adjustment and boys highlighting family ties in relation to homesickness. The data confirm literature findings regarding homesickness in off-site students and shed light on the areas in which it manifests (family and friends relationships and adjustment to new life). They suggest that difficulties associated with transitioning to university reflect the broader transition to adulthood. Although based on a limited sample, contrary to literature findings, girls in this study tend to utilize social resources to adapt to the new academic environment.

## **SYMPOSIUM 120 - The assessment of emotional skills in children and adolescents: progress and challenges among different developmental models and direct and indirect measures**

*Proponent:* Antonella D'Amico, Università di Palermo

*Discussant:* Daniela Raccanello, Università di Verona

The assessment of emotional skills in children deserves more and more attention, given the enormous importance of healthy emotional development throughout the life cycle. The tools and practices for assessing emotional skills are not to be considered as purely clinical tools to be used in contexts in which there are overt or suspected situations of distress in the emotional and relational sphere, but rather as essential elements of primary prevention. The in-depth study of the trajectories of typical development of emotional skills is, in fact, of primary importance to identify early cases at risk and situations of particular fragility. In addition, it plays a fundamental role in educational psychology, for measuring the impact and effectiveness of Social Emotional Learning methodologies at school or in other educational contexts. Despite the importance of assessing emotional skills and competencies in children, however, there are not many measurement tools available in the international literature, and even fewer are the tools that have been developed or validated in Italy. On the other hand, the measurement of emotional skills and abilities is already a rather complex task in adults, especially due to: 1) the differences among theoretical models, alternatively viewing emotions as a set of personality traits, learnt competencies or warm cognitive abilities; 2) the poor convergent validity of different measurement tools, in particular when based on reports of children's skills collected by adults' with direct or indirect measures, when based on children's performance to specific tasks or, finally, when based on children's self-report; 3) the difficulty in identifying response patterns to emotional tasks that can be defined as universally correct or erroneous, considering on the one hand the great interaction between emotions and educational styles, and, on the other hand, the profound differences between educational styles, sometimes even within the same culture of origin. In children, measurement difficulties are then amplified by the cognitive, lexical or metacognitive limitations that characterize the first years of life and that inevitably make questionable the use of indirect measures, and even of many direct measures. In this scenario, the aim of the symposium is to discuss the challenges of assessing the emotional skills in children, both by presenting new measurement tools and by describing recent research contributions in the field of typical and atypical emotional development, with a particular focus on the measures used.

## The promotion of social and emotional learning (SEL) in preschool age: A training study with direct measures

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**Introduction.** Plenty of studies have shown that early school interventions enhance children's development of social and emotional competencies. Promoting Mental Health at School (Promehs) is a European, school-based mental health program tested within an evidence-based project (Cefai et al., 2022), including indirect measures. Promehs is focused on enhancing social and emotional learning (SEL), a psychological construct made up of five key components, which include several skills such as the awareness of emotions, the ability to manage emotions, perspective taking, and the disposition to show empathy towards others. In the present innovative study, carried out with a pre-post research design, we implemented the Promehs program with preschoolers. We evaluated its effectiveness through a battery of direct measures of children's skills instead of indirect measures obtained with questionnaires filled out by teachers, as in the original experimentation.

**Methods.** Participants were 150 4- and 5-year-olds (mean age at pre-test: 58 months; range: 42-70 months; SD=7.2) recruited at school in Northern Italy and assigned to either an experimental (Promehs intervention) or a control (no intervention) group. The intervention phase consisted of a series of selected activities taken from the Promehs curriculum. All children, before and after the intervention phase, were administered validated measures of social, emotional, and cognitive abilities, including emotion understanding (TEC, by Albanese & Molina, 2008; see also Cavioni, Grazzani et al. 2020 on new benchmarks for interpreting TEC scores) and a battery of theory-of-mind tasks.

**Results.** Preliminary analysis showed that children in the experimental group outperformed those in the control group, especially with respect to awareness of and managing emotions ( $F=9, 57, p=.004$ ). Results are discussed, underlining the utility of providing direct measures of effectiveness of SEL promotion in the educational contexts.

**Keywords:** social and emotional learning, intervention, preschoolers, direct measures

## **Indices of emotional competence and individual differences: the case of preadolescents with callous-unemotional traits**

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Emotion recognition is a key cognitive ability that supports human social information processing: impairments in this ability alter accuracy in making social interpretations and lead to maladaptive outcomes, such as aggressive behaviors. There is consistent evidence suggesting that Callous–Unemotional (CU) traits are associated with impairments in recognizing and responding to emotional cues from others. This study investigated the associations among conduct problems, CU traits, and indices of emotion recognition accuracy and emotion recognition bias obtained from human faces. The sample consisted of 293 middle-school students (51.19% girls; M age = 12.97 years, SD = 0.88 years) and they answered to recognition task with a total of 24 face identities, which are face stimuli commonly used to estimate the prevalence of face and emotion recognition deficits in children. Particularly, for each identity, the photographic stimuli (totaling 120 faces) comprised 5 emotions: neutral, angry, fearful, sad, and happy expressions. Emotional faces were frontal facing with frontal gaze (60 faces) or 30° left-oriented (60 faces). Results showed that CU traits were associated with less accuracy in recognizing emotions, especially fearful and angry faces, and such deficits in emotional recognition were not associated with conduct problems independent of CU traits. For children scoring high on CU traits, the emotion recognition accuracy of anger was low irrespective of the level of conduct problems, whereas in children scoring low on CU traits, less accuracy in recognizing emotions was related to increases in conduct problems. Our results support the importance of considering the role of CU traits when studying emotional correlates of conduct problems. Moreover, our results support the need for research to not only focus on the accuracy of emotional recognition but also test whether there are specific biases leading to these inaccuracies. Specifically, CU traits were associated not only with lower accuracy in recognizing fearful faces but also with a tendency to interpret fearful faces as angry. This suggests that the emotional deficit associated with CU traits is not just a deficit in empathic concern toward others' distress but also includes a tendency to overinterpret emotions as potential threats to oneself.

**Keywords:** emotion recognition accuracy; emotion recognition bias; callous–unemotional traits, preadolescents

## **An updated adaptation of the SDQ for preschoolers: teachers' and parents' evaluation**

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**Introduction.** Uncovering difficulties at an early age is particularly relevant to intervene as soon as possible. One of the main instruments worldwide employed is the Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997), which evaluates 5 aspects of psychological functioning: emotional symptoms, conduct problems, hyperactivity/ inattention, problems with peers, and prosocial behavior. Although the versions for preschoolers are available in Italian (Baldo et al., 2017; Tobia et al., 2011; 2013), they have not been supported by specific psychometric analyses for this age or are based on small samples from a single geographical area. To respond to the need of valid measures, the present work aims at filling these gaps proposing an adaptation of the preschool SDQ versions for 4-6 years-old-children completed by teachers (Study 1) and by parents (Study 2).

**Methods.** Samples included 905 (Study 1) and 487 (Study 2) children, balanced for gender. Besides the SDQ filled by teachers or parents, other measures have been collected by observations, teachers' and parents' ratings, and interviews to children, to assess psychological, emotional, and social aspects.

**Results.** Outcomes of Study 1 supported the 5-factors structure of the SDQ (KMO = .90; reliabilities > .74). Difficulties scales were correlated ( $p$ 's < .05) with emotional lability, relational problems with teachers and peers, and with some scales of the CBCL, such as effortful control and externalizing behavior; prosocial behavior was related to social and emotional adjustment, theory of mind, and executive functions. As to Study 2, results supported the 3-factors structure (KMO = .96; reliabilities > .80) suggested by Goodman et al. (2010) in low-risk or general population samples: internalizing problems (emotional symptoms + peer problems), externalizing problems (conduct problems + hyperactivity/ inattention) and prosociality. Also in this case, difficulties scales showed significant correlation with the CBCL scales in the expected directions ( $p$ 's < .05).

**Discussion.** Although more analyses are being conducted, the findings are promising in showing the validity of the SDQ for preschool children. Both assessments by teachers and parents can be employed to uncover emotional and behavioral difficulties and strengths in young children, which can be very useful to improve their well-being.

**Keywords:** SDQ, preschool children, parents, teachers

## **IE-ACCME-B: A new tool to measure emotional and metaemotional intelligence in children**

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The measurement of emotional intelligence (EI) has garnered significant interest due to numerous studies highlighting its importance across various aspects of individuals' lives. However, there remains a considerable debate regarding the optimal measurement strategies of EI. D'Amico (2013) emphasized the importance of assessing both ability-EI using performance tests and self-perceived emotional skills using self-report scales, since performance tests measure specific skills in emotional problem-solving tasks, but self-report scales capture individuals' perceptions of their emotional abilities in daily life. Thus, D'Amico developed the IE-ACCME test (2013, 2018) for adolescents, exploring the perceiving, using, understanding and managing of emotions through 4 scales that use self-report and performance methodologies. IE-ACCME test also allows to measure MetaEmotional Intelligence (MEI) - defined as the individual's awareness of their emotional abilities - by comparing the results gained by individuals in performance task with the results of self-report measures. The IE-ACCME-B test is a new tool, presenting the same structure as the previous IE-ACCME test for adolescents, and adapted for children aged 8 to 12 years. It includes: the CE scale (beliefs about emotions) an 8 items questionnaire that explore children's beliefs about emotions; the CME scale (Emotional Self-Concept) a self-report measure comprising 8 items that explore children's self-perception regarding their emotional abilities in everyday life; the AE scale (Emotional Abilities) a performance test comprising 8 performance tasks. The AP scale (Self-Assessment of Performance) consists of 8 items that require children to rate their performance in each of the tasks included in the AE scale. EI can be measured using the Ability Scale (AE) while MEI can be measured by comparing the standardized score of the CME and AP scales with the AE scale. The discrepancy between standardized scores in CME and AE reflects children's metaemotional knowledge, while the discrepancy between standardized scores in AP and AE reflects children's metaemotional self-assessment ability. During the symposium, the first results of the validation of the instrument, conducted on children of III, IV and V classes of primary school, will be presented and discussed, examining the potential and criticalities of the tool.

**Keywords:** emotional intelligence, meta-emotional intelligence, IE-ACCME test, children, assessment, psychological measures.

## **SYMPOSIUM 55 - Women's well-being in different life contexts: a developmental life span perspective**

*Proponent:* Aurelia De Lorenzo, SE-CREA Research Group, Department of Psychology, University of Turin

*Discussant:* Enrica Ciucci, Department of Education, Languages, Interculture, Literatures and Psychology, University of Florence.

In studies on psychological and relational well-being, women often make up the highest percentage of respondents. However, there is a widespread gender gap in common mental disorders and mental health problems, with rates much higher among women than men. According to some estimates, women are twice as likely as men to suffer from depression and anxiety. Research using longitudinal data suggests that the gender gap occurs in some contexts as early as adolescence (Croda & Grossbard, 2021; Patalay & Demkowicz, 2023). While there is an extensive literature on the resources and vulnerabilities that characterize women's psychological well-being (Langer et al., 2015; Otten et al., 2021), there is little consideration of a life-cycle perspective, i.e., how these resources change over the course of women's development in different roles and contexts. For these reasons, this symposium aims to draw attention to the different stages of the female life cycle and open a discussion on the relevance of each stage. The contributions will focus on adolescence (Angelini et al.) and emerging adulthood (Buzzai et al.; Parola et al.), two delicate phases characterized by resources such as the opportunity of creative exploration of identity and future choices, but also by the development of depressive and anxious symptoms related to expectations and social comparisons. The symposium also addresses adulthood (Calandri et al.) and aging (De Lorenzo et al.) as feminine stages related to coping skills, family relationships and the discovery of a changing body after menopause, which also has an impact on psychological well-being. However, to emphasize not only the life cycle but also the different life roles and contexts, the symposium explores the above resources of women by examining the role of female students and young women entering the workforce, the role of mother and caregiver in the context of family caregiving, especially in coping with a child's illness, and finally in the context of rediscovering one's body in menopause through the relationship with physical activity and sport.

## Parental interference, overstudy climate, and depressive symptoms: women's well-being in a sample of high school students

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**Introduction.** Adolescence constitutes a delicate developmental phase, often characterized by an increased risk of developing depressive symptoms. Girls are twice as likely to develop depressive symptoms than boys. During this phase, parental behaviors in career-related choices and school climate play a fundamental role in adolescents' well-being. The present study investigated the relationship between career-related parental interference, parents' overstudy climate, and adolescents' depressive symptoms. Furthermore, the mediating role of adolescents' school anxiety and burnout was assessed by controlling for gender. We hypothesized that: a) school anxiety and burnout positively mediated the relationship between career-related parental interference and parents' overstudy climate with adolescents' depressive symptoms (H1); b) girls showed higher levels of school anxiety, burnout, and depressive symptoms than boys (H2).

**Methods.** Italian high school students were involved (N=257; Mage=18.5 years, SD=7.1; 52.92% females) by answering 1) Parental Career-related Behavior Questionnaire (PCB); 2) Overstudy Climate Scale (OCS); 3) Italian Test Anxiety Inventory (PAF-I); 4) Burnout Assessment Tool (BAT-C); 5) Center for Epidemiological Studies Depression Scale (CES-D).

**Results.** Findings confirm our hypotheses: school anxiety and burnout positively mediate the relationships between a) parental interference with adolescents' academic-professional choices and b) parents' overstudy climate with adolescents' depressive symptoms ( $R^2=0.418$ ;  $p<0,001$ ). Moreover, girls show higher levels of anxiety, school burnout, and depressive symptoms, as well as lower levels of interference and parents' study climate, than boys. The multiple mediation model shows good fit indices:  $\chi^2(1)=34.600$  ( $p<0.001$ ), CFI=0.90, GFI=0.99, NFI=0.90, MFI=0.94.

**Discussion.** Results highlight the differences between girls and boys regarding the impact of parental behaviors on their well-being outcomes. The current findings can provide useful information for designing interventions to reduce and prevent girls' school anxiety, burnout, and depressive symptoms, as well as to promote boys' autonomy in academic choice.

**Keywords:** female mental health; depressive symptoms; parental interference; high school students; school anxiety

## **Female adolescents toward the adult world. Identity, entrepreneurship and the role of adaptive competitiveness**

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**Introduction.** The developmental identity process in adolescence could be considered, in general, as an effort that allows adaptation to the adult world on the basis of what was built in the early stages of life during the first important relationships. Adolescents, in particular, are expected to be future-oriented, understood as the ability to set goals and make decisions. In this sense, adolescence becomes a time when many characteristics and skills are developed and influence future choices, including entrepreneurship. Entrepreneurship is about the attitude and ability to identify opportunities, take risks, and create value through innovation and organization of resources. Research highlights how, given the same abilities, female adolescents would show lower levels of resourcefulness than their male peers. Moreover, there is enough data to show that young female entrepreneurs outperform their male counterparts. The purpose of the present exploratory study was to investigate the mediating role of commitment and exploration, as dimensions of identity formation, in the relationship between competitiveness and entrepreneurship in female adolescents.

**Methods.** Participants were 223 female adolescents, aged between 18 and 19, attending the technical and professional institutes in Sicily. They were administered the Italian version of the Competitive Attitude Scale, to assess attitudes toward competitiveness among adolescents, the Italian version of the Utrecht-Management of Identity Commitments Scale U-MICS, to evaluate identity processes, and the Test of Entrepreneurial Attitude, for personal aptitudes for self-employment and entrepreneurial.

**Results and Discussion.** The descriptive analysis showed that all scales had good scores of symmetries, kurtosis and internal reliability. Correlational analysis indicated that competitiveness was positively related to commitment, exploration, and attitude towards entrepreneurship. To investigate the mediating role of commitment and exploration in the relationship between the competitiveness and positive attitudes towards entrepreneurship, SEM analyses were employed. It seems that in girls, identity exploration mediates the relationship between adaptive competitiveness and self-entrepreneurship, suggesting that the competitive spirit represents an important component for personal development.

## Creative coping: a study of women's strategies to face with stressful situations

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**Introduction.** The existing empirical investigation of the use of creativity as a positive strategy when facing stress is scarce (Xu, Wang, 2022). Nevertheless, starting from seminal works by Erikson, creativity was conceptualized as a resource to positively resolve all the psychosocial crises. Indeed, flexibility and ability to generate multiple solutions to problems could be key competencies for the contemporary society based on continuous innovation and de-standardization of developmental trajectories. The current study explored whether creativity was associated with additional coping resources in the resolution of young female's psycho-social challenges.

**Method.** A total of 338 youth (205 females) aged 18–20 years completed the Creativity Measure (Kapoor, 2015), the Creative Achievement Questionnaire (Carson, Petersen, Higgins, 2005), the Depressive/Anxiety Symptom Subscale (Dell'Erba, 1999), and the Coping Strategy Indicator (Amirkhan, 1990).

**Results.** Preliminary analyses were conducted to capture differences between males and females. Females show higher levels of positive creativity ( $t = -2.026$ ;  $p = 0.044$ ) than males. Evidence for coping strategies shows lower levels of social support seeking ( $t = -3.225$ ;  $p < 0.001$ ) and avoidance ( $t = 2.064$ ;  $p = 0.040$ ) in females. Relative to health dimensions, females show higher levels of depression ( $t = -2.366$ ;  $p < 0.001$ ) and lower levels of rule-breaking ( $t = 4.902$ ;  $p < 0.001$ ). Using a person-centred approach, a latent profile analysis with a robust maximum likelihood estimator (MLR) was performed to identify profiles of *creative coping* in the female samples. The analysis reveals two different profiles: the first, defined as "creative avoiding" (69% of the sample), characterized by females with high levels of neutral creativity and avoidance in response to a recent problem people encountered in their lives; the second profile, defined as "creative tackling" (31%), characterized by high levels of positive and negative creativity, problem-solving, social support seeking, and all health dimensions.

**Discussion.** These results help us understand how we can better investigate the use of creativity as psychological resource for individual well-being.

**Keywords:** creativity; coping; well-being.

## Mothers coping with the transition of children with a chronic illness into young adulthood: a qualitative study

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**Introduction.** Parenting a child with a chronic illness has already been researched in childhood and adolescence, but the difficulties parents have with a chronically ill young adult have hardly been investigated. A chronic illness diagnosed in young adulthood represents a non-normative transition in the life course that has a significant impact on the whole family. According to family systems theory, the onset of illness in a family has a profound effect on relationships and necessitates a redefinition of family roles according to the characteristics of the illness and the specific moment of the family lifespan. The aim of the study was to qualitatively investigate the psychological resources of mothers in dealing with the relationship with a young adult child diagnosed with multiple sclerosis (MS), one of the chronic diseases most commonly diagnosed in young adulthood.

**Methods.** Semi-structured interviews were conducted with eight mothers (mean age 55.1 years,  $sd=5.0$ ) of young adults with MS (4 men and 4 women, aged between 21 and 35 years) who have a mild to moderate disability and live with their parents. Due to the explorative nature of the study, the interview transcripts were analyzed using inductive content analysis. The mothers' resources were divided into the following categories: 1) individual characteristics; 2) social support; 3) adaptive parenting; 4) temporal perspectives.

**Results.** Regarding individual characteristics, mothers' optimism and positive thinking were useful resources in coping with the uncertainty of their children's illness. Support from partners, family and friends was seen as central to coping with difficulties associated with MS. A parenting style characterized by balanced support and balanced control was associated with increased well-being for both mothers and children. Finally, mothers recognized the importance of focusing on the present to deal with the unpredictability of the disease. Although mothers' futures depended on their children's illness, sticking to personal goals and planning for the future were cited as central to coping with difficulties.

**Discussion.** The findings provide suggestions for psychological interventions to support parents of young adults living with a chronic illness.

**Keywords:** young adults, chronic illness, mothers, coping.

## Quality of life and frailty in a group of postmenopausal women: when physical activity is a resource

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**Introduction.** Italy is the European country with the highest average age (46.5 years), and the estimated life expectancy is 80.5 years for men and 84.8 years for women. Women have a higher life expectancy, albeit in poorer health (Dieteren et al., 2020). Menopause, a physiological time in women's lives that coincides with the end of their fertility, leads to significant changes, both physiological-metabolic and psychological (Zapantis & Santoro, 2003), which result in numerous negative health consequences, including somatic-vegetative, urogenital and psychological symptoms (Taulikar, 2022; Heinemann et al, 2003). Recent studies on psychological well-being in menopause (Stojanovska et al, 2014; Fallahipour et al., 2022) emphasize the importance of the effects of regular physical activity in menopause on depression, anxiety, perceived quality of life and perceived well-being.

**Methods.** The aim of the study is to investigate the relationship between well-being and frailty, taking into account BMI, physical activity and menopausal status. The study participants were 32 women with an average age of 61 years (min=48; max=75) who had participated in the same adult exercise class for several years. 65% were in late postmenopause, 19% in early postmenopause and 16% in peri-menopause. The WHOQoL-BREF for quality of life, the Tilburg Frailty Indicator for frailty and the Menopause Rating Scale for menopausal symptoms were used to analyze the study variables.

**Results.** The results show statistically significant correlations between: increased BMI and somatic and psychological symptoms in menopause; more years of physical activity correlate with increased perceived psychological quality of life and lower psychological frailty. In contrast, there were no significant correlations between years since the onset of menopause and the variables well-being and frailty.

**Discussions.** Although these results are preliminary and relate to a very limited sample of women, they confirm the positive correlations between physical activity and psychological well-being found in the literature. Based on these results, it could be interesting to analyze these relationships at a regional and national level in order to subsequently activate intervention and prevention programs for women, paying particular attention to the menopausal phases.

**Keywords:** menopause, quality of life, frailty, wellbeing.

## **SYMPOSIUM 102 - Aggressive Behaviors Among Adolescents: Risk Factors and Intervention Strategies**

*Proponents:* Maria Rosaria Nappa<sup>1</sup>, Francesco Sulla<sup>2</sup> (<sup>1</sup>Dipartimento di Medicina dei sistemi, Università degli Studi di Roma Tor Vergata; <sup>2</sup>Dipartimento di Studi Umanistici, Università di Foggia)

*Discussant:* Luca Milani (Dipartimento di Psicologia, Università Cattolica del Sacro Cuore, Milano)

The symposium brings together contributions that, starting from various research questions and methods, are united by the intention of investigating risk factors for in-person and online aggressive behaviours among adolescents, as well as the effectiveness of intervention strategies that may reduce these risk factors. The focus is on bullying and dating violence. In particular, Esposito et al., explore how anti-bullying attitudes and the moral atmosphere at the class level are associated with bystander roles in bullying dynamics among high school students, accounting for the effects of moral disengagement, anti-bullying attitudes, and empathy-related responding at the individual level; De Luca and Nocentini, explore, through ELISA platform, the actions implemented by the schools across four data collections across Italy, targeting students and teachers in high secondary schools; Sulla et al. present preliminary results of a study using a mixed approach based on the use of vignettes, presenting different types of TDV, and subsequent questions to better understand the dynamics of victim-blaming, perception of severity for each episode of TDV, and risk coping strategies to deal with TDV episodes; Nappa et al. investigate the moderating role of couple context variables using the Sternberg's Triangular Love Scale dimensions in the relationship between cyber problematic pornography use and CDV perpetration in a group of adolescents.

The aim is to reflect on some crucial aspects of the traditional and experimental intervention programs by expanding the knowledge of the components that can be crucial in designing more effective intervention programs that can prevent violence among peers.

## A Multilevel Analysis of Factors Shaping Bystander Roles in Bullying Dynamics among High School Students

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**Introduction.** Bullying is a group phenomenon where peers often act as bystanders (Salmivalli et al., 1996). Four distinct bystander roles have been identified: assistants to the bully, reinforcers to the bully, defenders of the victim, and passive bystanders. The adoption of a specific role in bullying depends on a complex interplay of individual factors, relational experiences, and the prevalent moral climate. Notably, attitudes and cognitions that favor aggression and low levels of empathy towards other people are associated with bullying (e.g., Van Noorden et al., 2016). However, the shared beliefs, attitudes, and behaviors prevalent among the majority of students in a class can contribute significantly to the dynamics of bullying (e.g., Sentse et al., 2015). This study explores how anti-bullying attitudes and the moral atmosphere at the class level are linked with bystander roles in bullying dynamics among high school students, accounting for the effects of moral disengagement, anti-bullying attitudes, and empathy-related responding at the individual level.

**Methods.** The study was conducted in Campania and involved 1265 high school students (65.7% males) from 72 classes, aged between 14-17 years ( $M_{age} = 15.13$ ,  $SD = 0.72$ ). Each student completed a self-reported survey that assessed their roles in bullying situations and their anti-bullying attitudes. Also, they completed the Moral Disengagement Scale (Bandura et al., 1996), the Interpersonal Reactivity Index for empathy-related responding (Davis, 1980), and the Moral Atmosphere scale (Høst et al., 1998).

**Results.** The multilevel analysis indicated that students who were more likely to morally disengage and hold fewer anti-bullying attitudes were more inclined to assist or reinforce the bully. At the class level, anti-bullying attitudes were only significantly and negatively associated with the role of assisting the bully. Higher empathy was associated with the role of defending the victim, with no significant effects observed for class-level variables. Finally, the class moral atmosphere was significantly associated with passive bystander behavior, although the effect size was marginal.

**Discussion.** Further research is needed to delve deeper into these relationships and identify additional factors influencing bystander behavior to inform the development of comprehensive anti-bullying strategies.

## Indicated actions for dealing with bullying and victimization at school

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**Introduction.** For the past 30 years, universal bullying prevention has primarily been framed within a contextual approach that aims to increase the motivation of bystanders to intervene in bullying situations. However, changing the context without focusing on the individual is a limiting approach that neglects the complex interplay between individual and contextual factors to explain the phenomenon. Therefore, a multifaceted approach that integrates universal prevention for all students with more intensive levels of support to address the individual challenges of youth involved in bullying behaviors is recommended. Following the national law 71/2017 and the new guidelines for the prevention of bullying (2021) published by the Ministry of Education, an e-learning web platform, ELISA (E-Learning Training of Teachers on Anti-Bullying Strategies), has been implemented by the University of Florence, together with national monitoring carried out every year.

**Methods.** In this study we propose to explore the indicated actions implemented by the schools across four data collections (from school year 20/21 to 23/24) nationwide, the last of which is still ongoing, targeting students and teachers in high secondary schools. The number of students involved varies from 314.500 to 185.063 over the three surveys, while the number of teachers involved varies from 15.409 to 14.183.

**Results.** Regarding the existence of a protocol for receiving and dealing with bullying cases, the percentage of teachers who respond affirmatively has increased over time, reaching 51% in school year 22/23. Specifically, about school year 22/23, regarding the indicated actions in bullying incidents, teachers reported that they often or always used interviews with the victim (67.8%), classroom discussion and reflection (65%), mediation between the actors involved (63%), individual interviews with the bully (62.6%), interviews with the family (58.4%), disciplinary sanctions against the bully (50.3%). On the other hand, students reported that teachers only sometimes intervene in cases of bullying at school.

**Discussion.** The implications are discussed in terms of case management protocols to be integrated within a more comprehensive psychoeducational approach, proposing a new generation of interventions using Virtual Reality.

## Changing Olistic Risk Evaluation of Teen Dating Violence (CORE in TDV) project: Pilot study for the design of the Serious Game

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**Introduction.** Teen Dating Violence (TDV) encompasses a broad spectrum of harmful behaviour towards partners, including psychological, physical, and sexual abuse. The overall goal of the CORE project is to develop a prevention programme against TDV, to reduce the subsequent increase in IPV in adult relationships. The project, based on ecological system theory (Bronfenbrenner, 1979) and the threat assessment approach (e.g. Borum et al. 1999), aims to develop a comprehensive, multi-component, multimodal prevention model. Among other aims, it envisages the creation of a Serious Game (SG) for students to practice skills related to the recognition and prevention of TDV. The current pilot study aims to build the mock-up of the SG scenarios.

**Methods.** To investigate young people's attitudes and perceptions regarding TDV episodes, a mixed approach was developed based on the use of vignettes, presenting different types of TDV and subsequent questions to better understand the dynamics of victim-blaming, perception of severity, and risk coping strategies. Respectively, 10 and 10 middle and high schools located in the Campania and Apulia regions have been contacted in order to reach their participation in the implementation of the pilot study.

**Results.** It is expected that with increasing age in the sample, there will also be an increase in awareness of TDV warning signs; that, in general, regardless of age, the real severity of physical and sexual TDV incidents will be perceived, less so the emotional and psychological ones, which might also be perceived as 'fair'. Furthermore, one might expect, by comparison based on data from other types of youth violence, such as bullying, that the prevalent coping strategies, regardless of age and gender, would be those involving confrontation with friends, confronting the violent partner or ending the relationship; while those involving adults would be less frequent (e.g., Sorrentino et al., 2023).

**Discussion.** As it is demonstrated in the literature that TDV can lead to numerous negative outcomes, it is urgent to design prevention program that demonstrate effective in reduce risk factors. The use of serious games resulted to be effective in increase several outcomes related to mental health in adolescents (e.g., Esposito et al., in press); this gives us hope for the success of the CORE in TDV program.

## Cyber Dating Violence and Cyber Problematic Pornography Use during Adolescence: The Moderating Role of the Triangular Love Scale Dimensions

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**Introduction.** Cyber dating violence (CDV) represents a pervasive problem among adolescents. CDV has been defined as a kind of control, harassment, threats, stalking, and abuse perpetrated within a dating relationship via new communication technologies. Some recent studies have underlined that pornography consumption and CDV perpetration are correlated among youth in the presence of specific risk factors. In order to expand the preliminary evidence on the topic, this study investigated the moderating role of couple context variables using the Sternberg's Triangular Love Scale dimensions (i.e., commitment, passion, and intimacy) in the relationship between cyber problematic pornography use (CPPU) and CDV perpetration.

**Methods.** The Cyber Pornography Use Inventory, the Cyber Dating Violence Inventory, and the Sternberg's Triangular Love Scale were completed by 188 Italian adolescents who were currently in a dating relationship ( $M_{\text{age}} = 16.53$  years;  $SD_{\text{age}} = 1.29$ ; age range = 14-18 years; Female = 68.1 %).

**Results.** Moderation regression analyses results indicated that CPPU was not positively related to CDV perpetration. However, the relationship between CPPU and CDV perpetration was found to be moderated by passion,  $B = .64$ ,  $SE = .11$ ;  $p < .001$ , and commitment,  $B = .50$ ,  $SE = .07$ ;  $p < .001$ , but not by intimacy,  $B = .01$ ,  $SE = .06$ ;  $p = .09$ . Specifically, the slope analyses indicated that the relationship between CPPU and CDV was positive and significant at high levels of passion, and negative and significant at low levels of passion. On the other hand, the relationship between CPPU and CDV was negative and significant at high levels of commitment, and positive and significant at low levels of commitment. At moderate levels of both commitment and passion, the relationship between CPPU and CDV is not significant.

**Discussion.** Results demonstrate that CPPU is not a predictor of CDV perpetration per se, but the relationship between CPPU and CDV becomes significant only in the presence of specific risk couple factors (high passion and low commitment in the dating relationship). The present study suggested that effective prevention programs to contrast CDV should primarily focus on enhancing couple positive and healthy dynamics since adolescence.

## **SYMPOSIUM 103 - Parenting and socio-emotional development in early childhood**

*Proponents:* Simona De Stasio, Benedetta Ragni (Department of Human Studies, LUMSA University, Rome, Italy)

*Discussant:* Daniela Bulgarelli (Department of Psychology, University of Turin, Italy)

The symposium brings together contributions that, starting from different research questions and methods, are united by the intention of deepening the parental dimension by exploring maternal and paternal perceptions of the emotional and social aspects of the early stages of child development. The aim is to reflect on some crucial aspects of the parental experience in the times in which we live, broadening the analysis to those dimensions that can guide and support in the near future the processes of wellbeing in the caring of children in their first years of life.

In particular, Spano and colleagues, with the contribution *"To Be Present. Parental phubbing implications on children's problematic behavior: a pilot study,"* will examine the associations between mindful awareness and problematic smartphone use in parents and the association between parents' problematic smartphone use and problem behaviors in preschoolers; Ragni et al.'s contribution, *"How coparenting, intergenerational coparenting, children's temperament, and mindful parenting are related to parental self-efficacy?"*, will explore the possible relationship links between coparenting, intergenerational coparenting, child temperament (in terms of negative emotionality), mindful parenting, and parental self-efficacy while Grigore and Guidobaldi, in the study *"Overcontrolled temperament: a preliminary study on the psychometric characteristics of The Overcontrol in Youth Checklist administered to mothers and fathers of children aged 4-6"* will examine the differences in the assessment of temperament and executive functions as perceived by mothers and fathers.

In addition to this, Logrieco and colleagues will present the contribution *"Artificial Intelligence for Studying Child-Caregiver Interaction in Autism Intervention"* showing the results of a RCT study aims to explore interpersonal synchrony between preschoolers with ASD and their caregivers before and after one year of therapy, as well as its relationship with parents' interactive behaviors.

Finally, Macagno and Molina with the study *"Primi Passi per Genitori e Bebè: a service to support parenting"* will explore the difficulties and needs of parents of children aged 0 to 12 months, attending a new service in Turin that provide a safe space for them to meet and talk to each other and to create a network of sociability and support.

## To be present. parental phubbing implications on children's problematic behavior: a pilot study

Andrea Spano<sup>1</sup>, Antonio Puligheddu<sup>2</sup>, Annamaria Porru<sup>2</sup>, Maria Lidia Mascia<sup>3</sup>, Stefania Cataudella<sup>1</sup>, Cristina Cabras<sup>1</sup>, Daniela Lucangeli<sup>2</sup>, Maria Pietronilla Penna<sup>1</sup>, Dolores Rollo<sup>4</sup>

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**Introduction.** Literature links smartphone overuse both to phubbing behavior and phubbee experiences (Chotpitayasunondh & Douglas, 2018). Many studies agree on the risks associated with phubbing in parent-child relationships, emphasizing how such relational problems can also influence children's problematic behavior among preschool children (3–6 y.; Balta et al., 2020). This study examines the associations between (Q1) mindful awareness and problematic smartphone use in parents; (Q2) the association between parents' problematic smartphone use and problem behaviors in preschoolers. Additionally, we assess (Q3) the questionnaire reliability of the Parental Phubbing Scale (PPS; Pancani L. et al., 2021) adapted for preschoolers.

**Methods.** Thirty-one Italian parents completed 5 questionnaires: Mindful Attention Awareness Scale (MAAS; 15 items), Mobile Phone Problematic Use Scale (MPPUS; 24 items); Generic Scale of Phubbing (GSP; 15 items); Strength and Difficulties Questionnaire (SDQ; 25 items); Children's Coping Strategies (CCS; 18 items). Forty-two Italian preschoolers (mean age month =  $48.7 \pm 8.7$ ) completed an interview adapted from the Parental Phubbing Scale (PPS; Pancani L. et al., 2021) (16 items: 8 for mother phubbing and 8 for father). A Pearson's partial correlation was carried out to check Q1-Q2, and a Cronbach's alpha was also carried out to answer Q3.

**Results.** The results show a negative correlation between MASS scores and both MPPUS total score ( $r = -0.562$ ;  $p = 0.002$ ) and GSP total score ( $r = -0.590$ ;  $p = 0.002$ ) (Q1). Additionally, (Q2) our findings revealed a positive correlation ( $r = 0.378$ ;  $p = 0.047$ ) between MPPUS and SDQ score. Moreover, a negative correlation was found between SDQ conduct problems and MAAS scores ( $r = -0.475$ ;  $p = 0.008$ ). Regarding our adaptation of the children's questionnaire (Q3), we found good reliability for both the generic scale and single items ( $\alpha = 0.7$ ). Results are in line with literature and our hypotheses are confirmed. Discussion. In conclusion, the present results confirm that the responses of pre-school children could be reliable in the assessment of parental phubbing. It will be interesting to see the effects of an awareness-raising path between parents (1 experimental group and 3 control groups). We expect that this implementation could reduce smartphone overuse among parents and problematic behaviours among preschoolers.

## How are coparenting, intergenerational coparenting, children's temperament, and mindful parenting related to parental self-efficacy?

Benedetta Ragni, B.<sup>1</sup>, Simona De Stasio<sup>1</sup>, James P. McHale<sup>2</sup>

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**Introduction.** Several factors related to the child's developmental context can influence parental self-efficacy, among them coparenting, defined as the enterprise undertaken by two or more adults who together provide for the care and upbringing of children for whom they share responsibility. However, few studies have considered coparenting between parents and grandparents. The term intergenerational coparenting refers to the collaborative and cooperative practices in which parents and grandparents share responsibilities and tasks related to the care and raising of their children/grandchildren. There are also few recent studies investigating the role of mindful parenting on family well-being, defined as the intentional and nonjudgmental ability to be fully present in the parent-child relationship, paying attention to the unique qualities, emotions and needs of the children themselves. This study aimed to examine the possible relationships between coparenting, intergenerational coparenting, child temperament, mindful parenting and parental self-efficacy. It was hypothesized that mindful parenting could mediate the relationship between coparenting, intergenerational coparenting, temperament and perceived parental self-efficacy.

**Methods.** 203 parents (mothers = 91.6%) of children aged 2 to 6 years took part in the study completing: The Coparenting Relationship Scale (for coparenting and intergenerational coparenting); The Mary Rothbart's Temperament Questionnaires, the Mindfulness in Parenting Scale, the Parental Self-Agency Measure.

**Results.** The mediation model was tested with R software. The results show that mindful parenting ( $R^2 = 0.23$ ) significantly mediates the relationship between intergenerational coparenting and parental self-efficacy ( $b = .107, p = .025$ ) and that between child's temperamental negative emotionality and parental self-efficacy ( $b = .110, p = .001$ ). There is also evidence of a direct significant relationship between coparenting and perceived parental self-efficacy ( $b = .205, p = 0.001$ ).

**Discussion.** Results underline the important role played by intergenerational coparenting and mindful parenting in aspects deemed central to fostering an environment sensitive and responsive to children's social-emotional development in the first six years of life. They suggest that these aspects should be considered when constructing interventions to support parenting.

## **Overcontrolled temperament: a preliminary study on the psychometric characteristics of the Overcontrol in Youth Checklist administered to mothers and fathers of children aged 4-6**

*Madalina Grigore<sup>1</sup>, Giorgia Guidobaldi<sup>1</sup>*

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**Introduction.** Difficulties in the ability to adapt to context correlate with higher emotional-behavioral problems (Eisenberg, 2010). In the early years of life, when the child is more dependent on adults, these abilities change depending on both environmental and internal aspects (temperament and executive processes) (Kochanska, 2001). There is no instrument in Italian so far to specifically assess overcontrol early in childhood that is associated with higher emotional and behavioral control and more internalizing problems (Van Leeuwen et al., 2004). Moreover, research rarely considers the father's point of view on children's temperament. In this study, there are two aims: (1) to explore the psychometric characteristics of the Italian translation of The Overcontrol in Youth Checklist (OCYC; Gilbert et al. 2020) (2) to examine any differences in the assessment of temperament and executive functions as perceived by mothers and fathers.

**Methods.** Parents of 140 children (F=82; aged 42-85 months) completed: OCYC (Gilbert et al., 2020), Child Behavior Questionnaire (CBQ-VSF, Albiro e Matricardi, 2010), Behavior Rating Inventory of Executive Function (BRIEF-P; Gioia et al., 2003). A sub-group of 25 mothers and 25 fathers, balanced by age and gender, and age of children, was drawn from the overall sample.

**Results.** (1) The scales of Rigidity ( $\alpha=.65$ ) and Perfectionism ( $\alpha=.73$ ) and OCYC total score ( $\alpha=.79$ ) show good reliability. There are some correlations between CBQ and OCYC scales: Total OCYC with Motor Activity ( $r=.21$ ), Anger ( $r=.23$ ), Consolability ( $-.29$ ), Impulsivity ( $r=-.19$ ), Perceptual Sensitivity ( $r=.19$ ), Sadness ( $r=.20$ ), Shyness ( $r=.18$ ); Rigidity with Motor Activity ( $r=.19$ ); Anger ( $r=.32$ ), Consolability ( $-.29$ ), Sadness ( $r=.21$ ) and Perfectionism with Consolability ( $-.21$ ); (2) Comparisons between mothers' and fathers' perceptions show that mothers give higher scores in Perceptual Sensitivity (CBQ,  $p=.01$ ), Rigidity ( $p=.002$ ) and OCYC total score ( $p<.001$ ). Further data administration and BRIEF coding are underway.

**Discussion.** Results are consistent with literature and highlight the validity of the Italian questionnaire, which is an useful tool in application considering the developmental risk of this temperamental traits. Also results regarding the different rating of mothers and fathers are promising, although they will need to be further investigated with expansion of the sample.

## Artificial Intelligence for Studying Child-Caregiver Interaction in Autism Intervention

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**Introduction.** Guidelines for Autism Spectrum Disorder (ASD) recommend parental involvement in therapies. Early Intensive Intervention (EII) and Naturalistic Developmental Behavioral Intervention (NDBI) are evidence-based early treatments. However, the influence that therapies have on parent-child interaction has not yet been investigated. Positive parent-child synchrony is a type of mutually regulated and harmonious interaction, a fundamental experience for children to promote various developmental goals and generalization. This occurs during social interaction, also through verbal communication. Computational approaches automate the study of dyadic interactions, surpassing observational research limits, improving objectivity and quantification. This randomized controlled trial study aims to use a computational approach to explore interpersonal synchrony between preschoolers with ASD and their caregivers regarding their verbal communication, linguistic and non-linguistic, before (T0) and after one year (T1) of therapy, as well as its relationship with parent's interactive behaviors.

**Methods.** Free play interactions between parents and children at T0 and T1 were analyzed for fifteen children receiving NDBI and fifteen receiving EII for a year (mean age at T0: 29 months, 20 IQ<70, 5 females). Parents' interactive behaviors were coded with the PICCOLO checklist. An AI framework automatically segmented interaction audios, detecting vocal activity and performing speaker diarization. Interpersonal synchrony indicators were extracted using acoustic features, including eGeMAPS feature and turn-taking patterns. Synchrony was measured using Mutual Information Analysis. Synchrony moments were identified with a data-driven approach, exploring patterns across axes: longitudinal changes, differences between mothers and fathers, and intervention models.

**Results.** At T1 preliminary results show better temporal synchronization. No therapy-type differences emerged, but greater mother-child dyadic synchrony was observed compared to fathers. For both therapies, synchrony is associated with exploratory behaviors in mothers and emotional engagement in fathers.

**Discussion.** Both therapies may improve child-caregiver synchrony but may differently affect parent-child interactions. Implications of using AI in studying child-caregiver synchrony will be discussed.

## Primi Passi per Genitori e Bebè: a service to support parenting

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**Introduction.** The scientific literature recognizes the importance of the early years of life and, at the same time, also the high risk of isolation of new parents in today's society, which can lead to feelings of inadequacy and distress. Nevertheless, parental stress and isolation can be reduced by parenting groups (Pessagno & Hunker, 2013; Prince et al., 2018; Strange et al., 2014). Primi Passi per Genitori e Bebè is a service that aims to provide a safe space for parents of babies between 0 and 12 months to meet and talk to each other, to create a network of sociability and support. It was born in October 2023 thanks to the collaboration between the University of Turin, Cooperativa OrSA and the City of Turin, and funding from Fondazione CRT. The research we present aims to evaluate the effectiveness of this service in supporting parenting.

**Methods.** We asked parents attending Primi Passi to fill out an online questionnaire at the beginning and end of their attendance, to explore: family composition and demographic information; parents' daily activities with their babies; parents' difficulties and needs; parenting stress (Parenting Stress Index-4; Abidin, 2012; Guarino et al., 2016); perceived social support (Social Provisions Scale-10; Caron, 2013; Iapichino et al., 2016); and service evaluation (only in the final questionnaire).

**Results.** To date, 26 parents (25 moms and 1 dad, aged 31-47 years) of 17 girls and 9 boys aged 1-12 months ( $M=7.7$ ) have completed the initial questionnaire. It is mostly moms who take care during the day of the babies ( $n=25$ ), sometimes supported by grandparents ( $n=7$ ), but they would like more support ( $n=19$ ) and the opportunity to participate in parenting groups ( $n=14$ ). The most reported difficulties were home care ( $M=3.65$ ,  $SD=1.26$ ), self-care ( $M=3.62$ ,  $SD=1.06$ ) and don't have time for yourself ( $M=3.58$ ,  $SD=1.24$ ). The scale with the highest scores on the PSI-4 was Parental Distress ( $M=2.29$ ,  $SD=.61$ ). The total score of SPS-10 averaged was 36.24 ( $SD=4.88$ ), which was not different from the Italian sample score.

**Discussion.** The present data are preliminary, and in June the first part of the research project will be concluded, allowing to compare the initial/final questionnaires. Already now, however, we have a first important overview of what the needs of new parents are, which will serve to plan similar services in the future.

## **SYMPOSIUM 75 - Transition to motherhood: contexts, constraints and resources**

*Proponent:* Maria Cristina Gugliandolo (University of Messina)

*Discussant:* Francesca Cuzzocrea (University Magna Graecia of Catanzaro)

The transition to motherhood is certainly one of the most important and, at the same time, most challenging developmental tasks that a woman can face in her life. The woman who becomes a mother, in fact, copes with significant physical, emotional and psychological changes; she must make space within herself and in her couple relationship for a new member, she finds herself taking on new responsibilities connected to all the newborn demands, and also she has to deal with the stress related to lifestyle changes in a context that sometimes is not able to support her and confirm her role and identity as a mother. Extensive research has investigated the transition to motherhood, showing how it is not always an exciting and positive moment for the woman, but can be characterized by negative feelings and stress. In fact, studies on peri- and post-partum maternal depression are numerous and the relationship between maternal psychophysical health and child adaptation has been widely demonstrated. Consequently, it is urgent to investigate the factors that may be correlated to a woman's better post-partum adaptation starting from pregnancy, in order to act preventively trying to strengthen resources and contain risk factors. In light of these initial considerations, the present symposium aims to broaden the reflection on the transition to motherhood from different points of view, examining in particular the role of some pre and post-natal personal and contextual factors that can act as constraints and resources in this delicate time. Specifically, Ciuffo et al. present a study on the risk of maternal psychopathology during the pregnancy, verifying the association between anxiety, depression and prenatal attachment. The contribution of Smorti & Aluisini, instead, focuses on the experience of pregnancy and on the style of maternal representations of women with rheumatological pathology. Nardoza et al., investigate the role of environmental sensitivity in predicting postpartum depression and stress, analysing how the support perceived by the partner can moderate this relationship. Finally, the contribution of Gallo et al. highlights how maternal postpartum satisfaction can be related to prenatal specific beliefs about parenting and need satisfaction.

## **DolceMente Mamma: A model of screening and prevention in the transition to parenthood**

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**Introduction.** There is now a consensus in the literature that the perinatal period is a fertile period for the risk of maternal psychopathology. The consequences of this malaise can have important implications not only for the woman's mental health but also for the couple, the child, and their short and long-term development. Aim: (i) to examine the prevalence of anxiety and depressive symptoms during pregnancy; (ii) to explore their association with prenatal attachment.

**Methods.** The sample consisted of 291 primiparae women (mean age: 32.22±4.402; EG: 27-34 weeks) enrolled in an antenatal course at the La Casa Family Advice Center in Varese between 2018 and 2022. The majority of the sample (57.4%) were married and had an average income (91.1%) and a stable job (82.8%). 37.9% of the women reported suffering from mental disorders, of which 26.2% were treated with psychotherapy, 2.4% with pharmacotherapy, and 5.9% with both. The majority of the sample (92.8%) reported having a support network. In addition to the mental health history, mothers were asked to complete the following questionnaires: Whooley, GAD-2, EPDS, and MAAS questions.

**Results.** The results of the descriptive analyses carried out showed average scores for all the scales examined. However, about depression, 10% of the mothers scored above the cut-off on the EPDS and 10.7% responded positively to at least one Whooley question. 1.7% reported suicidal ideation. In terms of anxiety pathology, 15.7% of the sample had a score  $\geq 3$ . Regarding prenatal attachment, 22.7% of the mothers had a risk score. Regression results showed that depression ( $p < 0.01$ ;  $R = 0.276$ ) and anxiety ( $p = 0.012$ ;  $R = 0.151$ ) significantly predicted prenatal attachment.

**Discussion.** Prevalence data on clinically relevant anxiety and depressive symptoms have emerged. It also showed how healthy prenatal attachment is affected by such symptoms, highlighting the importance of early identification and appropriate treatment of mental disorders during pregnancy to improve maternal mental health and promote positive emotional relationships between mother and child.

## **How do women with rheumatic disease narrate the story of their pregnancy? A study with the Interview on maternal representations during pregnancy**

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**Introduction.** The scientific literature has widely shown the importance of psychological adjustment in high-risk pregnancies, although little attention has been paid to high-risk pregnancy experienced by women with rheumatic diseases. This study analyses the experience of pregnancy and transition to motherhood of a group of women with rheumatic disease. In particular, this study aims to investigate how rheumatic disease affects the style of maternal representations and the experience of pregnancy.

**Methods.** 15 pregnant women aged between 31 and 45 years (mean age = 38; SD=5) with rheumatic disease were recruited between 28 and 32 weeks of gestation at Pisa University Hospital. The Interview for Maternal Representations in Pregnancy (IRMAG; Ammaniti et al., 1995) was administered, recorded and transcribed. The Interview for Maternal Representations in Pregnancy was analyzed to investigate the style of maternal representation. Furthermore, to assess how rheumatic pathology affects the experience of pregnancy, we conducted a deductive content analysis considering pregnancy planning, the experience of pregnancy, and related psychological stress or well-being; the quality of the relationship with the unborn child; the quality of the couple's relationship and the presence of social support.

**Results.** 60% (n=9) of the sample presented integrated representations, 27% (n=4) showed restricted, and 13.3% (n=2) ambivalent representations. The content analysis showed that most women received a diagnosis before pregnancy and that pregnancy was planned in accordance with the treatment requirements. In addition to the support provided by the partner and family, results showed the role of healthcare professionals in containing women's concerns and anxieties related to pregnancy.

**Discussion.** Having been diagnosed with the pathology prior to pregnancy made it possible to deal with the transition to the pathology separately from the transition to motherhood, thus facilitating a better psychological adjustment. The role of healthcare professionals seems relevant in containing maternal anxiety.

## The role of environmental sensitivity and support perceived from the partner to the transition to parenting

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**Introduction.** Pregnancy and the postpartum period are critical phases for a woman's mental health due to numerous physical and emotional changes. It's common for women to experience postpartum depression and stress in the parent-child relationship during this time. This vulnerability is particularly notable in individuals with high environmental sensitivity, who are more attuned to their surroundings and may experience slightly higher negative emotions compared to those less sensitive. However, highly sensitive individuals also benefit more from supportive environments. Thus, we might theorize that sensitivity could correlate with increased depression and stress levels. Yet, this connection between sensitivity and negative emotions might weaken when highly sensitive mothers receive greater support from their family environment.

**Methods.** Eighty-eight mothers participated in the study three months after childbirth. They completed questionnaires assessing postpartum depression (EPDS), caregiving stress (PSI), partner support, and sensitivity levels (HSP).

**Results.** Environmental sensitivity was linked to higher postpartum depression levels ( $\beta=.401$ ,  $p<.001$ ) but not parenting stress ( $\beta=.158$ ,  $p=.148$ ). It interacted with perceived partner support in predicting stress ( $B=-.002$  (.001)), indicating that when highly sensitive individuals felt very low support, their stress levels were higher. While no significant interaction was found for depression, a graphical examination suggested a trend: the higher the parental sensitivity, the more protective the partner's role against depression, though this effect did not reach statistical significance. Notably, when parents had low environmental sensitivity, the impact of partner support on the mother's adjustment to stress and depression was minimal.

**Discussion.** Highly sensitive individuals are more susceptible to postpartum depression, but not necessarily stress, unless they perceive very low support from their partner. A trend indicating the protective role of partner support against postpartum depression was observed for sensitive individuals, while low-sensitive individuals seemed less affected by partner support. This implies that some parents, especially those with high sensitivity, may benefit more from active partner involvement, with potential implications for parenting programs.

## Maternal satisfaction between pregnancy and postpartum: a two-wave study

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**Introduction.** Parental role beliefs are related to the experience of becoming a parent and are formed during pregnancy. Maternal attitudes related to well-being include domain-specific beliefs about parenting: beliefs about others' judgments, maternal responsibility and over-idealisation of the maternal role. If these beliefs are rigid, they can be a risk factor in the transition to parenthood. One protective factor is the satisfaction of mothers' basic psychological needs (autonomy, relatedness, competence). The concept of psychological needs is central to Self-Determination Theory, and research shows that need satisfaction is positively related to well-being and negatively related to ill-being. How these variables are experienced may influence the quality of parenting in the postnatal period and have an impact on parental role satisfaction. For these reasons, the present study aims to examine the link between (a) prenatal specific beliefs about parenting (others' judgment, maternal responsibility, maternal role idealization) and need satisfaction and (b) postnatal specific beliefs about parenting, need satisfaction, and parental satisfaction.

**Methods.** A total of 89 expecting mothers, with ages ranging age from 20 to 45 years old ( $M = 33.73$ ,  $SD = 4.34$ ), participated in this two-wave study (during last trimester of gestation and 12 weeks postnatal). They filled out: *Need Satisfaction Scale*, *Attitudes Toward Motherhood Scale* and *Kansas Parental Satisfaction*.

**Results.** Results of the cross-lagged-panel model showed significant paths for the stability of each variable across time. Additionally, a significant cross-lagged effect was also shown from: beliefs related to others' judgment at T1 to need satisfaction ( $\beta = -.18$ ) and parental satisfaction ( $\beta = -.33$ ) at T2; beliefs related to maternal responsibility at T1 to parental satisfaction ( $\beta = .25$ ) at T2; need satisfaction at T1 to parental satisfaction ( $\beta = .33$ ) at T2.

**Discussion.** Beliefs related to others' judgment can reduce parental role satisfaction and frustrate mothers' basic needs. However, feeling autonomous, competent and connected to others can contribute to personal satisfaction with oneself as a parent. In conclusion, the results of this study suggest the importance of paying attention to the formation of dysfunctional beliefs in mothers since pregnancy.

## **SYMPOSIUM 168 - Rethinking psychological development and learning processes from a socio-material perspective**

*Proponents:* Antonio Iannaccone<sup>1</sup>, Monica Mollo<sup>2</sup> (<sup>1</sup>Universitas « Mercatorum » (Roma) & Université de Neuchâtel – Switzerland, <sup>2</sup> Department of Humanities, Philosophy and Education, University of Salerno, Italy)

*Discussant:* Giuseppe Ritella (University of Campania “L. Vanvitelli”)

In recent years, an interesting field of research and theoretical speculation has emerged in developmental and educational psychology. This is the sociomaterial perspective (Iannaccone, Cattaruzza, Schwab, in press 2024), which aims to offer a new way of conceptualizing certain fundamental psychological phenomena by rethinking the role that contexts, activities, and artefacts play in psychological development and learning processes. The integration of the notions of context and artefact in explanations of psychological development is not new. This has been demonstrated by cultural-historical perspectives (in particular activity theory), contextualist perspectives, the notion of affordance proposed by Gibson, and the more recent recognition of the fundamental forms of embodiment of cognition, to name but a few. However, in the light of recent research, it is possible to rethink the human-non-human relationship and to highlight the place occupied in psychological development by what are now called the socio-material dimensions. Starting from the assumption that psychological development, like learning, are processes and activities that necessarily take place in an environment constituted by material elements, both natural and artefactual, it is possible to postulate a kind of co-evolution of the human species with those 'external' elements that have proved significant for the development of the species itself. This would force us to conceptualize the interaction between humans and non-humans in a symmetrical way (Latour, 1984), avoiding many of the limitations that arise from a Cartesian and inappropriately human-centered dualistic view. The aim of this symposium is twofold: a) to analyze a body of empirical work in psychology and education that argues for the relevance and importance of adopting a socio-material perspective in psychology; b) to put this new knowledge at the service of a 'political ecology of things' (Bennet, 2010) that can also raise common sense awareness of the fragility of the socio-material ecosystem of which we are a part.

## Financial education in family: the parents' point of view

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**Introduction.** Through the lens of Activity Theory, as outlined by Sannino et al. (2009) and Engström (1999, 2001), money, as cultural artefacts, becomes embedded in family dynamics and influences educational practices. Consequently, the parental practices' analysis related to money and individual agency can be considered drivers of educational action, emphasizing the connection between knowledge, skills, and economic socialization practices, defined at the cultural level, but situated within the family context. Children's financial education manifests not only through economic and financial knowledge explicit transmission but also through modeling and direct experience within the family nucleus. These are linked to the representation of money and its role in family dynamics. This study investigates the relationship between parental financial literacy competence, self-perceptions of financial literacy, and their impact on attitudes toward the efficacy of children's financial education.

**Methods.** Data was collected from a diverse sample of parents with children aged 6 to 14 years (N=500; Female=250) via an online survey. The questionnaire assessed the importance of financial education for parents (Education), Self-perceptions of financial literacy, and Financial literacy level.

**Results.** Preliminary results show that approximately 35% of parents consider dealing with economic issues very important, but only 20% of them feel capable of doing so. A portion of parents feel unable (20%), while others believe they cannot communicate effectively (26%). Path analysis, revealing a good model fit [ $\chi^2(21)=329, p<.001, CFI=.96, RMSEA=.06, SRMR=.04$ ], shows that Education influences parental agency, while perceived and actual competence do not activate parental educational intentions.

**Discussion.** Although economic competence is often considered the foundation for good educational practices, the results highlight how money representation and associated values play a greater role in activating economic socialization practices by parents. This implies that parental financial education shouldn't solely focus on acquiring knowledge and skills but should start with their awareness of money as fundamental cultural artefact to engage with in daily educational practices.

## Sensing Robots with smell: the effect of odors on relational engagement and trust

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**Introduction.** The study of human-robot interaction (HRI) is currently moving beyond visual and auditory cues, encompassing multisensory signals. This broader perspective acknowledges the significance of various sensory modalities, including olfaction, in shaping interactions between humans and robots. At its core lies the concept of sociomateriality, emphasizing the intertwining of social and material elements in interactions. Within this framework, our study delves into the influence of social odors (putative pheromones) on HRI. We investigate how these odors impact Relational Engagement (RE) and trust (dispositional and situational) during interactions with the humanoid social robot (HSR) NAO.

**Methods.** Thirty participants engaged in storytelling sessions with NAO under different sensory conditions. The robot was equipped with a necklace containing either putative pheromones or a control substance, and with a male or female voice, counteracting odor-related gender differences. Relational engagement was assessed through participants' perceptions of co-presence (CoPre) and social presence (SoPre), while trust was evaluated using both dispositional and situational measures. To explore differences in RE and trust in the NAO robot, we conducted repeated-measures GLM analyses. Correlations assessed trust, leading also to regression analyses exploring the influence of RE on situational trust.

**Results.** Our findings indicate odors significantly affecting trust, especially when resembling female pheromones ( $p < 0.05$ ). Conversely, odors had a nuanced influence on RE, despite participants reporting greater CoPre than SoPre ( $p < .01$ ). Additionally, a bidirectional relationship between SoPre and trust emerged, reinforced by sensory congruence ( $p < 0.01$ ).

**Discussion.** Highlighting the significance of sensory alignment in socio-relational and trust dynamics, the results emphasize the potential of olfactory stimuli in enhancing HRIs. The exchange of these cues can be seen as a form of material-discursive practice, wherein the olfactory signals of the robot contribute to co-constitute the social context of interaction. Our results underscore the need to conceptualize HRI as a situated phenomenon, where the material properties of robots interact with social norms, expectations, and experiences.

## **A semiotic approach to the understanding of mathematical concepts: Napier bones**

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**Introduction.** The proposed study is situated within the cultural-historical approach of Vygotsky and the semiotic approach of Bartolini Bussi and Mariotti (2008). Vygotsky (1934) theorizes the social nature of the mind by stating that the child, through communication and social interactions, appropriates public meanings related to the use of artefacts (material and symbolic), "objects" intentionally designed and constructed to achieve a purpose within a particular historical-cultural context. The appropriation of such tools is the product of an activity in which the child manipulates the objects. The child acts with the objects and at the same time adapts to them. The Theory of Semiotic Mediation (TMS) provides a way of interpreting artefacts used in mathematics classrooms by studying the links between artefacts, tasks, signs, and mathematical knowledge to be mediated (Bartolini Bussi and Mariotti, 2008). Our study concerns material artefacts for multiplication: Napier bones. It is part of a broader research aimed at investigating if and how the use of different types of artefacts in mathematical activities, designed according to TMS, can support the understanding (Sierpinkska, 1994)—both procedural and conceptual (e.g. Hiebert and Lefevre, 1986)—of the underlying algorithms and can make students think about certain properties of the multiplication operation.

**Methods.** Qualitative exploratory and descriptive pre-experimental research with a single group of 25 participants in the fourth year of primary school. The focus of the group and individual activities was the artefacts: exploration, structure and use; and comprehension. The production of explanations (verbal and/or with graphic representations) was analyzed in terms of correctness, completeness, and clarity (Cusi, Morselli, Sabena, 2017).

**Results.** The analysis of the data shows that 62.25 % of the students gave correct explanations with graphical representations, while only 37.5 % used verbal explanations. Discussion. With the predominant use of representations, there is an improvement in the quality of explanations. The data seem to suggest that using the artefacts helped them to multiply correctly, make connections with prior knowledge, and understand some general and specific working properties.

## The role of sociomaterial experiences in a university course: exploring the frontier between scientific reflection and pedagogical innovation

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**Introduction.** Paolo Inghilleri (2021), in a contribution dedicated to 'places that heal', emphasizes how all the objects and artefacts that surround us and that we use in our daily lives contain information (memory of information) and at the same time impart prescriptions that orient the mind and body. This can create spaces that positively integrate with well-being and spaces that undermine it. This position explicitly recalls the Extended Mind paradigm initiated by the classic contribution of Clark and Chalmers (1998) and the Shared Mind paradigm developed around another well-known contribution (Zlatev, Racine, Sinha, Itkonen, 2012). These two perspectives, which also form the basis of what is now an interdisciplinary notion referred to as sociomateriality, challenge from different angles the intrasubjective positioning of a part of cognitivism by arguing for a "socially shared and intersubjective foundation of the human mind" (Inghilleri, 2021, p. 111). Such a position also calls for a new view of the systems of relationships, both interpersonal and with the environments/objects that populate the eco-psychological niches of which we are a part.

**Methods.** Observations and materials (objects, texts, schemas, etc.) collected during the pedagogical activities carried out in various devices created in recent years to teach 'materialité en éducation' [materiality in education] at the University of Neuchâtel.

**Results.** The results of this research show how sociomateriality, beyond its theoretical peculiarities, can become a tool for transforming ways of teaching and learning.

**Discussion.** The more general sense of the sociomaterial approach is the need for an important integration of the units of analysis of developmental psychology. To the systemic and contextualist approaches that have allowed us to shed new light on the complexity of psychological processes, sociomateriality adds a new perspective and an important ethical finality that can also have repercussions on the critical relationship established between human behavior and the ecology of the Earth system. A greater symmetry between human and non-human, as Bruno Latour liked to remind us, can only make man more aware of the fragility of the ecosystem of which he is part and therefore more reasonable.

**SYMPOSIUM 38 - Unravelling the digital matrix in educational contexts: The impact of individual and contextual factors on how adolescents interact with digital media**

*Proponent:* Oriana Incognito, Italian University Line (IUL)

*Discussant:* Stefano Cacciamani, University of Valle D'Aosta

Today, the amount of information resources and the number of information channels have multiplied, a phenomenon with great impact on educational contexts. Digital media are an important part of the everyday life of adolescents, who frequently interact with electronic device screens. They use computers, tablets, or phones to perform tasks required by school, such as searching for information from multiple sources on a given topic, reading texts, and other materials to understand concepts. By proposing a set of studies involving adolescents in lower and upper secondary school, this symposium aims to show and discuss the results that have emerged on the effects of digital media on learning and evaluating knowledge. Each study examined the contribution of specific individual cognitive and motivational differences, along with contextual variables. The first contribution investigates the relationship between individual variables (e.g., self-esteem, well-being, social support, academic performance) and problematic use of the Internet in high school students. The second contribution analyzed secondary school students' digital skills and sensitivity to fake news, taking into account gender and school-level differences. The third contribution investigates the interaction between medium (paper versus digital) and a basic studying strategy (i.e., highlighting), on secondary school students' cognitive load, epistemic emotions, and reading comprehension performances. Finally, the fourth contribution investigates the effectiveness of an intervention designed for secondary school students to improve sourcing skills and intertextual integration, in an integrated approach. The contributions have both theoretical relevance in identifying key individual factors involved in learning in digital environments and practical implications for secondary school education.

## **The role of technologies in the educational context: how their use affects scholastic and extra scholastic goals**

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**Introduction.** The main objective of the study is to analyze the relationship between some individual characteristics of high school students, such as self-esteem, general and scholastic well-being, skills, perceived personal qualities, offline and online social support, extra-scholastic and scholastic results and problematic use of the Internet.

**Methods.** The phases of the study were the following: 1) administration of the intra- and extra-school "successes and failures" questionnaire; 2) administration of the questionnaire on the use of technologies and the Internet; 3) class focus group on future expectations (reflection regarding the answers given to the "successes and failures" questionnaire); 4) focus group on the relevance of digital technologies in students' lives (on the answers given to the questionnaire on the use of technologies and the Internet). Furthermore, two interventions (webinars) were held, aimed at raising awareness among participants on the issues of Digital Reputation and Digital Work-Life Balance. The sample involved 12 classes of a high school in Bologna, for a total of 129 (106 females, 22 males) who responded to both proposed questionnaires.

**Results.** Students with high self-esteem have a more positive perception of scholastic results achieved and think that the merit of these results can be attributed to internal reasons; the same goes for life satisfaction. The preference for online relationships and the use of the Internet to regulate one's mood correlate negatively with an explanation in terms of internal reasons for extra-scholastic results achieved. The main aspects that emerged from the focus groups concern the importance of digital technologies in daily life and, above all, their functional use, also with a view to future successes and failures.

**Discussion.** The study highlights the importance that digital technologies used by students have in influencing their behavior, interests, and well-being. In conclusion, the study provides food for thought that can be useful in educational environments to propose the construction of activities (scholastic and extra scholastic) that can prevent any risks and strengthen the skills of students, their families, and of teachers and educators.

## **Fake news and digital literacy: a preliminary study with young people for targeted interventions and educational pathways**

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**Introduction.** According to recent international studies (Xu et al., 2022), more than 95% of children and adolescents have access to the internet via computers, smartphones, or other digital devices. Although they are digital natives or digital learners, young people are among the population groups most at risk from misinformation on the internet (Polizzi & Taylor, 2019). One of the causes of such misinformation relates to limited digital literacy, i.e. the ability of individuals to access, analyze, evaluate, and create digital content (Diepeveen & Pinet, 2022). As young people and children are active users of the internet, including using social media, fake news - news that is deliberately and demonstrably false and can mislead readers (Alcott & Gentzkow, 2017) - is a serious problem that is of increasing concern (National Literacy Trust, 2018; Vartiainen et al., 2023). Based on these premises, the study had two objectives: to describe the nature and timing of social media use by middle and high school students using digital devices and to describe digital skills, knowledge of fake news, and ability to recognize fake news, taking into account differences between genders and school levels.

**Methods.** For this purpose, scales from the international report EU Kids online 2020 were used. A descriptive analysis and a one-way ANOVA with Welch correction were used to test for differences by school level, and a t-test for differences between genders. 614 students participated, 42% of whom were female, with an average age of 14 years (min=12, max=18), divided by school level: 72% middle school and 28% high school.

**Results.** The results show differences in the use of digital devices and social media (which types, extent, and modality of use) for age, but no differences between genders or school levels in terms of digital skills, knowledge, and the ability to recognize fake news.

**Discussion.** This data leads us to reflect on the importance of implementing in-school and out-of-school prevention measures such as courses, training and interventions as early as primary and secondary school in order to improve students' digital literacy and avoid unpleasant or risky online experiences.

## The interplay of reading medium, highlighting, and task value in preadolescents' text comprehension

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**Introduction.** Meta-analyses indicate that text comprehension benefits from reading on paper, especially the expository genre (Clinton, 2019; Delgado et al., 2018) as digital reading may promote more superficial processing (Annisette & Lafreniere, 2017). Although the benefits of learning strategies are well-known (Dunlosky et al., 2013), research on their effects in digital contexts is still limited. The aim of the study was to investigate the effects of medium (within-factor) and a basic strategy, such as highlighting (between-factor), on students' perception of cognitive load, epistemic emotions (positive and negative), and comprehension of science expository texts. The possible moderating effect of task value that is, the importance assigned to a particular activity, in this case, the comprehension of science text, was also considered.

**Methods.** 191 seventh graders ( $F=105$ ,  $Mage=12.42$ ) from three lower secondary schools participated in the study. Each student read two expository texts, one on paper and the other on screen. During reading, half of them highlighted the texts, while the other half simply read. Immediately after reading, students reported their perception of cognitive load and epistemic emotions. Text comprehension was assessed through multiple-choice questions, both literal and inferential. Analyses were conducted using mixed-effects linear models in R environment.

**Results.** Overall, no significant differences related to the reading medium emerged for any of the dependent variables. A significant interaction between medium and highlighting was found for negative emotions ( $B=-0.47$ ,  $95\%CI[-0.94- -0.01]$ ,  $p=.045$ ), that is, students who highlighted, compared to their peers who only read, reported fewer negative emotions on screen than paper. Regardless of the medium, highlighting supported comprehension ( $B=0.81$ ,  $95\%CI[0.67-5.18]$ ,  $p=.011$ ). Additionally, a higher perception of task value was associated with a lower perception of cognitive load and negative emotions, a higher perception of positive emotions, and better comprehension ( $p<.05$ ), both on paper and screen.

**Discussion.** The study adds to our understanding of how reading medium, learning strategies, and motivational factors interact when preadolescents engage with informational texts for learning purposes, with relevant educational implications.

## Improving sourcing and intertextual integration skills in reading digital texts through an integrated approach

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**Introduction.** Today, learners rely on the internet extensively for school tasks, accessing diverse information sources. While beneficial for knowledge acquisition, online tasks demand complex cognitive processes. Key among these are sourcing (i.e., Braten et al., 2019) and intertextual integration (i.e., Barzilai et al., 2021). The main aim was to assess the effectiveness of VITO (*Valuta and Integra Testi Online*), an intervention designed for secondary school students to improve these two critical skills, in an integrated approach.

**Methods.** Participants were 83 7-8th graders, split into experimental (VITO intervention) and control groups. Initially, we assessed source knowledge and reading skills as control variables. VITO included three sessions addressing sourcing and intertextual integration when learners select, read and write in digital environments. Students then read four texts and composed an argumentative essay, coded by intertextual integration, argumentative quality, references to sources and reflection on sources. Student's t-tests were used to compare experimental and control groups at the pre-test to confirm equivalence on control variables and at the post-test to assess differences in outcome variables. A chi-squared test was conducted to examine the association between condition and reflections on sources.

**Results.** Overall, students who completed the VITO intervention wrote essays with a higher level of intertextual integration ( $t = 2.44, p = .02$  Cohen's  $d = .58$ ), a higher argumentative quality ( $t = 3.23, p = .002$ , Cohen's  $d = .76$ ), more references to sources ( $t = 2.51, p = .01$ , Cohen's  $d = .62$ ) and more reflections on the reliability of sources ( $\chi^2(1) = 5.68, p = .017, \Phi = .28, p = .017$ ) than control group students did.

**Discussion.** The present study contributes to draw attention to address both sourcing and intertextual integration when intervening on students' ability to read digital texts. Most of the available interventions focus on one set of skills only, but multiple-text comprehension requires readers to reflect on source features while at the same time elaborating text content and integrating content across multiple sources. Moreover, this study emphasizes how critical reading skills can be improved through targeted interventions in a reasonably short time, if evidence-based strategies, such as explicit instruction, feedback, individual practice.

## **SYMPOSIUM 74 - Social cognition and prosocial behavior in children and adolescents**

*Proponents:* Elisabetta Lombardi (Università eCampus), Annalisa Valle (Università Cattolica del Sacro Cuore, Milano)

*Discussant:* Daniela Bulgarelli (Dipartimento di Psicologia, Università degli Studi di Torino)

Understanding social cognition and prosocial skills in children is crucial for fostering positive social interactions and nurturing healthy relationships. Prosocial children exhibit behaviors such as sharing, helping, and comforting others, indicating a close relationship between prosocial behavior and the development of social-cognitive and emotion-regulation abilities. Social cognition plays a pivotal role in prosocial behavior by shaping individuals' empathy, interpretation of others' intentions, and decision-making in social situations. This symposium aims to delve into the intricate interplay among social cognition, and prosocial behavior in child development. Through empirical research findings, theoretical perspectives, and practical implications, the symposium seeks to deepen our understanding of how children perceive, interpret, and respond to social cues, as well as the factors that promote altruistic behaviors and positive social outcomes. The symposium will feature four contributions focusing on different age groups: preschool children, school-age children, and early adolescents. The presentations will address various dimensions of social cognition and prosocial skills tailored to each developmental stage. Through empirical research findings, theoretical perspectives, and practical implications, the symposium seeks to deepen our understanding of how children perceive, interpret, and respond to social cues, as well as the factors that promote altruistic behaviors and positive social outcomes. The first two contributions focus on preschool children and address different dimensions of social cognition and prosocial skills. The third and fourth presentation shifts to the school-age children and the last contribution involves early adolescence. More specifically, the first presentation delves into the mirror neuron mechanism and its role in intention understanding among preschool-aged children, drawing during early childhood its implications for social cognition development. The second contribution explores how children's emotion-regulation abilities influence social interactions, empathy, and moral reasoning, through questionnaires addressed to parents. The third research underlines the significance of sadness as a trigger for prosocial behavior. The fourth study highlights how individual differences in social cognition dimensions and personality factors shape prosocial decisions in school-age children. Finally, the fifth presentation, involving middle school children, explores the importance of promoting media literacy and ethical decision-making. These presentations offer both theoretical insights into the role of prosocial skills and social-cognition abilities and practical implications for fostering positive social development in children.

## Actions Chains And Intention Understanding In 3-6-Year-Old Children

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**Introduction.** The mirror neuron mechanism (MNM) underlying intention understanding relies on the activation of parietal neurons discharging in response to motor acts embedded in goal-directed actions (e.g., grasping food to eat). These neurons are activated when the action is performed by the subject and when it is observed, thus enabling the observers to recognize the action and to predict its intended outcome (Fogassi et al., 2005). From a psychological perspective, this mechanism could stand on a continuum with the development of cognitive skills, including those associated with the Theory of Mind (ToM), which unfolds explicitly in children between the ages of 3 and 4. The MNM is well-functional in school-aged children (Cattaneo et al., 2007). The present study thus aimed to examine the MNM functioning at preschool-age.

**Methods.** We recruited 18 neurotypically developing children aged 3 to 6 (mean age=4.31 years;  $SD=.76$ ; age range=3.08-6.01 years). In particular, through electromyography (EMG) we investigated the motor activation of the mouth-opening mylohyoid (MH) muscle during two actions, i.e., grasping to eat and grasping to place, in two conditions: observation and execution. We expected to find greater anticipatory muscle activation during the eating action involving the MH muscle used to swallow, compared to the placing action, during both execution and, crucially, observation conditions.

**Results.** General linear models were carried out comparing MH muscle activation between eating and placing during observation and execution. The results partially supported our expectations showing that preschoolers significantly exhibit a fully functional chained organization of motor acts only in execution. However, compared to older children, they show a slightly delayed ability to use this mechanism to infer others' intentions by observation, in line with developmental theories indicating the unfolding of other's mind understanding around this age.

**Discussion.** These data support the different stages of child development, in line with research showing early attunement to goal-directed motor acts enabling infants to anticipate the 'what' of a motor act. Conversely, children's understanding of others' motor intentions, the 'why', would develop more gradually, in line with the development of more sophisticated cognitive processes emerging around the age of 3-4 years.

**Keywords:** Intention understanding, mirror neurons, development, preschoolers

## The relationship between emotion regulation strategies and social behaviors in 3-5-year-old children

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**Introduction.** Emotion regulation strategies support children' adaptive social interactions (Calkins & Dedmon, 2000). The 7-point Likert scale open-source caregiver-report Early Emotion Regulation Behavior Questionnaire (Perry & Dollar, 2021) assesses the sophisticated *vs.* rudimentary emotion regulation strategies (selected according to conceptual definition of emotional regulation) in early childhood across everyday scenarios (selected according to observational procedure in laboratory). Evidence highlighted that difficulties in emotion regulation are linked to social maladjustment, in terms of internalizing/externalizing symptoms (Kim-Spoon et al., 2013). Following Achenbach (1966), internalizing/externalizing traits are reported on a continuum in the general population extending from zero/few traits, which refer to the typically variability of social behaviors, to the upper extreme, which represents the presence of these symptoms. The current study hypothesized that the sophisticated *vs.* rudimentary strategies would predict children's behaviors in terms of emotional reactivity, social withdrawal, aggressive behaviors, and defiant problems in 3-5-year-old Italian children. Gender differences were explored.

**Methods.** 563 mothers of [n=280 boys;  $M_{mo}(SD) = 3.94(.81)$ ] filled out an e-survey (Ethical Committee n.92949/2023). The study used the Italian version of the Early Emotion Regulation Behavior Questionnaire (Russo et al., 2023) and the Child Behavior Checklist 1 ½ -5 (Achenbach & Rescola, 2000).

**Results.** Support was provided for our hypothesis revealing a good model fit [ $\chi^2(86)=424, p<.001, CFI=.91, RMSEA=.11$ ]. Sophisticated strategies predicted low levels of emotional reactivity, social withdrawal, and aggressive and defiant behaviors. On the other hand, rudimentary ones were related to high levels of all considered behaviors. On gender, results [ $t(561)=-3.074; p=.002$ ] revealed that girls [ $M(SD)=4.86(.81)$ ] showed more sophisticated strategies than boys [ $M(SD)=4.65(.88)$ ] who, conversely, showed high levels of social withdrawal [ $M(SD)=1.85(2.17)$ ], aggressive [ $M(SD)=9.27(6.04)$ ] and defiant [ $M(SD)=3.04(2.23)$ ] behaviors than girls [social withdrawal  $M(SD)=1.51(12.79)$ ], aggressive [ $M(SD)=7.57(5.61)$ ], and defiant behaviors [ $M(SD)=2.45(2.10)$ ].

**Discussion.** Our preliminary results supported that sophisticated and mature regulatory behaviors may be protective for social development, helping children to be socially adjusted (e.g., no aggressive or defiant behaviors). Furthermore, the predictive role of regulation strategies for social behaviors is imperative for the identification/intervention of emotional and behavioral problems in early childhood.

**Keywords:** emotion regulation strategies; children; social behaviors; social adjustment.

## Exploring prosocial responses to peer sadness in school-aged children: empathy, prosocial motivation, and contextual factors

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**Introduction.** Previous studies have examined prosocial behaviour in school-aged children, focusing on individual strategies such as comforting, helping, and sharing. This research investigates children's responses to their peers' experiences of sadness, exploring their narratives on various prosocial strategies used in real-life situations, while also considering children's levels of empathy and prosocial motivation.

**Methods.** A total of 445 children (aged 7-10;  $M = 8.89$ ;  $SD = 1.07$ ; 53.9% female) were asked to recount an episode in which a peer experienced sadness, describing the intensity of the sadness reaction and the prosocial strategies employed to address it. Prosocial strategies were coded into four categories (comforting, helping, sharing, and inaction), and sad events were classified into five categories (relational problems, accidents/illness, frustrations, loss/difficult events, and non-identified events). MANCOVA and Multinomial Regression were conducted to compare different types of prosocial strategies adopted as responses to peer sadness cases.

**Results.** The results revealed that children who reported relational problems were more likely to engage in comforting,  $OR = 3.08$ , helping,  $OR = 4.95$ , and sharing,  $OR = 4.08$ , rather than remaining inactive. It also emerged that children reporting accidents/illness had a higher likelihood of helping rather than doing nothing,  $OR = 3.13$ . Furthermore, higher levels of prosocial motivation increased the likelihood of comforting,  $OR = 1.18$ , helping,  $OR = 1.28$ , or sharing,  $OR = 1.27$ , rather than inaction. Additionally, higher levels of empathy were associated with the use of comforting rather than inaction,  $OR = 1.11$ . Finally, older children were more likely to adopt comforting,  $OR = 1.57$ , or helping,  $OR = 1.44$ , compared to their younger peers. Similarly, girls showed higher odds of comforting,  $OR = 3.45$ , helping,  $OR = 3.08$ , or sharing,  $OR = 4.27$ , rather than doing nothing.

**Discussion.** These results underscore the significance of sadness as a trigger for prosocial behaviours and highlight the importance of recognizing context-specific prosocial strategies in nurturing of socio-emotional competence in children.

**Keywords:** sadness; children; peers; prosocial strategies; empathy

## The role of social cognition and personality traits on prosocial decision-making: a study with school-age children

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**Introduction.** Social cognition refers to the ability to attend to and perceive relevant cues to appropriately process and respond to social information (Hunt et al., 2012); this process enables humans to interpret social information and behave appropriately in a social environment (Shany-Ur, Rankong, 2014). Social cognition involves a wide range of constructs developing in childhood, such as Theory of Mind (ToM) and empathy, and is influenced by multiple factors, including personality traits, that create individual differences in social information processing. The main outcome of social cognition is decision-making, allowing people to act in pro-social behaviors. Pro-social decision-making is mainly studied through economic games, i.e., the Ultimatum Game and the Dictator Game, assessing respectively fair and altruistic decisions; literature shows links between cognitive social-cognition components and pro-social decisions in children (Lombardi et al., 2017), but there are still few findings concerning the emotional components. This research aims to identify the relations among social cognition, personality traits, and pro-social decision-making in school-aged children.

**Methods.** 94 children 6-10 years old ( $M=102$  months,  $SD=19$  months). They are tested in one collective and two individual sessions through a paper-pencil tasks battery, assessing ToM, empathy, personality traits, prosocial decisions (altruism, fairness, delay of gratification), cognitive abilities, and socio-economic background.

**Results.** Both empathy ( $\beta=.29$ ;  $p=.005$ ) and ToM ( $\beta=.30$ ;  $p=.009$ ) by also entering age, gender, SES and cognitive abilities ( $F_{5,88}=2.94$ ,  $p<.05$ ,  $R^2=.17$ ,  $R^2_{adj}=.11$ ) predict the fairness; moreover, empathy ( $\beta=.33$ ;  $p=.002$ ), predict altruistic decisions. Finally, Openness to the experience ( $\beta = .31$ ;  $p = .038$ ) and ToM ( $\beta=.33$ ;  $p=.003$ ) by also entering age, gender, SES, and cognitive abilities ( $F_{5,88}=5.1$ ,  $p<.001$ ,  $R^2=.26$ ,  $R^2_{adj}=.21$ ) predict the Delay of Gratification.

**Discussion.** Results confirm ToM role in pro-social decisions and highlight the role of empathy both in fair and altruistic behaviors. For children, it is important to empathize with others to be fair and altruistic, regardless of the ability to understand the other cognitively. Moreover, children open to new experiences seem to be more motivated to wait for a new future outcome, rather than accept the current one.

**Keywords:** social cognition, theory of mind, empathy, pro-social decision-making, personality traits, school-aged children

## Exploring secondary school students' sourcing skills: the influence of self-efficacy and thinking dispositions

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**Introduction.** Sourcing skills are critical to the development of young students' digital literacy skills. Sourcing skills include identifying source parameters (e.g., recognizing the author, publication date, and publisher) and analyzing the author's expertise. The objective of this study is to investigate the factorial structure of students' sourcing skills and how they are associated with self-efficacy and thinking dispositions.

**Methods.** A total of 92 students attending lower secondary school participated in the research. Students completed a sourcing inventory (Source Knowledge Inventory – Revised; Incognito & Tarchi, 2023) and a questionnaire including items on self-efficacy with online learning and thinking dispositions (i.e., the tendency to engage in cognitively demanding activities and rationally evaluate arguments regardless of one's own prior beliefs; Cacioppo & Petty; 1982; Stanovich & West; 1997).

**Results.** The results of the factor analysis showed three dimensions for sourcing, namely source identification, author's competence evaluation, and judgment on website choice [KMO = 0.65; Bartlett's test  $p < .001$ ,  $\chi^2(253) = 541$ ]. Furthermore, according to the regression analysis [ $R^2 = .14$ ,  $F(3, 67) = 3.68$ ,  $p = .02$ ], the thinking disposition factor was significantly associated with author's competence evaluation [ $\beta = .42$ ,  $p = .002$ ], whereas the self-efficacy factor was significantly associated with author's competence evaluation [ $\beta = -.31$ ,  $p = .03$ ] and judgment on website choice [ $\beta = .29$ ,  $p = .03$ ].

**Discussion.** The results suggest a multi-componential nature for sourcing skills and identify how students' approach to the online reading activity in terms of self-efficacy and thinking dispositions can support their sourcing competence. Interestingly, the association between self-efficacy and source-knowledge inventory is not linear, calling into question the need for further research.

**Keywords:** multiple-text comprehension, sourcing, digital reading, thinking dispositions, self-efficacy.

## **SYMPOSIUM 41 - From Theory to Practice: The Application of Robotics and AI in Human Developmental Challenges**

*Proponents:* Cinzia Di Dio<sup>1</sup>, Federico Manzi<sup>1</sup> (Università Cattolica del Sacro Cuore, Milano)

*Discussant:* Antonio Iannaccone (Universitas « Mercatorum », Roma & Université de Neuchâtel - Svizzera)

This symposium delves into the dynamic intersection of robotics and artificial intelligence (AI) with human developmental processes and social interactions, framing these advancements within the broader theoretical contexts of neurodevelopmental disorders, educational theory, trust dynamics, and behavioral science. The first contribution rests on the theoretical framework of early intervention in neurodevelopmental disorders to develop a digital version of the M-CHAT-R/F diagnostic tool enhanced by interactions with the NAO robot. This innovative approach aims to improve diagnostic accuracy and user experience in early Autism Spectrum Disorder (ASD) screenings, fostering timely interventions that are critical for effective management and support. In the educational realm, the second study leverages constructivist learning theories where children actively build their own understanding and knowledge of the world, through hands-on experiences. The BrainFarm platform and Teach E-AI 2C robotic farm pilot study demonstrates how AI and robotics can be integral tools in facilitating this active learning process, particularly in the complex fields of AI and developmental robotics. Our third contribution examines the nuanced role of trust and deception in human-robot interactions (HRI), applying psychological theories of trust and compliance to explore how robots can effectively engage with humans without compromising ethical standards or trustworthiness. In particular, the Evaluating tRust weaRing Off in Robots (ER-ROR) project provides a classification of deceptive strategies and coping mechanisms, highlighting the delicate balance required to maintain trust in long-term HRI settings. The fourth study integrates theories of peer influence and behavioral economics to investigate how virtual interactions with AI, in the form of robot and human avatars, influence adolescent risk-taking behaviors. The findings suggest that AI can significantly modulate behavior, raising important questions about the ethical use of AI in shaping human decisions in sensitive developmental stages. Together, these contributions not only apply complex theoretical frameworks but also suggest profound practical and ethical implications for the integration of AI and robotics in human life. They call for rigorous standards and thoughtful consideration of how these technologies are designed and implemented to enhance, rather than undermine, human capabilities and societal norms.

## Social robotics and autism spectrum disorder screening: a challenge for early intervention?

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**Introduction.** The DSM-5-TR, which outlines different psychological disorders and provides diagnosis tools, defines Autism Spectrum Disorder (ASD) as a pervasive neurodevelopmental disorder in which deficits in social interaction and communication can make ordinary life challenging from childhood through adulthood. There are many different tools used for screening ASD each having their own methods, with most being classed into two main levels. Level 1 screening methods are used for differentiating between toddlers at risk of ASD and children who are typically developing within the general population. Level 2 tools however tend to be used in young childhood developmental programs to tell a risk of ASD from a risk of other potential developmental disorders. The aim of this project is to develop a digital version of the M-CHAT-R/F diagnostic tool used in combination with the autonomous robot NAO.

**Methods.** The NAO robot will perform a set of 20 different behaviors. These aim to increase the level of interaction that the child being diagnosed will show for each question asked. With the use of both a proven 2-stage diagnosis form and the added level of interaction due to the NAO robot, the overall aim is to help improve rates of valid ASD early diagnosis in young toddlers to ultimately allow them to get the clinical and specialist support as early as possible.

**Results.** The SUS questionnaire used in the usability tests allowed anonymous data to be gathered from users. It consists of an easily administered scale that can differentiate between a usable and unusable system even on small sample sizes. A score of 89.5% for 10 users shows an overwhelming success for user satisfaction, with the average at 68% and over 80.3% classed as an A grade system. Moreover, most comments left at the end of the questionnaire support this score, stating that the application is intuitive, well-designed, and easy to use.

**Discussion.** Further project aims come from the desktop application itself, with a key focus on creating a professional, user-friendly application allowing different users to create their own accounts to store diagnosis results for later review by a more experienced party. The GUI (graphical user interface) aims to be intuitive and well-designed so that anyone with a low level of computer knowledge will be able to use it. Finally, this project aims to be accessible for clinicians and families to facilitate support during the assessment process.

## **Embodied Artificial Intelligence: introducing artificial intelligence, robotics and evolutionary robotics to children**

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*Natural and Artificial Cognition Lab "Orazio Miglino", Dept. of Humanities, University of Naples "Federico II"*

**Introduction.** In recent times, there has been a gradual increase in focus on Artificial Intelligence (AI) and Robotics, driven by their expanding applications and significant impact across various aspects of our lives. However, there's a noticeable divergence between the advancements in science and the general understanding, even of fundamental principles. One possible strategy to overcome this issue is to introduce the basics of AI and robotics precociously, exploiting robotics to introduce itself and to deliver related scientific concepts (evolution, adaptation, learning). In this contribution, we present a pilot study on a robotic system that allows to see AI principles and robotics in action. The study was meant to verify system usability and its ability to deliver AI, robotics, and evolutionary robotics concepts.

**Methods.** We employed an integrated hardware and software platform, BrainFarm, and its recent advancement (Teach E-AI 2C robotic farm, developed under an ongoing project): it is designed for evolutionary and interactive robotics. This platform is engineered to be user-friendly for children, enabling them to witness E-AI fundamentals and concepts in practical application and engage in hands-on practice. 20 children from a primary school in Campania were involved in a laboratory with the robotic farm lasting 4 hours during lessons. The "Software Usability Measurement Inventory" (SUMI) was administered in a shortened and modified version consisting of 22 questions assessing platform usability on a Likert scale ranging from 1 (disagree) to 3 (agree). Moreover, 10 questions were proposed on AI, robotics, evolution, and evolutionary robotics with multiple-choice questions to assess children's understanding.

**Results.** The results indicated that participants liked the platform (SUMI: average = 2.6, st.dev. = 1.2), found it satisfactory, and experienced positive usability outcomes. Considering the questionnaire on AI contents, children replied in a satisfactory way (average = 7.3, st.dev. = 2.4).

**Discussion.** This pilot indicates that the robotic farm is well-accepted by children at primary school, and content related to robotics, AI, and evolutionary robotics can be effectively delivered this way. This allows for cultivating awareness and engagement in this field and encourages learning through practical engagement.

## **ERROR: Evaluating tRust weaRing Off in Robots**

*Alessandra Rossi, Raffaella Esposito, Silvia Rossi*  
*University of Naples Federico II, Italy*

**Introduction.** Trust is a critical factor in human-robot interaction (HRI) that robots, however, may risk to break by adopting more persuasive and deceptive behaviours. Such behaviours are meant to favour people's behavioural changes and compliance with instructions in order to improve their health, social and work lives. In general, robots can adopt controlled deception, whether this is intentional or unintentional (e.g., lies, erroneous and nudging), to prevent possible conflictual emotions and disagreements, and enhance educational and assistive support. As side effects, robots' deceptiveness can generate misunderstandings, a loss of trust and confidence in their abilities, and an increase of negative perception of the robot. To this extent, it is fundamental to identify which mechanisms a robot should use to affect, balance and recover people's trust in the robot.

**Methods.** Evaluating tRust weaRing Off in Robots (ERROR) project aims at providing a comprehensive assessment of deceptive mechanisms that impact on trust, and the techniques needed to a robot for fostering trust and mitigating people's potential negative attitude (e.g., loss of trust, inability of accept a robot, misuse of a robot) connected to robots' deceptive behaviours.

**Results.** In this work, we provide an initial classification of the types of deception that an autonomous robot may provide while interacting with people, and present initial investigations of coping mechanisms, such as Theory of Mind and multimodal social behaviours, to mitigate and balance people's trust after deception.

**Discussion.** The use of deception in HRI represents a multidimensional challenge, and our results highlight the need for the development of guidelines and methodologies to manage possible negative outcomes in long-term HRI, before it would be possible to deploy deceptive robots in human-centred environments.

## Virtual Agents and Risk-Taking Behavior in Adolescence: The Twofold Nature of Nudging

Laura Miraglia<sup>1</sup>, Cinzia Di Dio<sup>1,2</sup>, Michaela Gummerum<sup>3</sup>, Simone Bigozzi<sup>4</sup>, Davide Massaro<sup>1,2</sup>, Antonella Marchetti<sup>1,2</sup>

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**Introduction.** Peer pressure significantly influences risk-taking behavior, particularly during adolescence when peers play a significant role. However, it is important to consider the bidirectional nature of peer pressure outcomes, as peer influence may either reinforce the development of unsafe behaviors or promote cautious conduct. In light of this, investigating whether the influence of peer pressure on risk-taking behavior would manifest in interactions with AI avatars is crucial due to the increasing prevalence of AI avatars in online and gaming environments.

**Methods.** A total of 113 adolescents (34% female; mean age = 17.25 years;  $SD = 0.91$ ; age range = 16-21 years) were recruited for the study. The propensity to take risks was evaluated using the Balloon Analogue Risk Task (BART) in two conditions: alone and with either a robot avatar or a human avatar. In the avatar conditions, participants completed the BART while the avatars either verbally incited risk-taking or discouraged it (experimental tasks). The total number of pumps, gain, and explosions were used to assess risk-taking behavior in the BART. Additionally, the effects of age and gender on risky behavior were evaluated.

**Results.** Three independent regression analyses were conducted to evaluate the predictive effect of the BART variables. The main finding indicated that participants exhibited riskier behavior during incitement conditions than discouragement conditions. Additionally, participants' risk-taking behavior decreased significantly when the avatars verbally discouraged it compared to the condition in which participants played the BART alone. There were no significant differences between the playing-alone condition and the incitement condition. Moreover, the type of avatar (human or robot) did not influence participants' behavior. Finally, neither age nor gender was found to affect risk-taking.

**Discussion.** Our findings indicate that virtual avatars can exert a nudge, both positive and negative, on adolescents' behavior. The positive nudge suggests a potential protective effect on online behaviors, opening up avenues for further investigation into these agents in virtual contexts, particularly those involving teens, such as gaming. Additionally, the effect of the virtual agent on behavior is independent of its level of anthropomorphism, as both human and robot avatars produced similar effects.

## **SYMPOSIUM 133 - Early biological-neurocognitive markers of and preventive interventions in reading development**

*Proponent:* Sara Mascheretti (Department of Brain and Behavioral Sciences, University of Pavia, Pavia, Italy)

*Discussant:* Roberta Bettoni (Department of Psychology, University of Milano-Bicocca, Italy)

Learning to read is a dynamic and cumulative process that starts from birth and continues throughout early childhood and adolescence. It represents a sequential process in which proficiency can only be established by mastering foundational skills prior to being able to read fluently. Although normative patterns of development are described in widely accepted theories of reading development, considerable variability exists in the long-term pathways of reading development due to genetic and environmental influences. The identification of early biological-neurocognitive markers of and the definition of effective preventive interventions in reading development as well as the understanding of how biological-neurocognitive markers can moderate the efficacy of preventive interventions, are therefore scientific questions of utmost importance to inform both medical and educational professionals.

The aim of this symposium is threefold: (1) to investigate how individual differences in early electrophysiological responses to words and in early reading-related skills predict later development in reading proficiency in at-risk and not-at-risk subjects; (2) to assess how early interventions can affect reading prerequisites in pre-readers at-risk and non-at-risk for developmental dyslexia DD; and (3) to explore whether risk genetic variants for DD may moderate the effects of early interventions upon reading prerequisites in typically-developing pre-readers. The first two studies will present findings showing how individual differences in early electrophysiological responses to words in infants (Dr. Cantiani) and in early reading-related skills in children attending Grade 1 and Grade 2 (Dr. Varuzza) predict later development in reading proficiency. The third project (Dr. Bertoni) will discuss the short-term effects of playing an action video game (AVG) upon reading-related skills in pre-readers and how AVG can affect reading prerequisites in pre-readers at-risk and non-at-risk for DD. The last study (Dr. Lampis) will present whether risk genetic variants for DD may moderate the effects of AVG upon reading prerequisites in typically-developing pre-readers.

## Early electrophysiological markers in language and learning impairment: long-term follow-up from infancy to school age

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**Introduction.** Auditory processing skills are critical for speech processing, linguistic development and reading acquisition. Infants with a family history for language and learning impairment (LLI), including both language disorders and reading disabilities, have often been found impaired in these skills, as reflected in electrophysiological anomalies concerning the amplitude and latency of the obligatory components (e.g., P1, N2) and of the MisMatch Response. Moreover, previous longitudinal studies have shown that early auditory processing skills are highly predictive of later language and reading development.

**Methods.** Here, we report the findings of a large Italian longitudinal study. Around 150 infants with and without familial risk for LLI (defined as having a first-grade relative affected) have been tested at 6 months of age by means of an auditory multi-feature oddball paradigm including non-speech stimuli presented in rapid succession. As part of the longitudinal study, children underwent a linguistic assessment at 20, 24, 36 months of age, a broad neuropsychological assessment (including pre-reading skills) at 4.5 and 5.5 years of age, and a reading assessment at 8 years of age.

**Results.** The main findings of the study include (1) the definition of clinical typical and atypical developmental trajectories in children with and without familial risk for LLI and (2) the investigation of the pattern of associations between the early electrophysiological patterns and the later language, neuropsychological, and reading skills.

**Discussion.** The present results may have theoretical benefits in better understanding typical and atypical developmental trajectories of language acquisition and clinical implications in the development of early interventions targeting specific neuropsychological skills before the emergence and crystallization of the clinical signs of LLI.

## **Precursors of Reading and Writing: A Study on Children with Literacy Difficulties**

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**Introduction.** The acquisition of reading and writing skills involves a complex cognitive journey, encompassing various developmental stages. Fundamental to proficiency in these domains are phonological awareness, naming speed, and visual-motor abilities: phonological awareness pertains to the capacity to recognize, differentiate, and manipulate the sound structure of words; naming speed denotes the ability to swiftly identify familiar items; visual-motor abilities involve translating visual stimuli into precise motor actions.

**Methods.** This study investigated the precursors of reading and writing in children exposed to a transparent language who encountered challenges in literacy acquisition during the initial two years of primary schooling. Ninety-seven children (40 females), aged between 6 and 8 years (mean= 7.7, standard deviation= 0.5), were included in the study. Employing a retrospective approach, we analyzed the reading, writing, and precursor skills (rapid automatized naming, phonological awareness, and visuo-motor integration) of children experiencing difficulties in literacy acquisition.

**Results.** Our findings align with existing literature, underscoring the predictive utility of phonological awareness, rapid automatized naming, and visuo-motor integration in identifying early indicators of literacy acquisition challenges. Specifically, synthesis and segmentation skills demonstrate significant correlations with writing abilities, while rapid naming exhibits associations with reading speed and writing proficiency. Additionally, visuo-motor integration emerges as a correlate of writing competency.

**Discussion.** In conclusion, this study sheds light on the foundational skills crucial for reading and writing development, offering insights into potential intervention strategies for children at risk for Specific Learning Disorders.

## The role of play in pre-schoolers: the long- and short-term cognitive effects

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**Introduction.** Playing is essential in human development and a powerful remediation tool in clinical populations. Today, video-gaming is one of the most diffused forms of play, and several long-lasting studies show that action video-games (AVG) could improve reading efficiency, enhancing spatial and temporal attention and phonological processing in children and adults with and without neurodevelopmental disorders. In addition, a singular play session is able to enhance attentional, perceptual, reading, and sensorimotor performance in children with neurodevelopmental disorders and adults. But what happens in pre-schoolers?

**Method.** Two studies will be presented: (i) the first study compared the long-term effects of twenty sessions of an AVG with non-AVG and traditional treatment in a sample of 79 pre-readers at-risk and 41 non-at-risk for developmental dyslexia; (ii) the second study compared the short-term effects after only one session of an AVG and of a traditional board game with a baseline condition in a sample of 48 pre-readers without neurodevelopmental disorders.

**Results.** The long-term effects study showed that phonemic awareness has a significantly higher improvement after AVG training than the control groups. In particular, this improvement is present in more than 80% of the AVG pre-readers group, leading to a recovery when compared to the not-at-risk pre-readers, and it is maintained at a 6-month follow-up. The short-term effects study showed an improvement in manual dexterity in the non-dominant hand and a significant worsening in aiming task performance after both games. In addition, the enhancement after AVG was registered also in phonemic perception and target barrage, but not in phonological short-term memory and in the visual search task.

**Discussion.** The present findings suggest that short-term effects induced by play could cause an imbalance in functioning between the salience and the control executive networks, with a greater activation of the first one. On the contrary, repeated gaming sessions could induce a more balanced functioning of the two networks, leading to long-lasting improvement of several skills. Establishing the causal connections between play and cognitive enhancement, through long- and short-term effects study induced by play, should allow us to determine how to involve play in therapy, prevention, and educational programs.

## Gene x environment interaction in early treatment of reading-related skills in pre-readers

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**Introduction.** A naturally occurring deletion encompassing the regulatory element READ1 (READ1d) has been consistently associated with reading (dis)ability and its related phenotypes. READ1d has been linked to visual motion deficit underlying the magnocellular-dorsal (MD) stream spanning the entire visual dorsal stream and ventral attention network, in subjects with developmental dyslexia (DD) and typical readers. Difficulties in spatial and temporal attention shifting and noise exclusion are predictive of future reading skills as they impair letter-to-speech sound integration increasing neural noise. Action Video Games (AVGs) have been shown to improve reading skills through their effects on the MD stream. We present preliminary data showing how different genotypes may moderate the efficacy of an enriched attentive stimulation (AVGs) upon reading-related skills in pre-readers.

**Methods.** To investigate the effects of AVGs upon development of reading-related skills in pre-readers we recruited 14 pre-readers with the READ1d (mean age 69.1 months, M:F 1.5:1) and 64 pre-readers without the READ1d (mean age 67.4 months M:F 1:2.5). All subjects underwent a battery assessing neuropsychological skills (IQ, short-term memory, phonological awareness-PA, rapid automatized naming-RAN, pre-reading skills), and cognitive and sensory processes (visual attention and visual motion processing) before (T0) and after (T1) the AVGs training. The AVGs training consisted of 15 days of 1-hour AVGs sessions, three times per week. Repeated-measures ANOVA have been run in order to test the AVGs training efficacy according to the genotype.

**Results.** Data show that READ1d affect PA, RAN, cognitive and sensory functioning in pre-readers at T0. Moreover, regardless the genotype, AVGs training influence proficiency in PA, RAN, cognitive and sensory functioning. Finally, the READ1d showed a trend toward significance in moderating the effects of the AVGs training upon neuropsychological, cognitive and sensory functioning.

**Discussion.** The early exposure to an environmental visual attentional stimulation seems to affect the development of reading-related neuropsychological, cognitive and sensory functioning in pre-readers. Moreover, READ1d may moderate the effects of the AVGs training upon reading-related neuropsychological, cognitive and sensory functioning in pre-readers.

## **SYMPOSIUM 15 - The school physical environment matters: effects of indoor and outdoor settings**

*Proponent:* Lucia Mason, Università di Padova

*Discussant:* Simonetta D'Amico, Università dell'Aquila

The school environment that can impact children's and adolescents' learning and achievement is not only cultural, social, and relational, but also physical. The latter includes the indoor school environment, for instance, the quality of the air and light, noise, or thermal comfort, and the outdoor environment as the greenness surrounding schools (i.e., gardens, parks). Environmental research has indicated the possible effects of indoor and outdoor settings on students' cognitive and socio-emotional functioning. Thus, it is relevant for developmental and educational psychology to investigate under which conditions, learning and achievement, as well as the acquisition of attitudes and pro-environmental habits, can be maximized by taking into account the physical environment in which indoor and outdoor school activities take place. This symposium proposes a coherent set of studies to discuss the role of the school physical environment, indoor and outdoor, from various perspectives, involving students across grades and using different methodologies. Specifically, the first presentation addresses primary school children's perception of hearing and listening in indoor classrooms characterized by low and high acoustic quality. The second presentation focuses on both lower secondary school students and teachers to identify the functional aspects of the indoor environment that they perceive as sustaining their cognitive performance and wellbeing, and the importance they attribute to the school building. The third presentation compares primary school children's reading comprehension performance after a regular lesson taught in the classroom and a comparable lesson taught in the green school garden, to highlight the cognitive benefits of exposure to natural spaces. Finally, the fourth presentation provides the results of a meta-analysis regarding the social-psychological effects, as wellbeing and environmental awareness, of outdoor education programs that are included into school curricula. The presentations have theoretical significance for the acquired knowledge of the environmental factors that are associated with students' greater perceptions, school performance, and feelings, as well as practical significance for the implications that can be drawn about how to improve indoor and outdoor environments in support of students' and teachers' activities.

## Students' perception of their listening experience in school classes with different acoustic quality during various learning situations

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**Introduction.** The acoustic quality in school environments is a crucial aspect in promoting students' learning and well-being at school (Klatte et al., 2010). Numerous studies in the literature have shown the influence of acoustic conditions in learning environments on performance in cognitive tasks (e.g., Sullivan et al., 2015; Vettori et al., 2022); however, students' own view of their listening experience in classrooms with different acoustic quality is poorly investigated. The present study contributes to further understanding the relation between the acoustic quality of school classrooms and learning processes by analysing the perceptions of students themselves.

**Methods.** Students from different school classes completed a self-report questionnaire designed to assess their perception of hearing and listening in various learning situations in classrooms with two different acoustic conditions: *Poor acoustic quality* (long reverberation time [Long RT]) vs. *Adequate acoustic quality* (short reverberation time [Short RT]) equipped with a sound-absorbing system.

**Results.** Preliminary analyses have shown that older children own greater awareness of the acoustic benefits of learning in acoustically correct, low-reverberation classrooms [grade 4th ( $T = -2.23, p < .05$ , Cohen's  $d = -.68$ ) and grade 5th ( $T = -3.44, p < .001$ , Cohen's  $d = -.99$ )]. Further analyses to explore how students' perceptions change in relation to age, learning and language profile are currently being developed.

**Discussion.** The results of the research, which is still in progress, will provide important information about the level of awareness about the listening experience in classrooms with different acoustic quality shown by students of different ages, learning and linguistic profiles. The results will have important implications for the development of a metacognitive program aimed at promoting children's awareness of the individual and contextual factors that foster adequate listening at school.

## **The role of indoor school environment on students' and teachers' well-being: results from a focus group study**

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**Introduction.** The school environment is one of the primary settings in the developmental process during the early stages of an individual's life. In fact, schools are not only places of learning, but also places of socialization and emotional development. According to the User-Centered Design perspective (Gifford, 2002), indoor spatial-physical features of school buildings (such as lighting, classroom size and layout, temperature, and noise) should fit students' and teachers' needs and preferences, in order to positively influence well-being, satisfaction toward the school, performance, and engagement in school activities. This study is an exploratory investigation of a qualitative nature that will be realized with a sample of middle school students (10/12 years old) and teachers from the Metropolitan area of Cagliari. The aim is to detect which design and functional aspects of the indoor school environment are considered most important for learning outcomes, satisfaction, and well-being of users, and what cognitive and affective significance is attributed to the school building.

**Methods.** Two Focus Groups (FGs; N = 6-10) have been planned with students, and similarly, two FGs will be conducted with teachers in May 2024. Iconic materials (e.g., drawings and photos) will be used as stimuli, particularly for the student group. FGs will be recorded, transcribed, and then content-analyzed by two independent coders (to verify inter-rater agreement) who use an ad-hoc coding grid preliminarily prepared on the basis of the relevant literature. Specifically, for both targets, the objective is to identify relevant indoor design attributes and psychological indicators of the person-environment relationship (e.g., place attachment and identity, self and collective efficacy, and specific needs).

**Results and Discussion.** Findings of this qualitative study will also be useful for the development of a quantitative tool for measuring perceived environmental quality indicators for schools. The expected results are supposed to provide design guidelines for the development of more "humanized" indoor school environments that are centered on the specific needs of place users.

## Children's reading comprehension in indoor and outdoor environments

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**Introduction.** Interest in the green environment surrounding schools is recent. Environmental research has documented the benefits of exposure to nature on cognitive functioning across ages (Mason et al., 2022; Vella-Brodrick & Gilowska, 2022). According to the Attention Restoration Theory (Kaplan, 1995), voluntary attention is limited and subject to depletion after intense cognition. Natural environments, compared to artificial ones, restore voluntary attention. Even short green breaks during a school day restore students' attention (Amicone et al., 2018). However, no studies have investigated whether exposure to nature during a school lesson, not a break, is less mentally fatiguing than a lesson in the classroom, thus subsequent performance in a school task is greater. The aim of two studies (one as replication) was to compare reading comprehension performance in primary school children after a lesson in the classroom and in the outdoor school garden. We also considered children's emotional and behavioral difficulties as a possible moderator of the effects of exposure to greenness (Flouri et al., 2014).

**Methods.** Both studies had a *within-subjects* design. The first involved 47 fourth graders ( $F=26$ , 8-9 years), the second 56 third graders ( $F=26$ , 7-8 years). Students performed a reading task (Cornoldi & Carretti, 2016) both in the classroom and the garden after a lesson in each environment. Children self-reported externalizing and internalizing difficulties (SDQ; Goodman, 1997).

**Results.** *First study.* ANCOVA for repeated measures revealed a significant environment effect on text comprehension, favoring children in the greenness,  $F(1,45)=4.75, p=.035, n_p^2=.097$ . *Second study.* ANCOVA revealed again the environment effect in favor of the natural,  $F(1,54)=8.34, p=.006, n^2=.134$ , as well as the interaction environment  $\times$  difficulties,  $F(1,54)=9.38, p=.003, n^2=.148$ . Slope analysis revealed that only in the nature both children with higher and lower emotional and behavior difficulties performed similarly in reading comprehension.

**Discussion.** The physical environment where school activities take place impacts on cognitive performance. A green environment can positively influence a fundamental learning task, like text comprehension, especially in children with higher emotional and behavioral difficulties. This finding has both theoretical and practical significance.

## Social-psychological effects of outdoor education at school: a meta-analysis

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**Introduction.** The increased interest in *Outdoor Education* activities underlines the growing awareness of the importance of environmental contexts for social-psycho-physical health (Mann et al., 2022; Yildirim & Akamca, 2017). However, a substantial gap persists in understanding the social-psychological impacts of outdoor environmental education. Therefore, the present meta-analysis aims to investigate the effects of outdoor education programs in natural environments on variables such as knowledge acquisition, well-being, and relationship with nature among cohorts of students.

**Methods.** Applying the PRISMA guidelines, studies adhering to clear pre-test and post-test conditions were selected for the present contribution. Until March 2024, articles were collected by scanning the Scopus, WOS and PsycINFO databases. Only studies involving student populations were included, emphasizing our focus on exploring the integration of outdoor education within school contexts. The *metafor* package of the R software was used to perform the analyses after extracting the data from the chosen articles. At a significance level of 0.05, the I<sup>2</sup> test was used to analyse study heterogeneity and the Egger test to assess publication bias.

**Results.** The initial analysis delved into post-intervention effect sizes, exploring potential moderating factors such as duration of exposure and social context. Preliminary results help to understand the social-psychological effects of *Outdoor Education* and suggest a significant positive impact on students' psychological well-being and environmental awareness.

**Discussion.** Preliminary findings suggest integrating outdoor learning in natural environments can offer significant psycho-pedagogical benefits. These insights emphasize the importance of environmental context in educational programs and support the inclusion of nature-based learning experiences to foster participants' growth and holistic well-being. Overall, the present contribution could provide substantial evidence to encourage educational policymakers and practitioners to include more outdoor educational activities in natural environments within school curricula.

## **SYMPOSIUM 16 - The role of parental reflective functioning on child adjustment in family dynamics**

*Proponents:* Sarah Miragoli, CRIdée, Catholic University of Milan, Elena Camisasca, eCampus University, Novedrate (CO)

*Discussant:* Maria Spinelli, D'Annunzio University Chieti-Pescara

This symposium aims to investigate the relationship between Parental Reflexive Functioning (PRF) and child adjustment. PRF refers to parents' mental capacity to understand their own and their children's behaviors in terms of envisioned mental states. Literature has widely demonstrated that this reflexive capacity played a central role in parenting, promoting adequate caregiving and child's well-being. Specifically, many studies showed a strong link between PRF and maternal sensitivity and attachment security, with positive influences on child's cognitive, emotional, and social skills. Main objective of this symposium is to examine the protective role of PRF within parenting and coparenting relationships, and its positive effects on children's skills development. In particular, the interest and curiosity about the child's mental states could not only have a positive direct effect on the child's adjustment, but also plays a significant role on parenting and coparenting patterns, which in turn contribute to the child's well-being. Specifically, two studies (Morelli et al.; Cerciello & Frolli) analyse the effects of PRF on specific areas of child adjustment (executive and reflective functions) at two different developmental stages (preschool and adolescent age), highlighting important impact of parents' interest and curiosity in child's mental states on the development of the child's skills. Instead, Bavagnoli et al.'s study illustrates the (mediating and moderating) role of paternal PRF in the relationship between paternal well-being, coparenting, and child adjustment. Finally, Badino & Miragoli's study focuses on dysfunctional and maltreating parenting, in which the lack of PRF (pre-mentalizing mode) could lead to increased risk, through the mediation of emotional dysregulation processes (in terms of emotional recognition, acceptance of negative emotions, and impulsivity). In conclusion, this symposium extends existing knowledge about the role of PRF in family relational dynamics. Specifically, the four contributions explain how PRF can promote adaptive child outcomes or foster dysfunctional interactions in terms of parenting and co-parenting.

## Parental reflective functioning and executive functions in preschool children: the mediating role of parental supportive interventions

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**Introduction.** Studying factors promoting the development of executive functions (EF) in preschool age is crucial as they play a significant role in the socio-cognitive development of children. Several studies have underscored the pivotal role of parents in fostering EF development since early childhood. This research investigates the mediating role of parental interventions supporting preschoolers' behavior in the relationship between parental reflective functioning and children's EF, controlling for child age and gender.

**Method.** The study involved 299 parents ( $M = 38$ ,  $SD = 6.70$ ; 95% mothers) of children aged between 36 and 72 months ( $M = 53.6$ ,  $SD = 11.1$ ; 45.5% females) from various kindergartens. Parents completed the following questionnaires: (a) the Parental Reflective Functioning Questionnaire (pre-mentalization, certainty, and curiosity and interest in their child's mental states), (b) an *ad hoc* questionnaire built for measuring parental interventions aimed at supporting child activity, and (c) three subscales of the Child Behavior Questionnaire (attentional focusing, impulsivity, inhibitory control). Three different mediation models were tested.

**Results.** The results reveal two significant mediating effects: the more interest and curiosity parents show in their child's mental states, the more interventions they make to support the child activity, leading to both increased attentional focusing ( $B = .06$ ,  $SE = .03$ ,  $\beta = .06$ ,  $z = 2.04$ ,  $p = .04$ ) and enhanced inhibitory control in the child ( $B = .06$ ,  $SE = .03$ ,  $\beta = .06$ ,  $z = 2.15$ ,  $p = .03$ ).

**Discussion.** Findings show that parents with higher reflective functioning (in terms of interest and curiosity in their child's mental states) are more likely to understand their child's mental states and intervene to support their activity contingently, thereby promoting EF skills in the child, who becomes more capable of maintaining attentional focusing and exerting inhibitory control. The results provide intriguing implications for interventions aimed at enhancing parental mentalization skills concerning children's cognitive development.

## Exploring the interplay between parental reflective functions and adolescent reflective functions

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**Introduction.** Understanding the dynamics of parent-child relationships and their impact on adolescent development is a central focus in psychological research. In this article, we delve into the intricate relationship between Parental Reflective Functions (PRF) and the Reflective Functions (RF) of adolescents. Reflective functioning refers to the capacity to understand one's own and others' behaviors in terms of underlying mental states, such as thoughts, feelings, and intentions. The premise of our study is grounded in the theory that interactions within the family environment, particularly those characterized by parental reflective capacities, significantly influence the development of reflective abilities in adolescents. Parental Reflective Functions encompass parents' capacity to perceive and understand their own and their child's mental states, which in turn, shapes the quality of parent-child interactions. Our exploration seeks to elucidate how parental reflective functions manifest in adolescent reflective functioning. We hypothesize that higher levels of Parental Reflective Functions are associated with enhanced reflective abilities in adolescents, facilitating their emotional understanding, empathy, and interpersonal relationships.

**Method.** We recruited 112 teenagers and their 224 parents, and we assessed reflective functions through the Parental Reflective Function Questionnaire (PRFQ) and the Reflective Functioning Questionnaire for youth (RFQY-13).

**Results.** Through a comprehensive analysis, we aim to shed light on the nuanced connections between parental and adolescent reflective functions, highlighting the implications for family dynamics, adolescent well-being, and developmental psychology. We conducted a preliminary correlational analysis (Spearman's  $r$ ) and found a negative correlation between the teenager's hypomentalization skills and the mothers' hypomentalization skills ( $p < .05$ ). In contrast, fathers' mentalization skills appear to influence this relationship ( $p < .05$ ).

**Discussion.** By delving into this interplay, we contribute to a deeper understanding of the factors that shape reflective capacities during crucial stages of human development.

## **Fathers' psychological well-being, co-parenting, and children's adjustment: do paternal reflective functioning mediate or moderate these associations?**

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**Introduction.** Literature showed how parental psychological well-being could be a protective factor in family dynamics, promoting child's psychological adjustment and the positive co-parenting relationship. In turn, the quality of the co-parenting relationship could affect child adjustment, with positive co-parenting promoting child adjustment and negative co-parenting increasing child maladjustment. Moreover, parents' psychological well-being could also enhance their Parental Reflective Functioning (PRF), which is, in turn, associated with positive co-parenting relationships and children's psychological adjustment. Despite this extensive literature, few studies considered the effects of paternal RF on children's adjustment, and no study investigated the role of paternal PRF in the associations between paternal psychological well-being, the co-parenting relationships, and child adjustment. The present study aims to fill this gap by exploring whether paternal PRF mediates or moderates the associations of the above-cited variables.

**Methods.** Seventy-five fathers with children aged 6-14 completed the following self-report questionnaires: the Psychological General Well-Being, the Parental Reflective Functioning Questionnaire, the Coparenting Relationship Scale, and the Strengths and Difficulties Questionnaire.

**Results.** The two mediation models (with positive or negative co-parenting) showed the indirect effects of paternal well-being on child adjustment through the serial mediation of PRF [M1], which affects the positive co-parenting ( $\beta = -.01$ ; LLCI-ULCI:  $-.03$ ;  $-.002$ ), or negative co-parenting [M2] ( $\beta = -.01$ ; LLCI-ULCI:  $-.02$ ;  $-.0007$ ). Significant moderating effects were also observed in the two tested models. Specifically, RF moderated the effect of paternal well-being on both positive (Inter. Coeff. =  $-.04$ , 95% CI =  $-.070$ ;  $-.000$ ,  $p < .05$ ) and negative co-parenting (Inter. Coeff. =  $.08$ , 95% CI =  $.035$ ;  $.123$ ,  $p < .001$ ) and the effect of paternal well-being on child adjustment (with positive co-parenting: Inter. Coeff. =  $.06$ , 95% CI =  $.000$ ;  $.118$ ,  $p < .05$ ; with negative co-parenting: Inter. Coeff. =  $.06$ , 95% CI =  $.009$ ;  $.120$ ,  $p < .05$ ).

**Discussion.** Paternal RF could mediate and moderate the effects of paternal well-being on the co-parenting relationship and child's adjustment by assuming a protective role in family dynamics and children's adjustment.

## Parental reflective functioning and child maltreatment risk: the role of emotional dysregulation

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**Introduction.** Reflexive Function (FR) refers to the ability to understand and interpret, implicitly and explicitly, one's own and others' behavior as the expression of underlying mental states and intentions. Reflective function certainly also depends on the skills of emotional understanding and regulation. FR and emotion regulation are central to coping in the social world, especially in parenting practices. While the relationship between emotional dysregulation and child maltreatment risk is better known in the literature, few studies, instead, have focused on investigating the role of FR in child maltreatment risk, especially considering the processes of emotional dysregulation. The present study has a twofold objective: (1) to investigate the role of FR in child maltreatment risk; (2) to understand the mediating role of some emotional dysregulation processes (emotional recognition, acceptance of negative emotions and impulsivity) in the relationship between FR and child maltreatment risk.

**Methods.** Four hundred thirteen parents (264 mothers;  $M=41$ ,  $SD=6$ , range: 25-68) of children ( $M=8.6$ ,  $SD=4$ , range: 1-19) completed the following self-report questionnaires: Child Abuse Potential Inventory (child maltreatment risk), Difficulties in Emotion Regulation Strategies (emotion dysregulation), and Parental Reflective Functioning Questionnaire (reflective function).

**Results.** Among the dimensions of reflective function, only pre-mentalizing modalities are significantly associated with child maltreatment risk. A serial mediation model (with three mediators) was tested, in which the predictor (X) is represented by the pre-mentalizing modes, the outcome (Y) the risk of child maltreatment, and the mediators (M) the processes of emotion dysregulation. Results indicated indirect effects of X on Y through the serial mediation of emotional recognition (M1), acceptance of negative emotions (M2) and impulsivity (M3).

**Discussion.** The results allow an extension of knowledge regarding the associations between reflective function and risk of child maltreatment through the study of emotional dysregulation processes.

## **SYMPOSIUM 65 - Promoting Ethnic-Cultural Identity and Youth Adjustment in Multicultural Contexts: New Challenges and Opportunities**

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Forming a positive ethnic-cultural identity (ECI) is crucial for youth development and adjustment, especially in globalized societies where individuals are called upon to cultivate their intercultural competence (Juang et al., 2023). Previous research indicates that contextual factors significantly shape the development of ECI, with schools representing a major source of influence (Schachner et al., 2018); indeed, peers and teachers can facilitate or hinder the unfolding of identity-related processes. Moreover, ECI has been found to be associated with psychosocial adjustment outcomes, but associations vary with age and show different patterns depending on the analyzed dimension (Umaña-Taylor & Rivas Drake, 2021). Given the multicultural composition of Italian society, identifying the predictors, correlates, and outcomes of ECI is paramount to promote equity and inclusion in various developmental settings (Musso et al., 2016). Yet, studies on youth ECI in Italy are still limited, and mixed results have been reported in terms of how this important facet of identity relates to adjustment. The present symposium aims to address these gaps by reporting evidence from four studies targeting ECI in culturally diverse adolescents and young adults within and outside the school environment. The results will be discussed in terms of their implications for both theory and practice concerning the promotion of equal and inclusive multicultural communities. The first paper describes a systematic review analyzing the use of plurilingual educational practices in schools, as well as the effectiveness of such practices in promoting multi-ethnic identities, well-being, and inclusion among students with an immigrant/minoritized background. The second paper examines whether ethnic identity buffers the negative impact of direct and indirect ethnic microaggression experiences on emotional-behavioral problems in young adolescents of immigrant backgrounds, also assessing the role of acculturation strategies in this association. The third paper analyzes longitudinal profiles of cultural identity exploration and resolution among adolescents who participated in a school-based intervention, their associations with immigrant background and family ethnic socialization, and their long-term effects on several indices of psychosocial adjustment. The fourth paper explores how different dimensions of identity, including exploration/commitment, continuity, and biculturalism, are related to well-being and adaptation in young adult immigrants who are involved in the process of balancing their ethnic/national origins with the host culture.

## The role of plurilingual educational practices in students' identity

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The growing ethnic and cultural diversity of the school system represents a challenge for the teachers and for the students. Multilingual practices can offer significant benefits to students of all ethnicities; however, they are not widespread in schools. This systematic review explores the multilingual use strategies adopted by schools and summarizes the empirical evidence of the effectiveness of these approaches in promoting the social and identity inclusion of students belonging to ethnic minorities. The review process was conducted according to the PRISMA Statement (registered protocol: <https://doi.org/10.17605/OSF.IO/JHMC5>) through searches in the PsychINFO and ERIC databases. 12847 articles were found, from which 8955 were selected based on the title and abstract, and then 1162 based on the full text. The selected articles were then coded in three categories on the basis of their contents, i.e. the factors or variables connected to multilingual practices: 1) Learning participation to learning activities, 2) Language competence, 3) Identity. 49 articles were categorized in the "Identity" category. The results are reported in the form of a descriptive narrative summary. The research has focused on oral plurilingual practices, among which we can distinguish interactional practices (e.g. code switching, code mixing) and pedagogical-didactic practices (e.g. translation, linguistic reflection), investigated with qualitative and quantitative methods, respectively. The studies analyzed reported benefits of plurilingual practices on the development of multicultural identities. The current state of research on plurilingual practices indicates potential benefits that require further empirical evidence. An intercultural and plurilingual pedagogical approach can promote the inclusion, wellbeing and success of minority ethnic students. The investigation of how plurilingual practices intersect with identity can provide deeper insights into their impact on educational outcomes and socio-cultural dynamics within diverse learning environments, fostering a sense of belonging, enhancing motivation and engagement, promoting equity, shaping interpersonal dynamics, and ensuring cultural relevance in educational contexts. The synthesis of existing empirical evidence in the literature represents an important source of information in order to develop more effective and inclusive pedagogical practices and school programmes.

## **Are you telling me to discard who I am? The role of ethnic identity in ethnic microaggressions**

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During the last decades, there has been a notable increase in ethnic diversity and complexity within Western cities and societies due to an unprecedented shift in the demographic fabric of the communities (Berry, 2013). This phenomenon is particularly evident in schools, where students with different ethnic background are called upon to stay and grow together. Despite the benefits of multicultural interactions, students with an immigrant background certainly face a multiplicity of challenges and risks, including prejudice, discrimination, and bias-based forms of bullying. Among these, ethnic microaggressions have recently emerged as a major concern among scholars (Stekeete et al., 2021), particularly within the US context. Ethnic microaggressions, which are defined as subtle daily manifestations of interpersonal racism (Sue et al., 2007), have been proven to significantly impact students' wellbeing, while also undermining health-related variables such as self-esteem and satisfaction with life. Within this field of research, ethnic identity has become increasingly important as it plays a key role in mitigating the harmful impact of ethnic microaggressions on people with an ethnic background (Loyd et al., 2022). However, little research has addressed the identity-microaggression path with samples of younger students, involving primarily an adult population within the U.S. context. The present study sought to investigate the role of ethnic identity, namely immigrant students' identification and commitment to their cultural/ethnic heritage, as a potential moderator of the relationship between direct and indirect ethnic microaggressions' experiences and emotional symptoms among students with an immigrant background, while also examining the role of acculturation strategies (i.e., integration, assimilation, segregation, and exclusion) in this association (Berry et al., 2016). Cross-sectional data are currently being collected on a sample of students belonging to 3 high schools in Tuscany, s.y. 2023/2024. The questionnaire includes measures of ethnic microaggressions that can occur at different levels (i.e., at school, with respect to peer-to-peer and student-teachers' relationships; within the community; from the media; Verdena & Palladino, in preparation), ethnic identity (Musso, Moscardino, & Inguglia, 2016), acculturation strategies (MIRIPS, 2016), and emotional and behavioural indicators of adaptation (Goodman, 1997). Implications of the results for research and practice will be discussed.

## **Profiles of cultural identity development and associations with psychosocial adjustment among adolescents participating in the *Identity Project* intervention in Italy**

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In adolescence, exploring and gaining a sense of clarity of one's cultural identity is an important developmental task, especially in globalized societies where minoritized and majority youth are called upon to define their identity and learn how to approach cultural diversity (Schwarzenhal, 2022). Previous research indicates that a positive cultural identity is linked to better socioemotional, interpersonal, and academic outcomes (Umaña-Taylor & Rivas-Drake, 2021). However, most extant studies have used variable-centered approaches to evaluate how cultural identity develops over time, impeding the identification of subgroups of adolescents whose trajectories may differentially be linked to psychosocial adjustment. The current study used a person-centered approach to identify profiles of cultural identity exploration and resolution trajectories over a year in adolescents who participated in a randomized controlled trial of the *Identity Project* (Umaña-Taylor & Douglass, 2017), a school-based intervention targeting ethnic-racial identity. Moreover, associations of the emerging profiles with immigrant background and family ethnic socialization as well as their links to adolescents' outcomes were examined. One-hundred seventy-three students ( $M_{\text{age}} = 15$  yrs,  $SD = 0.62$ , range = 14-17; 58.4% female; 26% immigrant background) attending multiethnic high schools in Northern Italy completed a questionnaire survey at four time points: 1 week prior to the intervention (baseline), 9, 13, and 54 weeks after baseline. We focused on students from the intervention group due to the waitlist control design, no data were available for the control group at the 1-year follow-up. Longitudinal latent profile analysis revealed one profile of change for exploration, and four distinct profiles for resolution ("stable low," "stable average," "increase low-to-average," "increase high-to-higher"). Students with an immigrant background and high levels of family ethnic socialization were more likely to belong to the increasingly high-to-higher profile. Furthermore, adolescents in the resolution-increase profiles reported the best long-term outcomes. The results support previous research highlighting the promotive role of cultural identity resolution for psychosocial adjustment (e.g., Rivas-Drake et al., 2014), and suggest that both minoritized and majority youth may benefit from interventions providing protected spaces in which to reflect upon and gain further awareness of their relationship with their own and others' culture(s).

## Cultural kaleidoscope: navigating well-being and adaptation in young immigrant adults through diverse identity dimensions

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Emerging adulthood is a pivotal phase for identity formation, marked by exploration in emotional, social, and educational/work realms. Immigrant youth face additional complexity, balancing their ethnic/national origins with the host culture. This exploratory pilot study addressed the dearth of research on how different dimensions of cultural identity associate with well-being and adaptation. The study involved 43 young immigrants living in Italy for 2 to 7 years. They completed a questionnaire covering various measures of identity and well-being/adaptation. We assessed identity using: a) an adapted form of the Utrecht-Management of Identity Commitments Scale, measuring commitment, in-depth exploration, and reconsideration of commitment in relation to host country identification; b) the Bicultural Identity Integration Scale, measuring the level of harmony and blendedness between the ethnic/national identity of origin and the host one; and c) the Identity Continuity Scale, measuring group membership in the home country and continuity in membership of similar groups in the host country. For measures of well-being/adaptation, we used widely validated scales for self-esteem, happiness, life satisfaction, anxiety-depression, acculturative stress, and socio-cultural adaptation. A path analysis examined how identity measures directly associated with well-being and adaptation. The model fit well,  $\chi^2(56) = 53.49$ ,  $p = .57$ , CFI = 1.000, RMSEA = .000, with the following findings: a) happiness was positively linked with identity continuity ( $\beta = .29$ ,  $p = .001$ ); b) life satisfaction tended to be positively linked with identity commitment ( $\beta = .24$ ,  $p = .095$ ) and negatively with reconsideration of commitment ( $\beta = -.27$ ,  $p = .086$ ); c) acculturative stress was positively linked with reconsideration of commitment ( $\beta = .32$ ,  $p = .004$ ) and negatively associated with identity harmony ( $\beta = -.41$ ,  $p = .001$ ); and d) socio-cultural adaptation was positively linked with cultural identity blendedness ( $\beta = .35$ ,  $p = .001$ ) and negatively associated with social group membership in the country of origin ( $\beta = -.21$ ,  $p = .049$ ). This study underscores the need to examine various aspects of identity to grasp how cultural identity interacts with well-being and adaptation in immigrant young adults. Findings are discussed in light of recent literature and their significance for researchers and professionals.

## **SYMPOSIUM 67 - The early development of representational systems: the role of working memory and executive functions**

*Proponent:* Sabrina Panesi, University of Genoa, Department of Education, DISFOR

*Discussant:* Chiara Malagoli, Institute for Educational Technology, CNR, Genoa

This symposium has the main aim to discuss about the early development of different representational systems (i.e., language, pictures, early literacy and early numeracy) and the role of Working Memory (WM) and Executive Functions (EF). Gandolfi presents two studies on the role of different inhibitory control dimensions in early lexical and morphological acquisition in Italian toddlers and preschool children. The findings highlight the role of interference suppression dimension versus that of response inhibition in influencing some specific language abilities at different ages. Panesi and Morra examine the relationship between drawing and language, investigating the role of WM and EF in toddlers (study 1) and preschoolers (study 2). The results show that in toddlers the development of general executive functioning has a strong impact on language, which in turn influences the development of drawing; in preschoolers indirect influence of WM and direct influence of EF fully accounted for the correlation between drawing and language. Traverso and colleagues present a longitudinal study aimed at investigating the role of WM and EF in predicting preschoolers' performance in various writing tasks (name writing and word writing). The results suggest that EF was a significant predictor of word writing performance, but not of name writing performance. De Vita and colleagues investigate the role of different cognitive components in the development of early numeracy before and after the onset of formal education (study 1), also considering environmental aspects (study 2). Study 1 reveals that only visuo-spatial high-control and numerical-verbal WM predict mathematical knowledge in both preschoolers and first graders. Study 2 reveals a lower level of WM, inhibitory control and early mathematical abilities in preschoolers living in deprived contexts. These contributions emphasize that WM and EF play an important role in the development of different representational systems in the first years of life. This could be connected to recent studies on WM and EF training in young children demonstrating that these trainings improved not only executive processes but also representational abilities. The general discussion during this symposium can open to reflections on implications for educational practice and further research.

## The role of inhibitory control skills in early language development

*Elena Gandolfi*  
*University of Turin, Department of Psychology*

**Introduction.** Although executive functions have been recognized as factors influencing language development, there is a dearth of literature exploring the role of different inhibitory control (IC) skills in early lexical and morphological acquisition, especially in Italian language. Two studies explored 1) the concurrent and longitudinal relationship between IC dimensions (i.e., response inhibition and interference suppression) and early lexical and morphological abilities in Italian toddlers and preschool children; 2) whether different IC skills influence verbal inflectional morphology in Italian language, over and above the effects of receptive vocabulary and verbal working memory.

**Methods.** In study 1, 62 typically developing children aged 24–32 months were administered five IC tasks and two standardized language measures (time 1). In a subsample of 28 children, receptive morphological ability was assessed one year later (time 2). In study 2, 96 preschoolers aged 4 to 6 years were assessed using a standardized IC task tapping different IC skills and a morphological task requiring simple and complex inflections of verbs.

**Results.** Through hierarchical regression analyses, the results of both studies highlighted the role of interference suppression dimension versus that of response inhibition in influencing language (i.e., morphological) abilities at different ages. In study 1, the interference suppression score significantly predicted all language production measures assessed at time 1, as well as the receptive morphological measure assessed at time 2. In study 2, the interference suppression score and verbal working memory were significantly associated with complex inflections of the verbs.

**Discussion.** Both studies explored the domain-general support provided by different IC processes to early language development in typically developing children. Practical and clinical implications of the results were discussed taking into account how IC skills may explain language variability in typically developing children, and provide insights that may help to clarify IC limitations in children with atypical language development.

## Relationship between drawing and language in toddlers and preschoolers: the role of working memory capacity and executive functions

Sabrina Panesi, Sergio Morra  
University of Genoa, Department of Education, DISFOR

**Introduction.** Language and pictures are two major representational systems, but the relation between them in young children is under-investigated. Two studies investigated the association between drawing and language in toddlers (Study 1) and preschoolers (Study 2), also examining the role of working memory (WM) and executive functions (EF).

**Methods.** The participants were 80 children (25–37 months old) in study 1 and 125 preschoolers (36–73 months old) in study 2. In study 1, we administered three drawing tasks, a language task to assess both receptive and expressive language, two WM tasks, three inhibition tasks and one shifting task. In study 2, we administered three drawing tasks, three language tasks, three WM tasks, two inhibition tasks, one shifting task and one updating task.

**Results.** Study 1: Confirmatory factor analyses (CFA) showed that in toddlers all measures of WM, inhibition, and shifting loaded on a single factor of general executive functioning; CFA showed that language and drawing are two distinct, but substantially correlated, representational systems; Structural equation modeling (SEM) supported a model, according to which age affects a general WM and EF factor, which affect language, which in turn affects drawing. Study 2: CFA showed that in preschoolers the best-fitting model comprises two highly correlated factors – one loading the WM capacity measures, the other loading inhibition, shifting, and updating measures; CFA showed that language and drawing are two distinct but correlated representational systems; SEM supported a model, according to which age affects WM, drawing, and language; WM influences EF; EF, in turn, affects both drawing and language.

**Discussion.** In younger children, still in a transition from scribbling to pre-schematic drawing, we found that language has a direct impact on symbolization in the graphic medium; on the other hand, in preschoolers the correlation between drawing and language can be explained by the indirect influence of WM and the direct influence of EF on both of them. With this study, we aimed at contributing to the knowledge of cognitive processes underlying different early representational systems, with some practical implications in the educational context.

## The role of executive function and working memory in early writing

Laura Traverso, Mirella Zanobini, Paola Viterbori, Maria Carmen Usai  
University of Genoa, Department of Education, DISFOR

**Introduction.** Although the literature is consistent in considering EF and WM as key cognitive abilities that account for academic skill acquisition few studies focused on the relationship between these cognitive abilities and early writing skills. This short longitudinal study aimed at investigating the role of EF and WM in predicting children performance in diverse writing tasks, controlling for fluid intelligence, vocabulary, phonological awareness, and visuo-motor skills.

**Methods.** A sample of 147 typically developing children from 4 to 5 years of age was assessed in the winter (T1) and then in the spring (T2) at a preschool educational center. At time 1, the experimenters assessed children for fluid intelligence, inhibitory skills, working memory, vocabulary, visual-motor integration. At time 2, children were assessed on early writing skills (name writing and word writing).

**Results.** Performance on name writing and word writing tasks were used to classify children in groups with different writing proficiency. Subsequently binomial logistic and multinomial logistic regression analysis were used to investigate whether the variables assessed at time 1 were useful to predict children group's membership. Preliminary findings suggest that name writing, and word writing were predicted by a different set of variables, and that EF was a significant predictor of word writing performance, but not of name writing performance.

**Discussion.** Compared to other academic skills, the relationship of EF and WM with early writing skills is still understudied. The current study explored in preschool children aged 4 to 6 years the contribution of EF and WM in explaining later different writing skills, specifically the ability to write name and the ability to write words. With this study, we aimed to contribute to the knowledge of processes underlying different early literacy skills, with some practical consequences in the educational field.

## The development of early mathematical abilities in mainstream school and deprived environments: relations with working memory and inhibitory control

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<sup>2</sup>University of Bologna, Department of Psychology

**Introduction.** WM and EF are relevant factors in children's mathematical learning. This contribution considers how developmental stages together with environmental aspects could shape these relationships. Specifically, study 1 examined the relations between WM domains and processes and early mathematical abilities before and after the transition to primary school while study 2 explored WM, inhibitory control and early mathematical abilities in preschool children exposed to different environmental conditions.

**Methods.** In study 1, involving 66 preschoolers and 110 first graders, we administered six WM tasks (that evaluated verbal, numerical-verbal and visuo-spatial WM domains and high- and low-control WM processes) and a task to assess different aspects of early mathematical knowledge. In study 2, participants were 150 children, specifically 48 Yazidis, 47 Syrian refugees and 55 Italians, and we administered a WM task (the backward word span), an inhibition control task (the day-night Stroop) and four tasks to evaluate early mathematical abilities (forward and backward counting, digit-quantity mapping and digit naming).

**Results.** Study 1: Multigroup path analysis revealed that visuo-spatial low-control WM significantly predicted early mathematical knowledge only among preschoolers while verbal low-control WM was a significant predictor only among first graders. Moreover, the contributions of visuo-spatial high-control and numerical-verbal WM emerged as significant for both groups, although the latter to a greater extent among preschoolers. Study 2: Multivariate analysis of variance showed significant differences between the three groups of children, revealing a lower level of WM, inhibitory control and early mathematical abilities in those living in deprived contexts compared to Italian ones. Except for digit naming, no significant differences emerged between the two deprived groups.

**Discussion.** The results of both studies have significant implications for education, providing useful suggestions for the design and implementation of tailored and targeted WM and EF training interventions that are both age-appropriate and adapted to the broader sociocultural and economic context in which children live.

## **SYMPOSIUM 173 - Enhancing children's Executive Functions through robotics and gamification**

*Proponent:* Chiara Pecini - University of Florence

*Discussant:* Donatella Petretto - University of Cagliari

The symposium aims to illustrate the methodology and effectiveness of using robotic technologies and game-based interventions to enhance Executive Functions in developmental age. Starting from a systematic literature review, the first contribution examines the effect of age on the effectiveness of coding activities on cognitive development. The second study investigates second and third graders' engagement and executive control during storytelling activities with a social robot. The third study reports preliminary data from a game-based intervention for the assessment and enhancement of Executive Functions in primary schoolers. The fourth contribution analyses the feasibility and enjoyability of an intervention that combines the enhancement of Executive Functions with a gamified training on Media Literacy. Finally, the fifth study investigates the feasibility and effectiveness of a game-based intervention for enhancing Executive Functions in children with neurodevelopmental disorders. Overall, these studies provide diverse perspectives on the feasibility and effectiveness of using robotic technologies and gamification to enhance Executive Functions in developmental ages, emphasizing the importance of the setting and tools used as well as of measuring mediating variables related to contextual and individual characteristics of the involved participants. The results, albeit still partially preliminary, pave the way for new intervention methodologies to promote processes such as Executive Functions, which are particularly important for adaptation and learning.

## Assessing the impact of age on the cognitive effectiveness of coding intervention

Chiara Montuori<sup>1</sup>, Lucia Ronconi<sup>1</sup>, Gabriele Pozzan<sup>2</sup>, Costanza Padova<sup>1</sup>, Tullio Vardanega<sup>2</sup>, Barbara Arfé<sup>1</sup>

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**Introduction.** Previous research has shown that children as young as 4-6 years can learn to code and that exposure to structured coding activities also has beneficial effects on their cognitive abilities, particularly on two executive functions (EFs), planning and response inhibition, which have been found to be strongly associated with coding (Arfé et al., 2019, 2020; Di Lieto et al., 2020; Montuori et al., 2024). Few studies, mostly focusing on older students (aged 10 to 18 years), have investigated age-related differences in response to coding instruction. Moreover, none of these studies have explored whether age differences in learning to code also translate into differences in the cognitive benefits of coding. Past research has shown that children's EFs develop significantly between the ages of 5-6 and 9-10 years, which may also affect children's responses to coding interventions.

We examined whether children's gains in coding skills, planning, and response inhibition differed across grade level following the instructional intervention.

**Methods.** To address this research question, we compared the response to an 8-hours coding intervention of 273 first graders (134 girls, 49%) and 164 fourth graders (71 girls, 43%). The first graders comprised 128 children (age mean= 6.02, SD=0.41) assigned to the coding condition and participating in coding labs immediately after the pretest (T1) and 145 children (age mean= 5.97, SD= 0.30), the control group, assigned to standard STEM activities and receiving the coding intervention after the posttest (T2). The fourth graders comprised 94 children (mean age=8.95, SD=0.26) assigned to the coding condition between T1 and T2, and 70 children (mean age=8.93, SD=0.27) assigned to the control condition. At T1 and T2, we assessed planning (Tower of London test), response inhibition (Stroop test and NEPSY-II square/circle test), and coding skills.

**Results.** The main findings of this study lead to the conclusion that coding interventions are effective across grade levels, improving coding, planning, and inhibition skills.

**Discussion.** The findings align with those of previous studies and indicate that the effectiveness of the CT intervention for boosting EFs is consistent across grade levels.

## **A story for NAO: engagement and cognitive control of second and third grade children during storytelling interactions with the nao social robot**

Stefano Scatigna<sup>1</sup>, Laura Fiorini<sup>2</sup>, Lorenzo Pugi<sup>2</sup>, Elena Adelucci<sup>2</sup>, Filippo Cavallo<sup>2</sup>, Alice Bruni<sup>2</sup>, Benedetta Carotenuto<sup>2</sup>, Maria Chiara Di Lieto<sup>3</sup>, Benedetta Del Lucchese<sup>3</sup>, Elisa Matteucci<sup>3</sup>, Antea Scrocco<sup>3,4</sup>, Giuseppina Sgandurra<sup>3,5</sup>, Chiara Pecini<sup>2</sup>

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**Introduction.** The use of social robots for socio-educational and rehabilitative purposes, is based on the assumption that they can increase the emotional and cognitive engagement of the children in the proposed activities. Nevertheless, engagement is a multifaced construct and a few studies have defined it in terms of construct and tools or investigated the relation between children engagement and their performances (Margheri et al, under review). The present study belongs to a larger project (THE- subproject 5; <https://www.tuscanyhealthecosystem.it/>) and it is aimed to study the impact of the robot's presence on the overall user experience, examining the linguistic and cognitive parameters derived from the child's invented story and identifying potential correlations between children's engagement and task performance.

**Methods.** A preliminary sample of 60 children aged 7-9 participated in individual sessions where they were tasked with inventing stories for the robot. Multilevel indicators including behavioural, psychophysiological, and performance measures were employed to assess emotional, behavioural, and cognitive involvement. Tools utilized included a pre-programmed NAO robot, cameras, FitBit bracelet for Heart Rate Variability (HRV) monitoring, engagement observation questionnaire, and self-assessment questionnaire for user experience. The interaction procedure involved the child narrating while the robot displayed interest through gestures and dialogue.

**Results.** The results of the analysis conducted on a subsample of 29 children indicated high levels of engagement and positive emotions among children, with a greater use of psychological vocabulary associated with positive emotional and volitional states than the other states. Story duration, latency of response, and number of words spoken were analysed, showing correlations with overall engagement. HRV measurements also reflected variations during different phases of the activity. Engagement ratings positively correlated with emotional states, as well as with story duration and number of words.

**Discussion.** The results of this research will help to understand the usefulness of social robots in engaging children in learning activities, shedding light on their potential applications in education and rehabilitation of children with learning difficulties.

## **Efficacy of a computerized treatment of executive functions: preliminary data**

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**Introduction.** Recently, the use of technology for the assessment and cognitive training in children with neurodevelopmental disorders has become increasingly common. In this study, we investigated the effectiveness of computerized training of executive functions in children with Specific Learning Disorders (SLD).

**Methods.** 19 children with a previous diagnosis of SLD and a deficit of executive functions were recruited. Children were randomly assigned to a control group (CG; N=9, mean age=9 DS=1) and an experimental group (EG; N=10, mean age=9 DS=1 ). Both groups underwent a pre-treatment assessment (T0) of five main executive domains using paper-and-pencil tools and computerized tests. The CG underwent a generalized cognitive training, while the EG was involved in a computerized treatment specifically targeting executive functions. Treatments occurred twice a week. After three months, both groups underwent a post-treatment assessment (T1).

**Results.** Preliminary results showed that the EG improved in all computerized tests ( $p$  values < 0.05), but not in the planning task. This improvement was not present in the CG. The assessment of children's playfulness suggested a general appreciation of the software, with children showing higher positive emotions during the training task (75%) as compared to assessment tasks.

**Discussion.** Although preliminary, our results support that computerized cognitive training of Executive Functions can be effective and, at the same time, enjoyable and motivating for the child.

## The Elli's world, a video game for improving executive function and media literacy: the Emile project

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**Introduction.** As technology becomes increasingly integral to learning, it is crucial to develop innovative teaching approaches that fully exploit its potential. The EMILE project (<https://www.emile.unifi.it>) aims to improve Executive Functions (EF) and digital reading (Media Literacy, ML) in 10–13-year-olds through 'Elli's World' (Rivella et al., 2024; <https://www.youtube.com/watch?v=1LC23IgF2Fg>), an innovative game-based training that involves students in EF and ML tasks, fostering critical evaluation and synthesis of information from various digital sources to create original text.

**Methods.** The training involved 528 students (254 EG and 274 CG) of primary-middle schools, including Special Educational Needs or language minorities, as the videogame self-adapts to each child's abilities through simplified levels. The EG, guided by two expert psychologists and pedagogues, carried out a 6-week training with two sessions (30 min each) per week of EF exercises integrated with digital reading, followed by two sessions (1 hour each) per week of ML. EF and reading skills were assessed pre-, during and post-intervention. Feasibility was assessed through questionnaires administered to teachers and students.

**Results.** Preliminary results show that most teachers (64%) expressed satisfaction with participation and found it easy to integrate within their didactic programme (63%). Moreover, most of the students found the training fun and stimulating (60%), reflecting a positive and engaging experience, and 50% of them reported an increasing perception of their self-efficacy. The 74.7% of students show active involvement in the activities and did not find them difficult (63%) or strenuous (86%), suggesting their accessibility and suitability for the level of competence of students. Furthermore, 91.2% liked the characters in the video game, highlighting the importance of the narrative contents.

**Discussion.** In conclusion, the training was found to be feasible for teachers, suggesting the possibility of successfully integrate the model in the regular curricula and demonstrating that implementing trainings to improve cognitive control and digital text comprehension skills aligns with educational settings' interests. In addition, the enjoyability and engagement found among students indicates the capability of capturing students' interest and attention, fundamental for fostering deep and lasting learning. Effectiveness results will help to understand the effects on the specific cognitive processes involved.

## Is a video-game based training feasible to enhance executive function in children with neurodevelopmental disorders?

Alice Bazzurro, Università di Genova

**Introduction.** Executive function (EF) impairment is present across various neurodevelopmental disorders, and it is considered as a transdiagnostic marker of atypical development. Given the ubiquitous presence of EF impairment in neurodevelopmental disorders and its significant impact on quality of life, the development of EF training tools is particularly relevant. The aim of this study is to assess the feasibility and preliminary effectiveness of a videogame-based EF training in a sample of primary school children with a diagnosis of neurodevelopmental disorder. The videogame was previously tested in a sample of typical children (Rivella et al., 2024; <https://www.youtube.com/watch?v=1LC23IgF2Fg>). The player must help Little Ello, a young brain, explore Elli's World to reach the treasure rooms, in which the child will encounter the tasks for the enhancement of EF skills (interference control, response inhibition, working memory, and cognitive flexibility) in both auditory and visual format. The game is auto-adaptive so that difficulty increases as the child gets better.

**Methods.** A total of 16 clinical professionals compiled a usability questionnaire (USE, Lund, 2001) assessing usefulness, ease of use, ease of learning, satisfaction and attractiveness of the training and were administered a semi-structured interview regarding their experience with the training. In addition, 43 children with various diagnoses of neurodevelopmental disorder, aged 7-11, played with the video-game for nine weeks, at home. Children were administered a standardized battery of EF tasks (TeleFE, Rivella et al., 2023) before and after the training.

**Results.** The training received positive evaluations across all usability scales. From the interviews, it emerged that the training was assessed as attractive due to its gamified features and helpful as a tool to enhance EFs. Auto-adaptiveness and ease of use were evaluated as two particularly positive characteristics. Among the critical aspects, operators noted that explanations were sometimes too lengthy, and activities were occasionally repetitive. The paired samples t-test indicates an improvement in scores on the interference control and cognitive flexibility subscales.

**Discussion.** Preliminary data suggest that the training is usable even within the context of neurodevelopmental disorders. However, without a control group, it is currently not possible to evaluate the efficacy of the training.

## **SYMPOSIUM 101 - Rethinking narrative in the life span: textual, graphic and experiential tools for self-reflection**

*Proponents:* Luigia Simona Sica (Department of Humanities, University of Naples Federico II, Naples, Italy), Alessandro Frolli (Department of International Humanities and Social Sciences, Rome University of International Studies, Rome, Italy)

*Discussant:* Maria Cristina Ginevra, Department of Philosophy, Sociology, Education, and Applied Psychology, University of Padova, Italy

The narrative approach places specific emphasis on individuals' subjective assessment of their personal experiences and on the stories that they tell about them (McAdams, 1993). Studying narrative accounts provides insights into personal interpretations of experiences that are not accessible through questionnaire measures alone (Alisat & Pratt, 2012). Thus, narrative is not just a methodology but is first and foremost a construct; it is not that the self is measured by assessing stories, but rather the self is a story (McAdams, 1993; McLean & Pratt, 2006). However, the ways a story can express itself have become numerous over time and include various tools and strategies. For instance: the autobiographical narratives enable individuals to structure their experiences in a format that facilitates subjective reflection, and thus, the process of making sense of life or of life's specific events, which is critical to identity development; the visual tools could support to express emotions in an indirect way; the narrative writings are both the processes by which a personal story is created and the reflection of that meaning. Summarizing, the ways in which individuals make sense of their experiences provide the foundation for understanding of self and this understanding is reciprocally expressed in personal narratives (Fivush, Bohanek & Marin, 2011). Developmental psychology has variously used this approach for the study of the formation of the self, as well as for the exploration of profound contents in the various phases of the life cycle. The purpose of this symposium is to make an updated reflection on the narrative approach, understood in a broad sense, identifying tools, methodologies and contexts of use in the life cycle. Focusing on different life phases (from childhood to adulthood), exploring different contexts of use (theory of mind, relationships, orientation to the future, work contexts, risk contexts) and using different narrative tools (interviews, stimuli visual, written texts) the five contributions of this symposium will provide an updated vision of the state of the art on the topic. In the symposium, the innovative aspects relating to both the tools and the contexts of use of the narrative approach will be highlighted.

## **Narrative approach and Theory of Mind in children**

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The narrative approach is based on the idea that storytelling is fundamental for constructing and sharing meanings and human experiences. It argues that the human mind is essentially narrative, as it organizes information into stories to make sense of the world and interpersonal relationships. We recruited children from 5th grade of elementary school. We assessed theory of mind through the NEPSY-II. After the assessment we provide the intervention for 1 month structured as follow: students wrote essays (autobiographical narration) in which they talked about topics relate to personal life events. The narratives concerned the family, the relationship that students have with the world through a description of their own person, the perception of others, friendship and the importance of social interactions. After reading to the class their essays, there was a discussion (1 hr) in which students brainstormed on their own essays and others. Finally, we assessed theory of mind through the NEPSY-II again. We expect the narrative approach to influence theory of mind, as it promotes understanding of mental states through the narration of experiences and perspectives. Stories enable individuals to explore and interpret their own and others' thoughts, desires, and emotions. For instance, in child development, the ability to tell stories is correlated with the capacity to understand and predict others' intentions. Furthermore, the narrative approach has significant implications in the field of clinical psychology. Therapies based on this approach focus on patients' personal stories to help them rewrite and reinterpret their past experiences. This process not only promotes emotional healing but can also enhance self-understanding and understanding of others. In conclusion, the narrative approach constitutes an important contribution to theory of mind, offering a dynamic and interactive perspective on human understanding. The ability to create and interpret stories not only allows us to better understand others but also enriches our own inner experience.

## **A visual tool to tell about perceived relational closeness to others in preadolescents**

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Relationships represent the foundation of human development, and their assessment from a psychological point of view has always been a challenge. Particularly, the closeness that preadolescents experience with others could be difficult to assess considering their growing autonomy in contexts that go beyond family and school. The present study focused on how preadolescents describe the Self in relation to others, in terms of perceived relational closeness. 428 middle school students (218 girls, M age = 12.90 (.91) years) completed a self-report tool in which the traditional Likert-type scale was replaced by seven images representing each two pairs of circles (i.e., one indicating “the Self”, and one indicating “the Other”) at different distances (i.e., from very far away, to almost completely overlapping). Respondents choose one of the seven pairs to answer the question, “Think about [this person/group] and indicate which picture best describes the relationship”. Researchers indicate what person or group the “Other” circle stands for (e.g., “a intimate of yours”, “a friend”, “your community,” etc.). The measure has been assessed in association with socio-emotional abilities and emotion-related personality traits that are key factors for relational experiences in youth. Particularly, the association between the measure of closeness to others and measure of other-oriented ability (i.e., empathy and emotion awareness) and other-oriented behaviors (i.e., prosocial behaviors) has been investigated to examine the convergent validity. Results showed that closeness to others is significantly positively correlated with affective empathy ( $r = .18, p < .001$ ) cognitive empathy ( $r = .23, p < .001$ ), emotion awareness ( $r = .19, p < .001$ ) and negatively to callous-unemotional traits ( $r = -.26, p < .001$ ). Moreover, closeness to others is significantly positively associated with the prosocial behaviors ( $r = .28, p < .001$ , and negatively to problems with peers ( $r = -.26, p < .001$ ). This exploration helps us understand how we can better investigate relational closeness.

## **Adolescents at risk of dropping out narrate their worlds: family, neighbourhood, peers, school, and extracurricular activities**

*Elisabetta Fenizia<sup>1</sup>, Santa Parrello<sup>1</sup>*

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School dropout is the final outcome of a progressive deterioration of the bond between young people, school and society (Favresse & Piette, 2004; Nita et al. 2021). The use of an empirical-analytical or quantitative research methodology predominates the literature, while qualitative and narrative studies are in short supply (De Witte et al., 2013; Vinciguerra et al., 2021). In fact, the experiences of the so-called "dropouts" are rarely explored, especially in terms of the reasons that led them to dropout (Dekkers & Claassen, 2001; Batini & Benvenuto, 2016; Mireles-Rios et al., 2020) and of their life stories (Tateo, 2015; Gatsi et al., 2020). Instead, through autobiographical narration, subjects recall their experiences within their different life contexts. The latter, according to Engeström and colleagues (2022) Multiple Worlds conceptualization, can come into conflict, especially during adolescence. Storytelling allows one to reflect on these dynamics and co-construct with the interlocutor the meaning of one's own path (Bruner, 1990). The aim of the present study – which is part of a wider research – is to explore life experiences and worlds' connections of a group of adolescents, in order to identify the most effective intervention strategies. 20 adolescents from the eastern suburbs of Naples participated in the study. Indeed, this is the area where the Maestri di Strada association (MdS) carries out interventions against school dropout (tutoring, arteducation workshops, orientation, vocational-training). Of the participants, 7 have failed at least once, 3 have already dropped out of school and 7 have been taken into care by social services. Semi-structured narrative interviews were conducted to investigate their experiences in their different worlds: school, family, neighbourhood, peers, MdS. The interviews were transcribed verbatim and the resulting corpus was subjected to Thematic Context Analysis using the T-Lab plus software (Lancia, 2012). 3 clusters were identified: 1) Learning in School and at MdS: judgement vs involvement 2) Feeling strong Emotions in the Family and the Neighbourhood 3) Living the Peer Group and MdS Workshops: pleasure, beauty, hope and change. According to these initial results, the participants recognise the possibility of 'hybridisation' between their worlds (Engeström et al., 2022) supported by their experiences with the MdS.

## **Social differences in the construction of the future: stories of late adolescents**

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Planning and preparing for the future is a key developmental task for late adolescents. This complex process was also defined as “futuring” (Sica, Crocetti, Serafini et al., 2015); the capacity to imagine, prepare and act in order to build own future, which implies activity of reflexive thinking and mental time travel. Imaging the future and one’s self in this future may influence present-day behavioral decision-making and provide some direction for identity exploration and commitments (Oyserman et al. 2004). This future orientation is a complex phenomenon and one that is impacted by social location. The aim of the current study was to explore the futuring process in adolescents with different social conditions in order to grasp the role of contextual factors on future orientation. In order to do that, we adopted a person-centred view, identifying the narrative time-travel processes, the perceived contextual impact, and the relationships between both for each participant. Six adolescents (four girls and two boys from the same geographical area, residing in different spots of the region, and with different socio-economic background) were interviewed following the Life Story Interview (McAdams, 2008). We analysed the interviews using content analysis through the guided multiple reading approach (Schachter, 2004). The results revealed three basic profiles: solid futuring (clear and concrete futuring, with short and long-term planning, the impact of socio-economic conditions does not appear to be influent); plasmatic futuring (vague projects, anchored above all to the desire to “get along”, as a form of appropriation of oneself; the high socio-economic conditions seem to have a negative impact); fluid futuring (it represents a moratorium, in which the life path is marked by predominantly external factors). Implications for identity support interventions are discussed according to the different profiles that emerged, indicating how an active role in the management of biographical transitions can activate a more effective process of defining one's future and one's identity.

## **Narrative writing as a tool for well-being exercise among teachers: a qualitative study with the Sandwich Generation**

*Emanuela Rabaglietti*

*SE-CREA Research Group, Department of Psychology, University of Turin*

The COVID-19 pandemic has led to major changes worldwide, especially in the education field, which has been confronted with a systematic revolution in teaching methods. This has impacted the mental and physical wellbeing of teachers, leading to an increase in work-related stress and associated disorders such as anxiety and depression. The Re-CreAction project was set up to provide teachers with a space of reflection through the teaching of soft skills and expressive and creative writing, where they can dedicate themselves to enhance their personal and professional wellbeing. In the project, expressive writing was used to process a traumatic event, which Pennebaker & Beall have shown in the past improves emotional regulation and promotes a new sense of well-being in participants. Verbalizing the experience leads to a cognitive processing of the associated affects, and through self-examination the individual reaches a deeper level of consciousness and new adaptation strategies for coping with present and future stressful situations. The project involved 45 primary and secondary school teachers with an average age of 40 years, 95% of whom were women and 80% of whom had less than 10 years of service. For data analysis, a qualitative summative analysis was conducted, counting the frequency of word use and identifying themes, categories and key content. Specifically, texts were considered that arose in response to activities dealing with the objective and subsequent subjective/emotional representation of a stressful event. In terms of content, eight main themes emerged: effects of the pandemic, experiences of illness, family worries, relationship support, personal resources, stress at work, the future and grief. Contrary to expectations, themes related to work-related stress emerged in only a small percentage, while the most frequently recurring themes related to relationship support of various kinds (friends and family) and concerns related to the extended family unit (elderly parents and children). Since teachers in their 40s belong to the so-called Sandwich Generation, it is of particular interest to analyze the role that relationship concerns and resources play in order to better explain what measures can be taken to support and prevent stress, also given the educational role they play.

## **SYMPOSIUM 73 – Unraveling resilience: novel discoveries and interventions across the lifespan in diverse populations**

*Proponents:* Fabiola Silletti, Pasquale Musso, University of Bari Aldo Moro - AIP Members

*Discussant:* Cristiano Inguglia, University of Palermo

Recent conceptualizations of resilience have evolved to view it as a dynamic process spanning multiple systems and as a continuum capable of change throughout life. However, empirical studies focusing on this evolving understanding remain limited. This symposium seeks to address this gap by showcasing recent research findings and interventions aimed at fostering resilience across the lifespan. The symposium encompasses diverse analyses at individual and contextual levels, across typical and at-risk populations, employing both cross-sectional and longitudinal designs, and utilizing a range of assessment tools. The first contribution (Silletti et al.) examines early-life resilience dynamics within a sample of American infants and their mothers. Employing a multi-method approach integrating observational data and parental reports, the study investigates the association between infants' negative affect and problem-solving abilities, along with the moderating role of maternal social support. The second contribution (Stefanelli et al.) explores the mediating role of resilience and future orientation on the association between climate change-related stress and life satisfaction among a large sample of Italian adolescents. The third contribution (Giordano & Miragoli) delves into resilience-informed interventions aimed at reducing the risks of child physical abuse in a group of 32 vulnerable Italian families with children aged 0–6 years. The last contribution (Gugliandolo et al.), drawing from self-determination theory (SDT), examines the associations between parental stress and life satisfaction among mothers of children with autism spectrum disorder, mediated by resilience and satisfaction of basic psychological needs. The symposium aims to foster discourse elucidating the multifaceted manifestations of resilience. Central to this dialogue is an exploration of how resilience manifests across distinct life stages, thereby facilitating mental health enhancement and fostering adaptive outcomes. Moreover, the symposium endeavors to scrutinize both theoretical advancements and practical applications, serving as a compass for novel inquiries into the intricate dynamics of resilience and its nuanced determinants across heterogeneous populations.

## **Baby Blues to Bright Solutions: The Role of Maternal Social Support on Infant Resilience**

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Resilience is an active and dynamic process that manifests differently across various developmental nodes (Feldman, 2021). In early childhood, resilience may be conceived as the ability to regulate one's emotions in the face of stress and challenges, as well as the capacity to problem-solve in response to those challenges (Ham & Tronick, 2006; Masten, 2021). Infancy remains understudied in resilience science due to the association of stress and resilience typically with older age groups and the lack of assessment tools. To begin understanding resilience in early life, this study investigated for the first time the relationship between infants' negative affect and their problem-solving skills, as well as the moderating role of maternal social support. We adopted a multi-method approach that combined experimental tasks (Face-to-Face Still-Face Procedure, [FFSP]) and parental reports (Ages and Stages Questionnaire and 2-Way Social Support Scale) to collect measures of infant negative affect, problem-solving skills (at T2), and social support (at T1 and T2) in a sample of 110 infants and their mothers. Moderation analysis was performed using SPSS PROCESS macro while controlling for maternal education and age as well as child sex. High negative affect during FFSF was positively associated with better problem-solving skills in infants ( $b = 1.88, p = 0.04$ ), particularly among those with moderate ( $b = 2.98, p = .003$ ) to high ( $b = 4.11, p = .001$ ) maternal social support. Enhancing social support for perinatal women may play a pivotal role in promoting infants' emotional and cognitive development. These findings shed light on negative affect as a coping mechanism and the potential transmission of intergenerational resilience.

## **The impact of climate crisis stress on children's life satisfaction: the mediating role of future orientation and resilience**

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The effects of climate change are now more and more perceived on a global scale (IPCC, 2021) and some changes are showing a negative impact on people's well-being (Gago et al., 2024). Even those who have not experienced the effects of the climate crisis directly are struggling with negative feelings about the issue (Clayton, 2021). Children's mental well-being is also negatively affected by the climate crisis (Gislason et al., 2021), as they grow up in a world frightened by the serious consequences of climate change and saturated with news of environmental disasters. Given these premises, the aim of the study is to deepen possible mediators of the association between climate crisis stress and well-being, especially for children who can be trained to face the challenge of the climate crisis in a positive way. Future orientation is a protective factor in the face of stressful negative events, leading to greater well-being over time (Chua et al., 2015). Resilience is also considered a protective factor, buffering the development of psychiatric symptoms when individuals are exposed to stressful life events (Hjemdal et al., 2006). Therefore, the present study aims to test if future orientation and resilience can be mediators of the negative relationship between climate crisis stress and a positive indicator of the well-being (i.e., life satisfaction) in children and adolescents. Overall, 393 students (46,1% males; 1,6% other; MAge = 12 [0.3]) took part in the study. Participants were nested in 21 classes of 8 middle schools. A linear regression model was run to test the hypothesis of the study. Multigroup variable was added to the model to control for possible gender differences. According to the findings, no gender differences characterize the relationships between the variables of interest. Furthermore, as expected, the negative relationship between climate crisis stress and life satisfaction was mediated by both future orientation and resilience, although the latter appears to be a stronger mediator. The results of this study can be taken into account by those who want to develop a program of intervention against the negative effects of climate crisis stress on children's and adolescents' well-being. In fact, they suggest that enhancing processes of future orientation and resilience can protect young people from stress and unhappiness.

## **From risk factors to early intervention: pathways to resilience for at risk families with children aged 0-6**

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Resilience is a dynamic process involving the presence and interaction of personal and environmental factors that help individuals to regain, sustain, or improve their well-being when challenged by one or more risk factors. It is facilitated by physical ecologies that make resources available and accessible in ways that individuals experience as meaningful. A growing number of research-informed resilience-building interventions have been considered critical for reducing risks and enhancing well-being in families exposed to ACEs. This study examines the impact of resilience-informed interventions aimed to decrease risks for child physical abuse in a group of 32 vulnerable families with children aged 0-6 years. Some parental risk factors for child maltreatment have been assessed: depression, emotional dysregulation, parenting stress, educational style, and social support. Based on the results at baseline, a resilience intervention has been designed and implemented with each family, to reduce the identified risks. Assessments were completed at baseline and post-intervention. The Abuse scale of the Child Abuse Potential Inventory (CAPI) has been employed with parents to assess the risk of child maltreatment, together with the Beck Depression Inventory (BDI -II), Difficulties in Emotion Regulation Scale (DERS), Parenting Stress Index-Short Form (PSI-SF), Parenting Practice Questionnaire (PPQ) and the Multidimensional Scale of Perceived Social Support (MSPSS). Results from a preliminary analysis indicated that in 68.8% of cases (N=22) the intervention led to a decrease in the risk of child maltreatment (CAPI). Relevant improvements were also identified in: emotional dysregulation in general (DERS) with a qualitative improvement varying from 50% to 62.5%; in the parenting stress (PSI-SF) related to perceived dysfunctional interaction with the child, with a qualitative improvement of 62.5%; in perceived social support (MSPSS), with qualitative improvement of 62.5%; and in educational style (PPQ), with a qualitative improvement of 76% for authoritarian style and 62.5% for permissive style. These preliminary findings show that resilience interventions may contribute to reduce risk for child physical abuse for vulnerable families with children aged 0-6 years.

## Exploring the role of resilience and basic psychological needs in the relationship between parental stress and life satisfaction among mothers of children with autism spectrum disorder

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Extensive research has highlighted how parents, and especially mothers, of children with autism spectrum disorder (ASD), compared to those with other neurodevelopmental disorders, experience more stress related to the parental role and less life satisfaction. Resilience is an important protective factor that can help mothers successfully cope with the stress resulting from the challenges of raising a child with ASD. Recently, the role of basic psychological needs has been investigated in order to gain a broader understanding of the psychological difficulties and resources of parents of children with ASD. Based on self-determination theory (SDT), the present study aims to test the associations between Parental stress and Life satisfaction, through the mediation of Resilience and Satisfaction of basic Psychological Needs. 73 mothers (M= 38,77; SD= 6.01) of children with ASD, and 67 mothers (M= 44,75; SD= 5.11) of adolescents with ASD completed measures of *Parenting Stress Index* (Abidin, 2012), *Resilience Scale* (Wagnild, 2009; Callegari et al., 2016), *Basic Psychological Need Satisfaction and Frustration Scale* (Chen et al., 2015; Costa et al., 2018) and *Satisfaction with Life Scale* (Diener et al., 1985). The results suggest that parental stress was negatively associated with resilience ( $\beta = -.30$ ) and satisfaction of basic psychological needs ( $\beta = -.66$ ), that in turn were positively associated with life satisfaction (respectively  $\beta = .28$  and  $\beta = .35$ ). Multi-group analysis of a structural equation model showed that the structural associations were invariant across the two age groups. The theoretical framework of SDT offers new insights into the study of protective factors against the effects of parental stress among mothers of children with ASD. Specifically, in facing the challenges related to ASD, mothers need to be resilient but also have daily experience that allow to satisfy their psychological needs. The present results suggest important applicative considerations in terms of psychoeducational contexts.

**SYMPOSIUM 23 - Being affected by disease in adolescence and emerging adulthood: which factors can promote a positive adaptation? The response by the Pediatric Psychology Task Force**

*Proponent:* Martina Smorti (Department of Surgical, Medical and Molecular Pathology, and Critical Care Medicine University of Pisa)

*Discussant:* Lucia Ponti (Department of Humanities, University of Urbino)

Adolescence and emerging adulthood are defined as the life phases in which individuals face several developmental tasks related to gain a growing independence from parents while gaining a higher integration into peer groups, expanding social network, being involved in couple relationship, the development of a personal identity. These developmental challenges risk to be more complicated when adolescents suffer from a disease. Being affected by a disease condition may negatively impact psychosocial wellbeing of adolescents and emerging adults. Therefore, understanding the risk and protective factors for the psychosocial well-being of youth affected by disease assumes a relevant role. This symposium explores risk and protective factors of psychosocial well-being in adolescents and emerging adults affected by chronic and acute disease. Specifically, the contribution of Incardona and colleagues explores the adaptation and personal relationships of adolescents and young adults who were healed from leukemia. Rizzi and colleagues investigate the emotional impact of the oncologic disease in a sample of Ukrainian oncologic adolescents transferred from a war context. The contribution of Polizzi and colleagues analyzes the support needs of young people with rare diseases and their parents. Finally, Smorti and colleagues explore the risk and protective factors for the psychological and relational well-being in a sample of emerging adults affected by cardiomyopathy.

## Aya leukemia survivors narrate their daily life: a multi-method analysis with nvivo

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**Introduction.** Leukemia in the pediatric age has a significant impact on various areas of the patient's daily life, such as school and academic achievements, family and social relationships. The study consists of a mixed-method research aimed at investigating different aspects of the current life of adolescents and young adults (AYA) who were healed from leukemia, with particular attention to their adaptation and interpersonal relationships.

**Methods.** The participants were 47 adolescents and young adults survivors (22 males), who had been off therapy for at least 5 years and had previously suffered from various forms of leukemia; their mean age at the time of the evaluation was 18.28 (SD = 2.84; range: 15-24 years). They were recruited during their annual check-ups at the Pediatric Oncohematology Day-Hospital of the University Hospital of Padua and were invited to participate in a semi-structured interview (EFI-C - off-therapy version). Data analysis was conducted using a multi-method approach, utilizing NVivo and SPSS software.

**Results.** The word most frequently used by participants to describe their current life was *good* (N=264) in contrast to *bad* (N=87) ( $Z = -5.26$ ;  $p = 0.001$ ), as well as school and academic performance were more often declared as positive (N=132) than negative (N=52) ( $Z = -3.9$ ;  $p = 0.001$ ). Furthermore, in the narratives, family support was emphasized through the frequent use of associated terms such as *mum* (N=40) and *dad* (N=23), *home* (N =11), *family* (N=8) and *parents* (N=6), showing considerable support declared as always present (Family support present - absent:  $Z = -5.24$ ;  $p = 0.001$ ). On the other hand, support from the social network was mentioned by 29.78% of participants and was similarly reported as absent by the 28.57%. Regarding the communication about the disease, the majority of AYA leukemia survivors reported discussing it more frequently with friends (Communication with friends present - absent:  $Z = -3.85$ ;  $p = 0.001$ ), rather than with their family (Communication with family present - absent:  $Z = -1.93$ ;  $p = 0.05$ ).

**Discussion.** Important clinical indications can be derived from this pattern of results regarding the adaptation of AYA leukemia survivors to their daily lives. Family support and communication about the illness with friends may serve as crucial protective factors in shaping their positive perceptions of life.

## From single trauma to multiple trauma: An intervention research on the intertwining of war trauma and cancer

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**Introduction.** The context of war significantly affects the mental health of affected populations. In particular, the most vulnerable individuals are children and adolescents, whose processes of growth, health and well-being are significantly compromised, leaving a legacy of deep wounds that may persist into adulthood. Among them, those affected by a pathology such as cancer are exposed to the risk of multiple trauma, which makes the traumatic processing and the healing and curing process even more complex. Objectives: (i) to investigate the emotional impact and perceived centrality of multiple traumatic events in Ukrainian children with oncological pathology; (ii) to examine self-perception and assess the use of potential defence mechanisms.

**Methods.** The sample consisted of 9 Ukrainian children (77.8% male; 22.2% female) with an average age of 15 years ( $\pm 2.739$ ) affected by oncological pathology transferred from Ukraine and hosted in Pavia in the Fondazione Soleterre shelter. 66.7% of the sample was in the treatment phase and the remaining 33.3% in remission. At T0, the IES-R, the CES, the graphic test 'Mi Disegno' and the 'Child in the Rain' were administered. The children were then asked to perform the Expressive Writing procedure, following which the T0 measures were repeated (T1).

**Results.** From the results of the descriptive analyses conducted at T0 and T1, the IES and CES scores were found to be average. The analysis of Expressive Writing, however, revealed a wide use of dysfunctional coping strategies, which was also confirmed by the analysis of the graphic tests. Among the defence mechanisms favoured by the boys, a high degree of avoidance emerged (e.g. 'I have nothing to say'; 'even if the war does not end, I will go home without thinking about it'). The graphical tests also revealed a perception of vulnerability and of the self as being distant from reality and difficulties in the emotional regulation of these boys.

**Discussion.** Despite some limitations of the research (small sample size, low participation in follow-up), the results provide important insights into how to better target interventions aimed at supporting and improving the emotional well-being of this population.

## Planet parents-adolescent with a rare disease: relationship representations and care needs

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**Introduction.** The developmental transition characterised by adolescence, in rare disease conditions, can certainly represent a greater complexity, both for the adolescent and for the parents, where the atypical development orients special care needs, as well as possible difficulties in the parent-child relationship. However, research contributions on the special needs of young people with rare diseases and their parents, and on their relationship, are rather 'rare', particularly in Italy. The present study, therefore, promoted by the S.I.P.Ped. and by UNIAMO (Italian Federation of Rare Diseases), was defined in terms of an online survey aimed at exploring the support needs perceived by adolescents with rare diseases and, specularly, by their parents, and at exploring the representation of children and parents with reference to their relationship; the ultimate goal is to put in place support paths for children and families that respond to their real needs.

**Methods.** Data are presented here on 30 children ( $M_{age} = 16.3$  year) (10 boys and 20 girls) with a rare disease, and 45 parents (30 mothers and 15 fathers). The care needs of adolescents and parents were investigated with a specially constructed Questionnaire (adolescent form and parent form). The perception of the quality of the parent-child relationship was investigated by the *Parent/Child Relationship Questionnaire (PCRQ)* shorter version (parent version and child version) (Italian ad. by Esposito and Servera, 2013), divided into 5 factors: Possessiveness; Power Assertion; Personal Relationship and Warmth.

**Results.** The questionnaire data on care needs highlight several interesting data, which often also appear characterised by a certain ambivalence. It should be emphasised that both adolescents and parents express a strong need for support to be able to manage the challenges posed by the evolutionary transition; parents ask to be helped to understand their child's evolutionary changes (24%), as well as adolescents ask to be helped to understand and manage the changes induced by adolescence on all levels of their lives. Another interesting result: adolescents consider it important that their peers know about the specificity of their rare disease, to be understood (40%) and to receive help in times of difficulty (36%); parents agree that they are always very concerned that their child in the relationship with peers will feel embarrassed (39%) or may be bullied (23%). With respect to the data on the perception of the quality of the parent-child relationship, it is interesting that only children perceive the relationship as often excessively characterised by possessiveness; and that there is a statistically significant difference between mothers and fathers with respect to a perception of the relationship with their child based on the personal relationship and warmth factor.

**Discussions.** The data on care needs, as well as those relating to the reciprocal parent-child perception of their relationship, emphasise the need to promote support pathways for adolescents with rare diseases and for their parents that focus on an evolutionary vision of the paediatric condition of each child with a rare disease; a vision, thus, in which the individual evolutionary trajectory is the focus of the caretaking.

## Being affect by cardiomyopathy during the transition to adulthood: how parental relationship can protect the psychological and relational wellbeing

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**Introduction.** Literature showed that cardiomyopathy has a significant impact on psychological and relational wellbeing during childhood, adolescence and adulthood. Few studies have been conducted on the transition to adulthood. The aims of this study were: 1) to analyze the level of distress (anxious and depressive symptoms), the acceptance of cardiovascular disease and the perception of social support (parental bonding and social support) reported by emerging adults with cardiomyopathy; 2) to analyze the relation between distress, disease acceptance and social support; 3) to analyze how the relationship with parents constitute protective factors for distress.

**Methods.** A cross-section research was conducted on 65 emerging adults with cardiomyopathy (79% males; age 16-30; Mage= 24.6; DS=3.8) recruited through Associazione Italiana Cardiomiopatie APS. Participants completed: Parental Bonding Instrument (PBI), Multidimensional Scale of Social Support (MSPSS); Cardiovascular Disease Acceptance and Action Questionnaire (CVD-AAQ); Hospital Anxiety and Depression Scale (HADS). Moreover, participants completed three open-ended questions aimed to deep the impact of cardiomyopathy on the relationship with parents, with friends and with partner.

**Results.** Descriptive analysis showed that participants reported good disease acceptance (CDV-AAQ M= 18,85), supportive relationship with parents (PBI Care M=37), and with friends (MSPSS M= 67,59) and low level of anxious symptoms (HADS-A M=6,27). However, participants reported high level of depressive symptoms (HADS-D M=14,82). Depression is positively related to disease acceptance ( $p=.005$ ). Qualitative analysis showed that, after diagnosis, 20% of participants reported a more critic relationship with parents due to the increased anger, concerns and overprotection perceived by parents. On the contrary 28% of participants reported an improvement in parental relationship due to the increased closeness and communication about disease.

**Discussion.** Family support and communication about disease may serve as crucial protective factors in shaping the positive adaptation.

## **SYMPOSIUM 57 - Enhancing parenting from birth to adolescence: key ingredients for effective interventions**

*Proponents:* Maria Spinelli (Università G.D'Annunzio Chieti-Pescara), Chiara Suttora (Università degli studi di Bologna)

*Discussant:* Rosalinda Cassibba (Università degli studi Aldo Moro, Bari)

The Child Health and Development Unit of the WHO underscores the imperative for global support for children's nurturing care. Central to this paradigm is the pivotal role of parents in providing responsive caregiving and meaningful stimulation that aligns with their children's developmental stages. These fundamental components serve as catalysts for fostering socioemotional and cognitive growth, spanning the critical period from infancy through adolescence. Psychologists are actively engaged in crafting effective, timely interventions aimed at enhancing parental competencies and alleviating the inherent burdens and stresses of parenting. Emphasis is placed on tailoring these interventions to meet the diverse needs of caregivers. In this direction, the symposium intends to showcase four studies designed to support parental caregiving skills across development, spanning from post-partum to adolescence. Interventions vary in duration, focus, and delivery methods (virtual, app, audio, in presence), carefully calibrated to address specific caregivers' needs according to infant's and children's age, objectives, and theoretical frameworks. In the first contribution (Polizzi et al.), the focus lies on describing how a multidisciplinary team can support maternal competencies among mothers of preterm infants from hospitalization to their return home. The second and third contributions presented two mindfulness-based interventions delivered to parents of young infants (Passaquindici et al.) and preschoolers (Suttora et al.). In Passaquindici et al. study effects on the dyadic interaction and on levels of maternal dispositional mindfulness and parenting stress are discussed. In Suttora et al. the intervention increased parental time investments, with effects particularly relevant in parents expressing more stress and less parental competencies at baseline. Barone et al. showcased various studies conducted in several countries implementing the attachment-based intervention CONNECT Parent Group for parents of pre-adolescents and adolescents with the aim to promote attachment security and reduce behavioural problems.

Discussion will focus on the methodological strenghtes of each study that characterize the effectiveness of each intervention and the possible application in clinical settings. Limits will also be addressed to inform future studies.

## Supporting and accompanying maternal competence in the NICU and return home, in preterm birth conditions

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**Introduction.** Early and abrupt termination of pregnancy may induce high levels of parental distress, affecting the perceived parenting competence. This risk condition impacts on the maternal wellbeing during hospitalization in the NICU but also post-discharge. In fact, homecoming may become a further stressful experience for mothers of preterm infants, because in the home setting they must take all caregiving responsibilities and the support and accompaniment to mothers in the transition from NICU to home is fundamental. This study refers to a path of assessment and accompaniment of maternal competence from admission to the NICU to returning home. The aim was to explore mothers of preterm infants' perceived competence during hospitalization (T1) and after hospital discharge (T2) and the effect of an early support and accompaniment intervention.

**Methods.** 104 Italian mothers (M age 32.5 y) with preterm infants (<34 weeks) participated in the study. To measure the perceived maternal competence during the two timeframes we used the Maternal Competence Q-sort in preterm birth (Polizzi et al., 2022) composed by 90 items that are related to the factors of the parental role competence in neonatology model adopted by the study: Emotional and Cognitive coping, Scaffolding, Caregiving.

**Results.** The comparison between maternal competence during hospitalization (T1) and at home (T2) showed that emotional coping, in terms of emotional self-regulation, increased at T2 ( $t= 4.02$ ;  $p= .001$ ), and emotional tension as the representation of one's needs and search of a response to them ( $t= 2.7$ ;  $p= .008$ ) decreased. An increase was found in emotional scaffolding as regards emotional availability and emotional monitoring ( $t=3.35$ ;  $p= .001$ ), and in relational scaffolding ( $t=2.43$ ;  $p= .017$ ). Furthermore, "caregiving" intended as responsiveness, emotional and cognitive attuning to the child's needs, decreased at T2 ( $t= 4.27$ ;  $p= .001$ ) underlying the importance of the support of the NICU's staff.

**Discussions.** Results oriented a specific intervention program to support maternal competence during the transition from hospital to home intended as a process of change that evokes different types of needs. The program, based on integrated work between psychologists, physicians and nurses, includes 4 steps conducted during hospitalization in the NICU and during the first month after discharge.

## From Inner to Dyadic Connection: The Role of Mindfulness in Mother-Infant Interaction During the First Year of Life

Ilenia Passaquindici<sup>1</sup>, Massimiliano Pastore<sup>2</sup>, Maria Teresa Positano<sup>1</sup>, Giulio D'Urso<sup>2</sup>, Maria Spinelli<sup>1</sup>

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**Introduction.** Mother-infant attunement is fundamental to support infant socio-emotional development. Based on the assumption that we connect better with others if we are aware of and connected with our own experience, mindfulness is supposed to affect maternal ability to attune to the infant. However, little is known about this topic in the first year of life. The aim of this study was to explore the effect of a mindfulness-based intervention not specific of parenting experience on mother-infant behavioral and physiological attunement and on maternal well-being at 9 months of age.

**Methods.** Fifty mothers and their 9 months old infant were randomly divided into a control (n = 20) and intervention group (n = 29). The intervention group attended a 5 weeks mindfulness-based intervention, that consisted in listening twice a week to audios related to main mindfulness topics. At pre-test (T1) and 5 weeks later (T2), dyads were video-recorded for three minutes free-play interaction, both partners physiological functioning was recorded applying ECG sensors and Respiratory Sinus Arrhythmia each 20 seconds was computed. Mother-infant behavioral attunement was coded, second by second, with the Tronick's ICEP coding system. Mothers reported about their maternal dispositional mindfulness and mindful parenting.

**Results.** Bayesian analyses were applied to explore effects of the intervention. Results showed that maternal dispositional and interpersonal mindfulness ( $r = .287$ ;  $r = .210$ ) were associated with more positive maternal behaviors. Posterior distributions show a trend of increase in the intervention group after the intervention of dispositional mindfulness (0.11 [-0.06; 0.29]) and a trend to decrease of parenting stress (-0.14 [-0.37; 0.1]). None of the positive behavioral variables showed a trend to increase after the intervention, only a tendency to improve in physiological attunement was observed.

**Discussion.** Findings suggested that maternal mindfulness could represent a protective factor that could support mothers to foster better dyadic interactions with their infants. The implementation of mindfulness-based interventions for mothers could have preventive and clinical implications but should be applied considering limits and areas of efficacy.

## Enhancing positive parenting in parents of preschoolers through the app-based mindful parenting program “MINUTO”

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**Introduction.** Pivotal within the nurturing care agenda (WHO) is to enable parents to provide a stable environment that is sensitive to children’s physical and psychological needs and interactions that are responsive, emotionally supportive, and developmentally stimulating. Disparities in parental investments during early childhood formation emerge as significant drivers of subsequent gaps in emotional and cognitive development among children.

**Methods.** To address this issue, we implemented the MIND Us TOghether (MinUTO) project, a 10-week long APP-based mindfulness intervention through a Randomized Controlled Trial. This intervention targets parents of preschool children aged 4 to 5 years, aiming to foster positive parenting, reduce parenting stress, and increase parental time investment. The MinUTO app proposes contents and activities designed to enhance five dimensions of mindful parenting: Listening with full attention, Emotional awareness of self and child, Self-regulation in the parenting relationship, Non-judgmental acceptance of self and child, and Compassion for self and child. The project involved over 2000 parents, and baseline and end-line data on parent’s behaviors, beliefs, parental stress, and time investment was collected in three time periods (period 1, 2020-2021; period 2, 2021-2022; period 3, 2022-2023).

**Results.** Intention-to-treat analysis revealed that receiving the app increased parental time investment during weekdays ( $ps < .05$ ). This result was further confirmed when we assessed the causal effect of the actual participation in the MinUTO project: each additional app experience completed by parents increased 10 more minutes their time engaged with the child ( $p < .01$ ). Moreover, heterogeneity analysis highlighted that these positive effects on parental time investment were mainly driven by those parents characterized at baseline by lower parental skills and higher stress, i.e., less favorable conditions to positive parent-child interactions.

**Discussion.** Our findings underscore the positive impact of the MInUTO intervention on parental time investment, particularly for those parents who start from less favorable initial conditions. The results emphasize the transformative potential of equipping parents with tools aimed at fostering emotional awareness within the parent-child relationship.

## **Helping parents of adolescents through an attachment-based program: Strengths, outcomes and obstacles in CONNECT Parent group-CPG implementation in Italy and across international sites**

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Attachment theory provides a comprehensive framework for understanding adolescents' mental health in the context of the parent-child relationship. Adolescents, in fact, fare much better when they can rely on their parents for the provision of a safe haven and secure base. Secure attachment in adolescence, related to caregiving quality, is a robust predictor of positive behavioral adjustment in early adulthood and beyond. Nevertheless, few attempts have been made to develop treatments to promote parent-adolescent attachment security.

CONNECT Parent group-CPG (Moretti et al., 2009) is a 10-week manualized effective attachment-based parenting program for parents or alternative caregivers of pre-adolescents and adolescents with behavioral problems to reduce adolescents' behavioural problems and enhance parent-adolescent relationship quality (attachment relationships). This presentation aims at providing a showcase of CPG implementation in Italy by highlighting implementation strengths and obstacles, and by providing main outcomes obtained in both in-person and virtual format implementation. Specifically, three studies will be described; A main multicentric and multi-informant study (N = 100 mothers with adolescents' children; 60% girls,  $M_{\text{age}} = 14.89$  years,  $SD = 1.58$ ) with targeted variables attachment and behavioural problems, a pilot study on eCONNECT implementation (N = 24 parents of adolescents ( $M_{\text{age}} = 13.83$  years,  $SD = 1.76$ , 45.8% girls) with targeted variables attachment, dyadic emotion regulation and behavioral problems, and a third study on the same latter sample with targeted variables attachment, behavioural problems, parental strain and parental sense of competence.

Finally, early results of CPG program tailored implementation achieved in eight countries (both developed and developing: Australia, Canada, China, Kenya, Italy, Mexico, South Africa, and Sweden), across a range of urban and rural locations with diverse, culturally embedded parenting practices, will be presented.

## **SYMPOSIUM 32 - Determinants and Predictors of social development: advances and novel contributions**

*Proponent:* Alessandra Geraci (University of Catania, Catania, Italia)

*Discussant:* Flaviana Tenuta (University of Calabria, Rende, Italia)

Recently, several scientists have supported the idea of an innate predisposition toward social and interacting stimuli (Zanon et al., 2024). Both newborn humans and newly hatched chicks quickly detect face-like stimuli (Valenza et al., 1996; Rosa Salva et al., 2010) and exhibit preferences for self-propelled (Di Giorgio et al., 2015; Mascalzoni et al., 2010) and biological motion (Simion et al., 2008; Vallortingara et al., 2010). Also, both chicks and human infants show a preference for a victim over an aggressor (Geraci et al., 2022; De Roni et al., 2023). Moreover, there is little evidence of the impact of the determinants on social development, such as socio-emotional development, moral development, and early environmental effects (Govrin, 2014). To broaden the knowledge of social development, this work included articles from different theoretical positions that focus on the methods used and on the applicative aspects. This work provided a collection of novel contributions, such as empirical studies, on the emergence and development of sociality. The first study (Guida et al.), using an observational paradigm (Lausanne Trilogue Play), investigated how the family context modulates Heart Rate (HR) in a cohort of 4-month-old infants and their parents. Findings reveal that the interactive context (triadic and dyadic scenes) influences HR patterns in both parents and infants. Specifically, the infant displays higher arousal activation (beats per minute, bpm) in the triadic exchange vs. the dyadic exchange. Conversely, both mothers and fathers reduce physiological activation during triadic interactions compared to dyadic interactions. During the interaction between parents, infants' HR further increases, while parents' activation decreases. These results suggest that early triadic and dyadic interactions affect the physiological arousal responses of family members. The second study (La Rosa & Commodari) explored the relationship between breastfeeding-related factors and maternal attachment, by identifying differences in maternal attachment across breastfeeding methods and evaluating the influence of maternal stress on both breastfeeding and mother-child relationship. This study involved 609 Italian mothers who either currently or recently completed breastfeeding. The instruments used for assessment included the Maternal Postnatal Attachment Scale, Maternal Efficacy Questionnaire, Breastfeeding Self-Efficacy Scale Short Form, and Parenting Stress Index-Short Form. The results indicated that exclusive breastfeeding was associated with higher maternal self-efficacy and maternal attachment was positively correlated with both maternal self-efficacy and breastfeeding self-efficacy. Furthermore, maternal stress was negatively correlated with maternal attachment and self-efficacy, highlighting its significant impact on breastfeeding experience. The regression analysis showed that maternal attachment, self-efficacy, and stress were significant predictors of breastfeeding self-efficacy. Thus, these findings highlight the complex interplay between maternal attachment, self-efficacy, breastfeeding practices, and maternal stress. The third study (Bello et al.), investigated early spontaneous pretend play interactions between children aged 19 to 28 months. We used micro-analytical coding of video-recorded interactions to explore sequences of interaction where children coordinated their actions to engage in social pretend play with objects. The results showed that co-constructed sequences appeared organized by a turn-alternation structure already at 19 months, and children used embodied and material resources afforded by the sequential organization of actions to dynamically manage their participation. These

findings are in line with previous literature suggesting an early onset of social pretend play developing over a continuum, from being predominantly an individual activity to progressively becoming a co-constructed endeavor. The last work (Decarli et al.) investigated the role of emotions in learning. The first study aimed to standardize new video clips to elicit positive, negative, and neutral emotions in preschool children. A sample of 88 children aged 5-6 years was shown 15 videos designed to elicit positive, negative, and neutral emotional states. The data showed the effectiveness of these videos in eliciting the target emotions in terms of both valence (positive-negative) and arousal. The second study investigated the effect of emotions, elicited through a selection of previously standardized videos, on three different trainings for improving the ability to identify the larger number between two digits in 55 5-6-year-old children. The results revealed an improvement in children's skills, particularly in the condition where a positive emotional state was elicited. Finally, a third study explored the effect of emotions on a letter identification test in a sample of 60 children aged 5-6 years. Again, the results found that the training on this task was influenced by the type of emotional state elicited. These findings support the crucial role of emotions in influencing learning outcomes among preschool children, suggesting the different impact that they can have in preschool age.

## **Triadic and dyadic interactions modulate parents' and infant's heart rate**

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Early family interactions are one of the strongest predictors of children's emotional development throughout the years. Existing research on early parent-infant interactions predominantly focused on parent-infant dyads. Yet, the social context of the child is more complex and includes triadic interactions involving both the mother and the father. No study to date has systematically examined how triadic interactions, as opposed to dyadic ones, impact physiological arousal regulation within the family unit. Employing an observational paradigm (Lausanne Trilogue Play), we investigated how the family context modulates Heart Rate (HR) in a cohort of 4-month-old infants and their parents. Findings reveal that the interactive context (triadic and dyadic scenes) exerts influence on HR patterns in both parents and infants, highlighting dynamic interplay of reciprocal influence of physiological arousal responses at the family level. Specifically, the infant displays higher arousal activation (beats per minute, bpm) in the triadic exchange vs. the dyadic exchange. Conversely, both mothers and fathers reduce physiological activation during triadic interactions compared to dyadic interactions. During the interaction between parents, infants' HR further increase, while parents' activation decreases. Furthermore, the importance of the parental couple adjustment emerges prominently as evidenced by a decrease in parents' physiological activation during the mother-father interaction when affectivity, satisfaction and doing things together are perceived as good. Finally, behavioural assessment of the quality of the family alliance underscores that infant's HR, but not mother's and father's, is contingent upon the family ability to organise their roles during the task. These results suggest that early triadic and dyadic interactions exert specific effects on the physiological arousal responses of family members.

## **Assessing the interplay between breastfeeding experience, maternal attachment and stress: insights from Italian mothers and their children**

*Valentina Lucia La Rosa, Elena Commodari*  
*Department of Educational Sciences, University of Catania, Catania (Italy)*

Breastfeeding profoundly impacts maternal and infant health, fostering positive behaviors and a strong maternal-infant bond. Despite widespread beliefs about the benefits of breastfeeding for maternal attachment, empirical evidence is mixed, underscoring the need for further scientific investigation. This study aimed to explore the relationship between breastfeeding-related factors and maternal attachment, identifying differences in maternal attachment across breastfeeding methods and evaluating the influence of maternal stress on breastfeeding experience and mother-child relationship. This study involved 609 Italian mothers who either currently or recently completed breastfeeding. The instruments used for assessment included the Maternal Postnatal Attachment Scale, Maternal Efficacy Questionnaire, Breastfeeding Self-Efficacy Scale Short Form, and Parenting Stress Index-Short Form. Statistical analyses were conducted using Pearson's correlation coefficient, Student's t-test, ANOVA, and multiple linear regression analysis. Most mothers practiced exclusive breastfeeding. The children in the study had a mean age of 13.18 months (SD = 11.36) with a slight male prevalence (53.2% male, 46.8% female), providing a broad perspective on breastfeeding experiences during the first year of life. The study findings indicated that exclusive breastfeeding was associated with higher maternal self-efficacy. Maternal attachment was positively correlated with both maternal self-efficacy and breastfeeding self-efficacy. Furthermore, maternal stress was negatively correlated with maternal attachment and self-efficacy, highlighting its significant impact on breastfeeding experience. The regression analysis showed that maternal attachment, self-efficacy, and stress were significant predictors of breastfeeding self-efficacy. These findings highlight the complex interplay between maternal attachment, self-efficacy, breastfeeding practices, and maternal stress. Exclusive breastfeeding is related to more favorable maternal psychological outcomes and attachment levels, underscoring the importance of breastfeeding support and education. This study underscores the need for interventions to reduce maternal stress and improve attachment and efficacy in breastfeeding, considering the varying ages and developmental stages of the children involved.

## Shared Construction of Social Pretend Play Sequences at the Kindergarten

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Pretend play is usually defined as an activity wherein objects and actions (but also affective expression, at times) are separated from their original meanings. Its developmental appearance is set around the second year of life, and increases dramatically in duration, frequency and quality when play episodes start becoming more complex, both linguistically and interactionally reaching its peak in preschool years. To date, however, little attention has been paid to how social pretend play emerges and develops before the age of three. Our study aims to investigate early spontaneous pretend play interactions between children aged 19 to 28 months attending the same Kindergarten. We used micro-analytical coding of video-recorded interactions to explore sequences of interaction where children coordinated their actions to engage in social pretend play with objects. Our analyses showed that co-constructed sequences appeared organized by a turn-alternation structure already at 19 months, and children used embodied and material resources afforded by the sequential organization of actions to dynamically manage their participation. Children identified and deployed turn-transitions to change activity, negotiate participation, or contribute to ongoing activities. Although explorative, our results are in line with previous literature suggesting an early onset of social pretend play developing over a continuum from being predominately an individual activity to progressively becoming a co-constructed endeavor.

## **The impact of emotions on learning processes in preschool children**

*Gisella Decarli, Simone Zasso, Laura Franchin*

*Department of Psychology and Cognitive Science, University of Trento, Italy*

The influence of emotions on learning processes has been widely demonstrated in the literature. However, the precise effect of emotions on the learning process remains a topic of debate (Tyng et al., 2017). Some studies have reported that positive emotions play a role in promoting good learning outcomes, mediated by self-motivation and satisfaction with school materials (e.g., Um et al., 2012). Conversely, other studies have shown that negative emotional states, such as stress, can either facilitate or hinder learning depending on their intensity and duration (e.g., Vogel & Schwabe, 2016). Starting from these findings, three studies will be presented, that aim to systematically investigate the role of emotions in learning. The first study aimed to standardize new video clips to elicit positive, negative, and neutral emotions in preschool children. A sample of 88 children aged 5-6 years was shown 15 videos designed to elicit positive ( $n = 5$ ), negative ( $n = 5$ ), and neutral ( $n = 5$ ) emotional states. The data showed the effectiveness of these videos in eliciting the target emotions in terms of both valence (positive-negative) and arousal. The second study investigated the effect of emotions, elicited through a selection of previously standardized videos, on three different trainings for improving the ability to identify the larger number between two digits in 55 5-6-year-old children. The results highlighted an improvement in children's skills, particularly in the condition where a positive emotional state was elicited. Finally, a third study aimed to investigate the effect of emotions on a letter identification test in a sample of 60 children aged 5-6 years. Again, we found that the training on this task was influenced by the type of emotional state elicited. In summary, the findings from these studies support the crucial role of emotions in influencing learning outcomes among preschool children and clarify the different impact that they can have in childhood.

## **SYMPOSIUM 149 - Communicative-linguistic developmental pathways from infancy to preschool age: the role of biological and environmental factors in exploring inter-individual variability**

*Proponent:* Caterina Verganti (Dipartimento di Psicologia "Renzo Canestrari", Università di Bologna)

*Discussant:* Maria Chiara Pino (Dipartimento di scienze clinica e biotecnologiche, Università degli studi dell'Aquila)

According to neuroconstructivism, cognitive functions arise from the interplay between biological predispositions and environmental experiences, with early differences in multiple domains shaping developmental trajectories (Westermann, 2016). Comparing typical and atypical populations and integrating research methods could help in understanding the underlying mechanisms of change and inter-individual variability. In this symposium, four proposals explore the influence of multiple constraints, early skills, and environmental experiences on children's language pathways, focusing on preterm birth, hearing loss, language delay, and language(s) exposure. Within this framework, Verganti et al. explored the potential role of early communication skills in mediating the impact of birth condition on language development in preterm and full-term infants, shedding light on the role of infants' index-finger pointing production. Zuccarini et al. examined the development of night sleep and parental bedtime practices in preterm and full-term late talkers and their relationship with expressive language development. Santangelo et al. investigated the impact of an online music program on lexical and gestural skills in toddlers with cochlear implants and those with normal hearing, delving into the role of active music exposure in supporting early language and communication. Lastly, Roch et al. explored the association between motor and vocabulary skills in preschool children exposed to one or more languages, testing whether gross and fine motor skills provide a differential contribution toward lexical skills in monolingual and bilingual children. Thanks to these contributions, the symposium sheds light on the influence of biological and social factors on early language development, both cross-sectionally and longitudinally, and draws attention to the importance of exploring and assessing precursors, individual traits, and environmental influences. It also emphasises the importance of implementing early intervention strategies to support children, especially those at risk, considering inter-individual variability within different developmental domains and their interaction with the social environment, involving collaborations among clinicians, families, and educational services.

## The mediation role of index-finger pointing on preterm and full-term infants' language skills at 18 months

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**Introduction.** The investigation on the use of index-finger pointing and its role in language development in preterm infants is still limited, although preterm birth is a known risk factor for language delay. Additionally, no studies investigated pointing by using experimental situations aimed to directly elicit and assess it in this at-risk population. Thus, this study explored the role of infants' pointing production in mediating the relationship between birth condition (preterm vs full-term) and language skills at 18 months.

**Methods.** Fifty-four 18-month-old infants, 28 preterm ( $M_{GestationalAge} = 30.62$ ,  $SD = 2.82$ ; 39% female) and 26 full-term ( $M_{GestationalAge} = 39.07$  weeks,  $SD = 1.35$ ; 50% female), exposed to the Italian language from birth, with no neurological, sensory, motor, or cognitive deficits, participated in the study. Corrected age was considered for preterm infants. The "decorated room" assessment was employed to elicit pointing (i.e., a room with objects and pictures that parents and infants are instructed to look at without touching them). The infants' index-finger pointing frequency was coded with ELAN. Infants' language skills were assessed with the Bayley Scales of Infant Development-III edition (language composite score). A mediation model was run using PROCESS macro for SPSS, with birth condition as predictor, language composite score as outcome, and infants' index-finger pointing as mediator.

**Results.** The mediation model total effect was significant ( $p < .0019$ ). Birth condition had a negative significant effect on infants' index-finger pointing, as preterm infants produced fewer pointing gestures than full-term infants. It also had a negative significant direct effect on language composite score, as preterm infants showed lower language skills than full-term infants, with infants' index-finger pointing partially mediating this association.

**Discussion.** Although preterm birth independently affects linguistic development regardless of infants' pointing, results indicate its impact on pointing itself, leading to interindividual differences in communicative skills. Hence, pointing may act as a mechanism through which birth condition influences infants' language development. These results lead to important implications for early interventions targeting communicative skills within this population.

## Night sleep, parental bedtime practices and language development in low-risk preterm and full-term late talkers

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**Introduction.** Night sleep patterns undergo significant changes throughout early childhood, with distinct trajectories in typical and atypical development. Parental bedtime practices also change impacting night sleep. In addition, night sleep and parental bedtime practices may affect language development. Limited research has however explored these relationships in populations at risk for language delay and neonatal condition. This study aimed to investigate the development of night sleep and parental bedtime practices in late talkers, considering the role of neonatal condition (low-risk preterm vs full-term) and the association with vocabulary and sentence production development.

**Method.** Parents of 38 late talkers, born either low-risk preterm (GA < 37 weeks;  $n = 19$ ) or full-term (GA  $\geq$  37 weeks;  $n = 19$ ), without neurological disorders, sensory or motor impairments, or severe cognitive deficits, filled out the Italian versions of the Infant Sleep Questionnaire (total night sleep difficulties, settling, night waking, co-sleeping), the Parental Interactive Bedtime Behaviour Scale (total parental bedtime practices, active physical comforting, encouraging autonomy, leaving to cry), and the MB-CDI Words and Sentences Long Form (vocabulary and sentence production) at 31 and 37 months.

**Results.** Repeated measures ANOVAs revealed that, from 31 to 37 months, total night sleep difficulties, settling, and night waking significantly decreased in late talkers. Nevertheless, low-risk preterm late talkers showed higher scores in total night sleep difficulties, night waking, and co-sleeping than full-term late talkers. Concerning parental bedtime practices, active physical comforting and leaving to cry significantly decreased from 31 to 37 months in late talkers. Nevertheless, low-risk preterm late talkers showed higher scores in active physical comforting than full-term late talkers. Multiple linear regressions revealed a significant association between increased total parental bedtime practices, particularly encouraging autonomy, and increased sentence production, over and beyond neonatal condition.

**Discussion.** These findings underscore the importance of monitoring preterm and full-term late talkers' night sleep and parental bedtime practices and implementing interventions that may positively affect their night sleep quality and language development.

## **The relationship between participation in an online parent-child music program and communication development in toddlers with cochlear implants (CIs)**

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**Introduction.** Active engagement in parent-child musical activities could positively affect child development. Research has shown associations between music programs and children's language and communication. Children with cochlear implants (CIs) show large individual differences in language outcomes, compared to their normal hearing (NH) peers. Environmental factors, such as participation in musical activities, may be responsible for this heterogeneity. This study 1) investigates the effects of an online 12-week music program for toddlers with CIs and their mothers (CIs-T group) on early language and communication and 2) compares the developmental outcomes of the CIs-T group with those of NH peers who participated in the program and those of toddlers with CIs that did not participate in the program.

**Method.** Twelve toddlers with CIs ( $M=16.7$  mos,  $SD=3.00$ ) (CIs-T) and their mothers participated in the study. The program began three months after CIs activation and ended six months after CIs activation. Activities focused on different musical elements (rhythm, pitch, and melody). The CIs-T group was compared with a group of 13 toddlers with CIs ( $M=16.6$  mos,  $SD=2.01$ ) and their mothers who did not participate in the program (CIs-C), and with a group of 11 toddlers with NH ( $M=16.1$  mos,  $SD=3.81$ ) and their mothers who participated in the program (NHs). All mothers completed the short form of Words and Gestures of the MacArthur-Bates Communicative Development Inventories. Children's vocabulary and gestures before (T1) and after (T2) the program are discussed.

**Results.** All groups displayed an overall improvement at T2 on the variables considered. Non-parametric analyses show significant improvements for the CIs-T in receptive ( $p = .01$ ) and expressive ( $p = .02$ ) vocabulary. Significant improvements for the CIs-C in expressive vocabulary ( $p = .007$ ) were observed, too. Finally, significant improvements for the NHs in receptive ( $p = .002$ ) and expressive ( $p = .002$ ) vocabulary, and in gestures ( $p = .014$ ) were found.

**Discussion.** An interactive parent-child music program may support vocabulary outcomes in toddlers with CIs in the first months after CI's activation. Positive effects on toddlers' language and communication could also occur in NH peers. Additional data with larger samples and longer data collection could clarify the specific effects of the online music program.

## Exploring the Interplay Between Motor and Language skills: comparison between Monolingual and Language Minority Bilingual preschoolers

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**Introduction.** Motor development is broadly divided into gross and fine motor skills, involving respectively large and smaller muscle movements. Gross and fine motor skills afford different types of interactions thus may potentially differ in the developmental trajectories through which cascading changes in language may occur (Gonzalez et al., 2019). Despite previous research found that both gross and fine motor skills are predictive of language outcomes in early infancy, this relation is unexplored in pre-school and with children exposed to more than one language. The purpose of this study was to test whether gross and fine motor skills provide a differential contribution toward lexical skills in typically developing preschoolers exposed to one or more languages.

**Methods.** Participants: 132 preschool children aged between 50 and 76 months (Mage = 60,5 months; Male = 51%), exposed to one or more languages (respectively N = 98; 34). Materials: Peabody Developmental Motor Scales (PDMS-2) was used to assess gross and fine motor skills in various domains (i.e. reflexes, stationary, locomotion, object manipulation, grasping, visual-motor integration); receptive vocabulary from Phonological Lexical Test (TFL) was employed. Children's language status was evaluated through a questionnaire completed by parents.

**Results.** Independent samples t-test showed a significant difference between monolinguals and LMBC in receptive vocabulary, while no differences were found for any of the gross and fine motor skills. Hierarchical linear regressions show that age, language status (monolingual-LMBC), children's ability to manipulate and properly handle objects (gross motor), as well as in visual-manual integration (fine motor) explain 56% of variation in receptive vocabulary. The influence of motor skills on vocabulary is consistent between monolingual and LMBC.

**Discussion.** Although differences between monolingual and LMBC may be influenced by several factors, the results show that motor skills play a crucial role in shaping vocabulary development between the ages of 4 and 6 years similarly for monolingual and LMBC. Changes in motor development provide children with new learning opportunities to interact with their environment, which serve as critical pathways for language acquisition (Berger et al., 2007).

## **SYMPOSIUM 80 - Language and environmental factors sustaining children's acquisition of Italian as second language**

*Proponent:* Giulia Vettori, Lucia Bigozzi, Università Degli Studi Di Firenze

*Discussant:* Paola Perucchini, Università Roma Tre

As schools become more linguistically diverse, it is essential to identify language and environmental factors that are able to support the acquisition of Italian language in children with different language, socio-cultural and economic backgrounds. All children need to develop adequate literacy skills to fully participate as citizens in an increasingly globalized and complex society. Even more at risk of reading and writing difficulties are children from minority language immigrant families and low socioeconomic status. Current models and previous research mainly derived from studies conducted in opaque orthographies and monolingual samples with a number of years of schooling. There is also a lack of research-based interventions that may guide teachers to promote acquisitions in L2 Italian in children of migrants in a valid way. Thus, it is relevant to extend previous research to bilingual children with different socio-economic backgrounds acquiring Italian language. This symposium proposes a coherent set of studies to discuss the role of multiple language and environmental factors from research and intervention perspectives, involving bilingual children with different socio-economic backgrounds acquiring Italian language across ages and school grades. Specifically, the first presentation investigates longitudinally the vocabulary developmental trajectories of toddlers from low-income monolingual and bilingual immigrant families and their association with environmental factors. The second presentation provides longitudinal results on the effect of early exposure to L2 from nursery age onwards on pre-school and primary school language minority bilingual children's receptive and expressive language skills. The third presentation investigates the longitudinal predictive role of oral narrative and lexical skills on reading and writing acquisitions in monolingual and language minority bilingual children. Finally, the fourth presentation provides the results of the effectiveness of a school intervention through the use of dialogic reading on lexical comprehension and production and expressive grammar skills of preschool children who are either L1-Italian or children of migrants with L2-Italian. The presentations will significantly contribute to advance our theoretical knowledge of the significant language and environmental factors that are associated with literacy development in monolingual and bilingual children. At a practical level, results will provide reliable information on how to promote Italian language acquisitions in children with different language backgrounds.

## Lexical trajectories in Italian of toddlers from low-income bilingual immigrant and monolingual families

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**Introduction.** Children from low-income families show a gap in vocabulary development due to early socio-cultural and economic (SES) inequities. Even within low SES strata, there is wide variability in children's vocabulary development. This variability is related to multiple interacting environmental factors, one of the most relevant ones being exposure to only the societal language or also to a minority language. In Italy, the growth in the incidence of absolute poverty is mainly detected in families with minors and immigrant families. However, evidence concerning the vocabulary developmental trajectories of young children from disadvantaged families in Italy and their association with environmental factors is limited. The present longitudinal study extends previous research to toddlers from low-income families in Italy by (1) comparing expressive vocabulary trajectories in Italian (the societal language) to normative data and (2) investigating environmental factors related to expressive vocabulary development from 18 to 36 months.

**Methods.** Participants were 83 toddlers (41 girls) from low-income monolingual ( $n = 28$ ) and bilingual immigrant ( $n = 55$ ) families. Using the Italian CDI, nursery teachers assessed vocabulary at 18-, 24-, 30-, and 36-months. Parents reported information about environmental factors: being raised in monolingual or bilingual environments, maternal education, frequency of home language activities in Italian (HLA), and daily hours at nursery school.

**Results.** (1) At each assessment time, the median vocabulary scores of toddlers from low-income families were lower than normative data from the CDI; (2) mixed models showed that children's vocabulary increased from 18- to 36- months. Bilinguals showed lower vocabulary than monolinguals from 18 to 30 months, but not at 36 months because bilinguals' rate of development was higher than that of monolinguals. Maternal education and HLA predicted vocabulary from 18- to 36- months over and above being raised in monolingual or bilingual environments.

**Discussion.** Poverty affects early vocabulary development in Italian. A bilingual immigrant environment contributes to variability in vocabulary within a homogeneous low-income group, but it is not an additional risk factor at 36 months. Maternal education and HLA are protective factors of early vocabulary acquisition in disadvantaged contexts.

## How important is early L2 exposure in the language development of language minority bilingual children?

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**Introduction.** In the current multicultural context, having evidence with respect to language development trajectories in Language Minority Bilingual Children (LMBC) is crucial. In the literature, however, references to the language development trajectories in the majority language of this population and factors predicting language acquisition are still unclear (Dicaldo & Roch, 2020). The present research intends to compare the language skills of pre-school and primary school typically developing LMBC (L2 Italian) through a longitudinal study design, investigating the effect of early exposure to L2 from nursery age onwards. The assumption is that receptive and expressive language improves significantly as exposure time increases. Different patterns are expected for preschool and school aged children.

**Methods.** 79 pre-school and primary school LMBC children (aged 4-8 years) with typical development. A questionnaire was administered to parents to collect language history and attitudes and standardised tests were selected to assess different levels of language (narrative, morphosyntactic, lexical, phonological in production and comprehension). All participants were assessed twice at one-year interval.

**Results.** Statistical analyses (t-test) showed significantly better language skills in school-age than in pre-school children. All language skills tended to improve within one year although the different language domains in production and comprehension had different rates of development (t-test). Through hierarchical regression analysis, the role of the onset of exposure to L2 in language development was analysed: for preschoolers, the precocity of exposure to L2 in the educational context (nursery) represents the key factor in predicting the developmental trajectory of both receptive and expressive language; for school aged children, on the other hand, this trend can only be generalised to vocabulary.

**Discussion.** In conclusion, significant progress is observed in the language development of LMBC children within a year; the precocity of exposure to L2 plays a fundamental role especially in the pre-school period, whereas in the school age this factor appears to be no longer determinant. This raises the hypothesis that in the school-age LMBC population, other intervening factors influence the trajectories of language development.

## The relationships between oral narrative, reading and writing skills in primary school exploring the moderating role of cognitive-lexical skills: a longitudinal study

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**Introduction.** Previous studies have demonstrated that preschool children's oral narrative competence significantly predicts later reading and writing abilities in primary school. Although the studies carried out so far have considered the transition between preschool to early school entry, few studies have investigated the relationship between oral narrative, reading and writing skills in school-age children with different language backgrounds acquiring Italian language. This longitudinal study aims to investigate the predictive role of monolingual and language minority bilingual children's oral narrative and cognitive-lexical skills on subsequent orthographic accuracy (writing) and decoding accuracy (reading) measured one and a half years later in primary school.

**Methods.** Eighty primary school children (*M*-age at Wave 1= 8.57 years, *SD*= .53; 52 boys and 28 girls) took part in the longitudinal study. Of these, at the beginning of the study, 39 students attended the 3rd grade (at Time 2 they were in the 4th grade) and 41 students attended the 4th grade (in 5th grade at Time 2). The sample was composed by monolingual (55%) and language minority bilingual children (45%). In a first phase, oral narrative skills, reading accuracy, reading speed and spelling accuracy were collected; then, in a second phase, children completed a lexical task between the first and last data collection. Finally, in a third phase, reading accuracy, reading speed and spelling accuracy were collected.

**Results.** For both language groups (i.e., monolingual and language minority bilingual children), the results from the moderate mediation analyses show a direct predictive role of effect of oral narrative skills, as well as the significant interaction between oral narrative skills and lexical skills on later on reading and writing accuracy.

**Discussions.** Our findings extend knowledge about oral, reading, and writing domains' longitudinal connections in primary school and specify the important moderating role of lexical skills in the relationship between oral and reading or writing skills for monolingual and language minority bilingual children.

## A “dialogic reading” intervention at school to promote language skills in 4-year-olds: data from a pilot study conducted in Italy

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**Introduction.** Infant language promotion programmes that use dialogic reading conducted by teachers in a school setting are rare. To examine the effectiveness of the intervention “Dialoguing with the stories of Leo Lionni” on lexical comprehension and production and expressive grammar skills of preschool children who are either L1-Italian or children of migrants with L2-Italian.

**Methods.** The intervention program consisted of 5 sessions a week (of around 30 minutes each) for a duration of 4 weeks. During the intervention 10 books were proposed for reading. Lexical comprehension, lexical production and expressive grammar skills were assessed before and after the intervention. Thirty-one children aged 4 years participated in the study: 20 (N=12, L1 Italian; N=8 L2 Italian) participated in the intervention and 11 (N=7, L1 Italian; N=4, L2 Italian) formed the control group.

**Results.** Statistical analyses (repeated measure ANOVAs) show a significant effect of the intervention only on lexical production: the children in the intervention group showed a greater increase in vocabulary production between pre and post-test than the children in the control group. A comparison between the L1 Italian children and L2 Italian children who participated in the intervention shows that children with L1 Italian have a higher performance in both lexical production and expressive grammar.

**Discussion.** The results highlight greater expressive language abilities post intervention in the children who participated in dialogic reading, particularly in the L1 Italian children, underlining the usefulness for teachers to adopt a dialogic reading strategy in kindergarten, and a necessity to reflect on how to promote L2 Italian in children of migrants.

## **SYMPOSIUM 49 - Emotional and relational well-being in adolescents and young adults**

*Proponents:* Emanuela Confalonieri Università Cattolica del Sacro Cuore di Milano, Carla Zappulla, Università degli studi di Palermo

*Discussant:* Ugo Pace, Università Kore, Enna.

In recent years, the well-being of adolescents and young adults is increasingly a topic of research and intervention, and the constructs identified investigate personal, emotional, and relational dimensions. What is emphasized is the need for a multidimensional look that through quantitative and qualitative approaches investigates possible critical developmental and identity issues providing useful interpretations to better understand the challenges of these transitional phases. This symposium therefore aims to present studies that focus on different constructs highlighting the protective and risk factors that in developmental tasks and critical events encountered can support or hinder young people. More specifically, the work of Graziano and colleagues is aimed to study the role of identity satisfaction on depressive symptoms, affective well-being, and life satisfaction, as well as the potential mediating role of self-efficacy in coping with chronic illness. Cirimele and colleagues through their study would explore the link between prosocial behavior and sympathetic emotion and the link between prosocial behavior and negative emotions in the daily life of young adults. In their study Colombo and colleagues would explore using a qualitative approach young adults' perceptions of uncertainty and ambiguity within romantic relationships and their potential outcomes on well-being. Finally, Affuso and colleagues aimed to examine the bidirectional associations between prosocial behavior, peer support/acceptance and psychological well-being in a sample of Italian adolescents.

## The role of identity satisfaction and self-efficacy for the psychological well-being of young adults with chronic illness

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**Introduction.** The diagnosis of a chronic illness in young adulthood represents a non-normative transition in the lifespan and a break in the process of identity redefinition. While most research on the psychological aspects of chronic illness in young adults has examined correlates and predictors of depression, anxiety, and reduced quality of life, there is a lack of knowledge about factors that may be associated with psychological well-being despite illness. The aim of this study was to investigate the role of identity satisfaction on depressive symptoms, affective well-being, and life satisfaction, as well as the potential mediating role of self-efficacy in coping with chronic illness.

**Methods.** The study involved 120 patients with multiple sclerosis (MS), 68% women with a mean age of 27 years ( $SD = 4.5$ ), who had been diagnosed with MS no more than three years previously. Patients completed questionnaires on identity satisfaction (Identity Motives Scale), self-efficacy in MS (with the two dimensions of goal setting and symptom management), depression (CESD-10), positive and negative affect (PANAS) and life satisfaction. The data were analyzed using regression analysis; the hypothesized mediation models were tested using the PROCESS SPSS macro.

**Results.** Higher identity satisfaction was directly related to lower depression and higher affective well-being and life satisfaction. Both aspects of self-efficacy in MS (goal setting and symptom management) mediated the relationship between identity satisfaction and affective well-being. Goal-setting self-efficacy mediated the relationship between identity satisfaction and depression and life satisfaction.

**Discussion.** The results suggest that it is useful to consider identity redefinition and self-efficacy in psychological interventions to promote psychological well-being in young people with chronic illness, particularly early in the disease.

**Keywords:** young adults, chronic illness, identity, psychological well-being, depressive symptoms.

## Dynamic Interplay between Prosocial Behavior and Sympathetic and Negative Emotions in Everyday Life among Young Adults

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Prosocial behavior (i.e., voluntary actions aimed to benefit others, such as helping, comforting, and sharing) has proved beneficial for individuals' well-being over the life course. Previous studies well-established the long-term associations between prosocial behavior and emotional experience. For instance, higher engagement in prosocial actions is associated with higher sympathetic emotion (i.e., emotional response of concern for the other's emotional state or difficult conditions) and lower experience of negative ones (i.e., sadness and anger) from infancy to adulthood. However, their dynamic interplay in the everyday lives of young adults remains largely unexplored. The present study would advance this line of studies by exploring (1) the link between prosocial behavior and sympathetic emotion and (2) the link between prosocial behavior and negative emotions (i.e., sadness and anger) in the daily life of young adults. Using ecological momentary assessment with a sample of 67 young adults from the United Kingdom ( $M_{\text{age}} = 23.73$ ,  $SD = 3.20$ ; 68.7% women), prosocial behavior, sympathetic, and negative emotions were assessed three times a day over 28 days. Results of Dynamic Structural Equation Models showed that higher-than-expected levels of prosocial behavior at a given moment predict higher feelings of sympathy than usual at the subsequent moment ( $\beta = .187$ , 95% CI [.155, .222]). However, the inversed link conducive from sympathy to prosocial behavior did not result significantly ( $\beta = .068$ , 95% CI [-.003, .133]). Regarding negative emotions (i.e., sadness and anger), results showed that a peak in prosocial behavior at a given moment predicts lower-than-expected levels of negative emotions at the subsequent moment ( $\beta = -.041$ , 95% CI [-.074, -.010]). At the same time, feeling higher-than-usual negative emotions undermines subsequent peaks in prosocial behavior ( $\beta = -.048$ , 95% CI [-.088, -.006]). The inclusion of young adults' gender and age did not alter the strength of these relations. These findings suggest the importance of strengthening young adults' prosocial behaviors and positive emotionality, as well as strategies to regulate negative emotions in everyday life to promote emotional and social well-being.

**Keywords:** prosocial behavior, sympathy, negative emotions, young adults, ecological momentary assessment

## What about us? Young adults' perceptions on uncertainty and ambiguity within romantic relationships and their potential outcomes on well-being

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**Introduction.** Contemporary romantic relationships in young adulthood are characterized by high heterogeneity, which main signatures frequently appear to be uncertainty and ambiguity. Literature suggests that uncertainty and ambiguity in romantic relationships may on one hand have a positive valence (e.g., increasing appeal), but on the other hand have a potential negative impact on individual and relational well-being (e.g., fostering negative emotions and dysfunctional behaviors). To date, there are no qualitative studies in Italy investigating these dimensions. The aim of this study indeed is to explore young adults' perceptions of uncertainty and ambiguity within romantic relationships.

**Methods.** We conducted 7 single-sex focus groups online with 47 Italian young adults (28 females) aged 19-30 years.

**Results.** Thematic analysis was used and 3 main themes emerged. The first was labelled "Uncertainty and ambiguity: what we are talking about", regarding the conceptualization of the two constructs and the significance attributed to them in nowadays society. The second was "Heads or tails?", concerning the perceptions of the associated positive outcomes and the potential negative consequences related to uncertain romantic situations. The third was "Why getting into uncertainty and ambiguity?", regarding the factors that may lead to look for more uncertain and unstable romantic experiences.

**Discussion.** This study is the first one investigating young adults' perceptions of uncertainty and ambiguity. It emerged that uncertainty seems to regard more thoughts and emotions concerning one's romantic involvement, while ambiguity more the situation and the behaviours enacted towards the partner. Young adults underlined that these dimensions may represent core elements within contemporary romantic relationships and recognized that they may lead people to acquire awareness about relationships but, if protracted, to negative individual and relational outcomes. Finally, young adults identified what may induce people to look for uncertainty and enact ambiguous behaviors in romantic experiences. Overall, as uncertainty and ambiguity may represent potential risk factors that could undermine well-being, it emerges the need to consider these dimensions in the intervention to help people establishing healthier romantic relationships.

**Keywords:** relational uncertainty, relational ambiguity, romantic relationships, young adults, focus group.

## The reciprocal effects of prosocial behavior, peer support/acceptance and psychological wellbeing in adolescence: A four-wave longitudinal study

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Prosocial behavior was recently found to predict peer acceptance among adolescents over distinct times (Chávez et al., 2022). Further, the relations of both prosocial behavior and peer acceptance with wellness have been previously established. For instance, Nelson et al. (2016) showed that prosocial behavior was related to psychological flourishing, while Adedeji et al. (2022) demonstrated the protective function of peer acceptance against depressive symptoms.

Based upon the literature, the present study aimed to examine the reciprocal effects of prosocial behavior, peer support/acceptance and psychological wellbeing in a sample of Italian adolescents. Specifically, it was hypothesized that over time: (H1) the variables would have an impact on each other; and (H2) prosocial behavior would impact psychological wellbeing through the mediation of peer support/acceptance. Within a longitudinal design, we selected a sample of 587 students ( $M = 308$ ;  $M_{age} = 15.23$ ,  $SD = .59$ ) attending the first year of high school (in Naples and province) at T1 (in 2016) and the fourth year at T4 (in 2019). At each time they completed a questionnaire comprising the measures of prosocial behavior (Caprara & Pastorelli, 1993), peer support/acceptance (Van Ryzin et al., 2009), and psychological wellbeing (Ryff & Singer, 1996). For data analysis a Cross Lagged Panel Model (CLPM) was applied by means of Mplus 7.4. CLPM showed that the hypothesized model fit the data:  $\chi^2(44) = 238,630$ ,  $p < .001$ , RMSEA = .08, SRMR = .06, with 37% of variance explained for psychological wellbeing. Thus, over time all the measures significantly and positively influenced each other except for the effect of peer support/acceptance on prosocial behavior from T2 to T3. Further, it was demonstrated that prosocial behavior significantly and positively influenced psychological wellbeing through the mediating role of peer support/acceptance. Our results underline the weight that such variables hold in their reciprocal influence over time. It is noteworthy the relation of prosocial behavior with psychological wellbeing through the mediation of peer support/acceptance. These results suggest the importance of implementing interventions aimed to enhance prosocial skills that consequently increase peer group acceptance and adolescents' psychological wellbeing.

**Keywords:** prosocial behavior, peer acceptance, well-being, adolescence, cross-lagged panel model.

## **SYMPOSIUM 98 - Cognitive and affective mechanisms of mathematics and other STEM-related skills in typical and atypical development**

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Science, Technology, Engineering and Mathematics (STEM) learning has been extensively studied, yet the modulating role of some affective and motivational aspects remains to be elucidated. Furthermore, the cognitive underpinnings of STEM-related skills such as physics and geometry have been overlooked. The present symposium is aimed at investigating affective (#1, #2, #3, #4) and cognitive (#2, #4, #5) mechanisms in learning mathematics (#1, #2, #3, #4, #5) and other STEM (#3, #5) in typical (#1, #5) and atypical (#2, #3, #4) development. The first contribution uses a longitudinal design to examine how math anxiety, math self-efficacy, math performance and gender influence high-school STEM choices in middle school, demonstrating the critical role of affective and motivational factors. The second contribution investigates the role of anxiety (general trait and math anxiety) and executive functions on mental calculation's performance in children with and without dyscalculia, showing that better mathematics performance was associated with lower levels of math anxiety and higher updating skills only in the non-diagnosed group. The third contribution examines the relation between mathematics (arithmetic and geometry) and emotional factors (math and spatial anxiety) in individuals with and without learning disabilities, showing that individuals with learning disabilities manifest higher levels of math and spatial anxiety, which are found to be associated with arithmetic and geometry performance respectively. The fourth contribution compares motivation, internalizing problems (depression and anxiety) and the perception of executive functioning in typical learning children and children with dyscalculia, demonstrating significant differences between the groups and that a worsened perception of executive functions seems to be determined by the presence of depressive symptoms in both groups. The fifth contribution uses a network analysis to examine the relationship between spatial, maths and physics skills, proposing a data-driven exploratory model of the relationships between spatial and STEM-related skills.

## Contribution of affective-motivational factors in middle-school stem choices: a three-years longitudinal study

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**Introduction.** In today's world, which is progressively oriented towards science and technology and facing a growing demand for skilled professionals, it becomes essential to identify the factors that encourage individuals to pursue careers in STEM and math-related fields (Science, Technology, Engineering, and Mathematics). Previous research has shown that affective-motivational factors, math performance, and gender influence STEM occupational and academic choices in college and adulthood. However, few studies have examined how these factors may influence STEM choices as early as middle school. This study aims to assess how math anxiety, math self-efficacy, math performance, and gender influence high-school STEM choices during middle school. Specifically, we considered the Italian school system, as Italian students are required to make a decision regarding high schools that are characterized by their focus on either a more humanistic or technical-scientific curriculum.

**Method.** We longitudinally assessed a group of 109 students (Year 6) over three school years, with measurements taken at three different time points. We assessed students' math anxiety, math self-efficacy, and math performance in both Year 6 and Year 7. Then, we collected students' high school choices in Year 8. To achieve the aims of the present study, the data were analyzed using ANCOVAs, logistic regressions, and dominance analysis.

**Results.** Findings indicated that individuals who made a high-school STEM choice experienced lower math anxiety, higher math self-efficacy, higher math performance, and were predominantly male. Furthermore, hierarchical logistic regressions and dominance analysis revealed that both math anxiety in Year 7 and math self-efficacy in Year 6 made the most substantial contributions to the high-school STEM choice, followed by math self-efficacy in Year 7, math anxiety in Year 6, math performance, and gender.

**Discussion.** Overall, our findings suggest that affective and motivational factors seem crucial in influencing high-school STEM choices in middle school students, more so than other factors such as math performance and gender. Consequently, future studies should consider activities aimed at mitigating negative attitudes toward math that could prove beneficial, making STEM educational pathways an accessible opportunity for a growing number of students.

## Investigating the potential impact of mathematics anxiety and executive functions on mental calculation in children with and without dyscalculia

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**Introduction.** Children with developmental dyscalculia could experience a specific form of anxiety associated with mathematics, named mathematics anxiety (MA), which may further interfere with their academic success. Moreover, school challenges may be exacerbated by cognitive difficulties, involving executive functions (EFs). The present study aims at understanding underlying affective and cognitive mechanisms of mental calculation's performance in children with dyscalculia, as compared to non-diagnosed children.

**Methods.** The sample includes two groups: 39 (17 M) participants with dyscalculia; and 48 (24 M) without any diagnosis (ND), aged between 8 and 15 years old, matched for age, gender, and IQ. Participants were administered with a mental calculation task, three EFs' tasks (assessing inhibition, updating, and set shifting), and a questionnaire on MA. Parents filled out a questionnaire on their child's general trait anxiety.

**Results.** The two groups statistically differed in all measured variables, with dyscalculic children performing worse in all tasks (mental calculation: *Cohen's d* = -2.38; inhibition: *Cohen's d* = 1.06; updating: *Cohen's d* = -.81; set-shifting: *Cohen's d* = .46) and reporting higher anxiety scores (general: *Cohen's d* = .66; MA: *Cohen's d* = .51) than ND participants. In order to analyse the underlying mechanisms of mental calculation's performance (accuracy as dependent variable), we performed a series of regressions using a hierarchical approach with general trait anxiety, MA, and EFs (inhibition, updating and set shifting) as predictors, by considering also the interactive effect of the group. Our best-fitting regression model (adj  $R^2 = .68$ ) revealed two statistically significant interactions between MA\*group ( $t = -2.20$ ,  $p = .03$ ), and updating\*group ( $t = 2.30$ ,  $p = .02$ ): a better mathematics performance was consistent with lower levels of MA and higher updating skills in the ND group, but not in the group with dyscalculia.

**Discussion.** Findings suggest that MA and EFs might act respectively as risk and protective factors in ND youths, yet not being predictors of math performance in dyscalculia, even though anxiety and cognitive difficulties occur. Our findings call into question potential differences explaining the link between poor mathematics performance and MA in children with and without dyscalculia. In light of the results, clinical and educational practices should focus not only on empowering cognitive strategies, but also on boosting children's positive attitudes towards mathematics.

## Geometrical and emotional difficulties in individuals with learning disabilities

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**Introduction.** Geometric and arithmetic knowledge are integral components of school curricula and widely used in daily life. While difficulties with arithmetics have been extensively studied in individuals with learning disabilities, the assessment of geometrical abilities has been largely overlooked. Similarly, the relation between these abilities and emotional factors, such as math and spatial anxiety, has received little attention.

**Methods.** In this study, we filled this gap by testing 82 participants covering two age ranges (8-16 and 19-28 years old), including 35 individuals with learning disabilities (dyscalculia and/or dyslexia).

**Results.** We found that individuals with learning disabilities performed poorly on tests of geometry (both non-symbolic and symbolic geometry) and arithmetics (calculation) compared to their age matched peers without learning disabilities. Additionally, they manifested higher levels of math anxiety. Among older participants with learning disabilities, there were also elevated levels of spatial anxiety (data not available in younger individuals). Math anxiety predicted arithmetical abilities, and, in older individuals, spatial anxiety correlated with non-symbolic geometry, in both cases these correlations persisted even when controlling for group. Performance in non-symbolic geometry also correlated with scores in symbolic geometry, even when controlling for group and spatial anxiety.

**Discussion.** Overall, these results indicate that individuals with learning disabilities may encounter difficulties across multiple branches of mathematics, particularly in arithmetic and geometry. Moreover, they may experience various forms of anxiety when confronted with tasks involving spatial or numerical reasoning.

## **Motivation, internalizing problems and perception of executive functioning in children with dyscalculia and typical learning**

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**Introduction.** Children with specific learning disorders face difficulties at school which might lead to internalizing problems (such as anxiety and depression) and lack of school motivation for the perception of cognitive difficulties. Therefore, the aim of the current study is to compare motivation, depressive and anxiety symptoms, and the perception of executive functioning in typical learning children and children with dyscalculia. Moreover, we hypothesize that internalizing problems and motivation would influence children's perception of their cognitive functioning.

**Methods.** 54 children (10.56 years  $\pm$  1.56), 26 of which diagnosed with dyscalculia or dyscalculia mixed with other learning disorders, were contacted, and were asked to answer questionnaires about study motivation, internalizing problems (depression and anxiety), and perception of executive functioning.

**Results.** The ANOVA model showed significant differences between typical learning children and children with dyscalculia. Specifically, children with dyscalculia showed less study motivation and more amotivation, a worse perception of executive functioning, and higher depressive symptoms than children with typical learning. No differences were found on anxiety. The regression model reported that a worsened executive function perception seems to be determined by the presence of depressive symptoms, with no difference between children with dyscalculia and with typical learning.

**Discussion.** From this study, children with dyscalculia appear to suffer from lack of motivation, a worse perception of executive function and higher depressive symptoms than children with typical development. The results suggest teachers and parents to take care of children's mental health independently from having learning disabilities.

## A network of the relationships between spatial and STEM-related skills

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**Introduction.** Growing data converge in demonstrating the role of spatial abilities in Science, Technology, Engineering and Mathematics (STEM) skills. A relationship between spatial and maths skills has been consistently found, albeit with considerable variability in the results likely due to the different skills examined. Scarce data, instead, are available on the contribution of spatial and maths domains in learning physics. The aim of the present study is to test the relationships between spatial, maths and physics skills by means of network analysis, a statistical approach particularly suited to analyze relations among different domains.

**Methods.** *Participants.* High school students (N=81; 40 females; age range: 14-15.8; M=15.2 years; *SD*=.39) were recruited for the study. *Measures.* All participants underwent an extended formalized cognitive assessment of spatial (figure disembedding, mental rotation, spatial construction and spatial reasoning), maths (mental computation, arithmetical facts, numerical processing and arithmetic) and physics (intuitive physics) skills. *Statistical analysis.* A Network analysis, with regularized estimation method (eBIC Graphical Lasso) and bootstrapping procedure (1000 resampling), was carried out to test the association between the three domains.

**Results.** The main results showed that spatial reasoning was a node with high centrality strength in connecting the three domains; also, it was directly related to arithmetic, whereas figure disembedding was directly related to mental computation accuracy. Moreover, physics was directly related to spatial reasoning, mental rotation, mental computation accuracy and, with a lower weight, to numerical processing and spatial construction.

**Discussion.** Consistent with previous studies, spatial reasoning modulated the relationship between representational spatial skills and maths, also showing a direct association with physics. These findings can provide a data-driven exploratory model of the relationships between spatial and STEM-related skills and can help to clarify the cognitive bases of learning physics.

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