

Research options available for topic B

Research topics a) and b) offered by every Doctoral Course involved in UNIPhD are frameworks within which every applicant has to present an original research project in collaboration with a Supervisor at the University of Padua.

Potential Supervisors at Unipd have proposed the following detailed research options, which are related to the research topic. They are offered as a guideline and should facilitate your contact with potential Supervisors. Supervisors' e-mail is specified in every research option table. You are welcome to contact them directly.

Note that this research option list is not at all exhaustive and, within the topic you have chosen, you are free to propose a different research project.

Doctoral Course	PSYCHOLOGICAL SCIENCES
Macro-area	Life Sciences
Department name	Department of Developmental Psychology and Socialisation
Webpage	http://dottorato.psy.unipd.it/en
Research topic B	<p>Promoting development and well-being from early infancy to adulthood</p> <p>The topic is centered on the development of innovative techniques for the assessment of psychological, emotional, and social functioning of children with neurodevelopmental disorders, oncology disorders, and psychological difficulties. The topic is also focusing on developing specific training and interventions, also capitalizing on new technologies, to improve children's cognitive, emotional, and social wellbeing and treatments outcomes.</p>
Link to the UNIPhD Call (Academic Year 2022/2023)	https://www.unipd.it/en/uniphd
Latest Update	11.01.2022
#Number of available Research Options	3 <i>Scroll down to see all the Research Options</i>

1 Research Option Description

Doctoral Course	Psychological Sciences
Department name	Department of Developmental and Social Psychology
Research topic B	Promoting development and well-being from early infancy to adulthood
Research option	FEEL GOOD 2.0! New technologies for the implementation of psychological support and rehabilitation at hospital and at home for pediatric patients with onco-haematological diseases.
Supervisor	PI: Prof. Sabrina Bonichini, s.bonichini@unipd.it Secondment hospital chief: Dr. Marta Tremolada. Secondment University chief: Dr. Livia Taverna
Webpage	https://en.bachecadev.cca.unipd.it/off/doctype/718EB03E620811C61ABECE6CCCAFF8A1
Context of the research activity and objectives	<p>This research project will focus on psychological, motor, and physical functioning in pediatric patients treated at the Pediatric Hematology, Oncology and Stem Cell Transplant Center of Padua.</p> <p>Trauma after an oncological diagnosis communication, difficult hospitalization, negative effects of therapies and cancer itself deeply impact the developmental tasks of children and adolescents. Families disrupt their normal daily routines and must adapt to and cope with several stress sources.</p> <p>The project will include two different studies.</p> <p>The first study will focus on children aged 4-10 years. Difficulties in fine motor dexterity and visual-motor skills may occur in children with oncohematological diseases. This study aims to: 1. Assess the fine-motor and visuo-spatial skills in pediatric patients adopting a graphics tablet, connected to a personal computer on which the <i>CSWin</i> program is installed; 2. Propose a specific upper limbs rehabilitation programme, adopting interactive robots <i>Ozobot</i> and <i>Blue-Bot</i> or specific psycho-educative activities; 3. Evaluate the possible efficacy of a supporting intervention to promote the acquisition of manual dexterity, hands' strength and grapho-motor skills.</p> <p>The second study will involve pre-adolescents and adolescents aged 11-18 years. Isolation, socialization problems, physical changes, self-esteem difficulties and body dissatisfaction are some of the main difficulties in this clinical population. Adolescents' developmental tasks cannot be totally experienced and easily achieved due to the illness condition. Considering the current pandemic COVID-19 limitations too, these ill teens cannot stay together with their peers, losing the possibility of the fundamental relationships with their hospital companions as well. This second study aims to: 1. Have a screening of patients' psychological, physical, and social functioning; 2. Adopt virtual activities, such as <i>virtual reality</i> or <i>digital games</i>, that allows psychologists and educators to enhance psychological and motor functioning following at a distance group of adolescent patients; 3. Assess</p>

	<p>motor, emotional and social wellbeing of pre-adolescents and adolescents after the intervention.</p> <p>The projects base upon the evidence that virtual reality and technological devices can be used both to enhance fine and gross motor abilities and to maintain social relationships and psychological wellbeing. Virtual reality and digital games represent appealing activities for pediatric patients that allow them to maintain motor and cognitive practice while having fun and remaining constantly motivated throughout the therapeutic process.</p>
Infrastructures	Department of Developmental and Social Psychology: laboratories, office, meeting rooms
Skills and competencies for the development of the activity	Experience in assessment methods for the pediatric patients' psychological and social development both quantitative and qualitative; clinical assessment and interventions; pediatric psychology; family focus; good expertise in SPSS, nVivo and R softwares
Training offer	<p>Methodology for the behavioural sciences, Current issues in Statistical Inference for Psychology, Basics of programming and applications with R language, Linear, generalized and mixed effects models, Publishing in and reviewing for high impact journals, Qualitative methods, Power and design analysis, Longitudinal data analysis, Bayesian Data Analysis in Psychological Research, Evaluation of outliers and influential cases in multivariate perspective, Hierarchical Linear Modeling (HLM); Relevance, use and application of meta-analysis, Reforming Data Analysis Methods in Behavioral Research, Computational modeling in psychology, Psychological Measurement, Practical application of scientific Writing, How to win research grants</p>
Possible Secondments	<ol style="list-style-type: none"> 1. Pediatric Hematology, Oncology and Stem Cell Transplant Center, Azienda Ospedaliera di Padova 2. Faculty of Education, Free University of Bozen, Brixen

2 Research Option Description

Doctoral Course	Psychological Science
Department name	Department of Developmental and Social Psychology
Research topic B	Promoting development and well-being from early infancy to adulthood
Research option	Bringing together cognitive and emotional processes in children with Neurodevelopmental disorders
Supervisor	Irene MAMMARELLA, irene.mammarella@unipd.it
Webpage	https://www.dpss.unipd.it/DD-lab/home
Context of the research activity and objective	<p>There is a shared understanding that neurodevelopmental disorders involve a complex interplay of cognitive, and emotional processes. Previous research in our lab. explored cross-disorders comparison by considering Autism spectrum disorder (ASD), Attention deficit and hyperactivity disorder (ADHD) and Nonverbal learning disabilities (NLD) for better understanding which cognitive factors may be crucial for their differential diagnosis. Specifically, we investigated the role of local and global visuospatial processing (Cardillo, et al. 2020; Mammarella, et al. 2019). However, more research is needed to disentangle the involvement of different underlying processes.</p> <p>More recently, we are focusing not only on cognitive, but also on emotional processes in children with neurodevelopmental disorders (Cardillo, et al. 2021; Capodieci, et al. 2019), such as emotion recognition, socio-relational competences, as well as pragmatic of language skills.</p> <p>Studies based on this research topic should involve children with ASD without intellectual disabilities, children with ADHD and/or children with NLD compared with typically developing peers.</p> <p>Studies could consider behavioral measures, multi-informants' assessment, as well as psychophysiological measure. The objective of the research should focus on bringing together cognitive and emotional processes in children with neurodevelopmental disorders.</p>
Infrastructures	<p>Laboratories and infrastructures located at the Department of Developmental and Social Psychology, University of Padova.</p> <p>Specialized centres on neurodevelopmental disorders through the supervisor's well-established contacts.</p>
Skills and competencies for the development of the activity	The successful candidate should prove knowledge in Developmental Psychology, as well as previous experience on children with developmental disorders, such as ASD or ADHD. Moreover, s/he should have basic experience on data-analyses and in using software for programming experiments.
Training offer	<ul style="list-style-type: none"> • Methodology for the behavioural sciences • Current issues in Statistical Inference for Psychology • Basics of programming and applications with R language

	<ul style="list-style-type: none"> • Linear, generalized and mixed effects models • Power and Design analysis • Evaluation of outliers and influential cases in multivariate perspective • Publishing in and reviewing for high-impact journals • Practical application of scientific writing • How to win research grants • Reading groups: discussion of published studies as well as on-going research
<p>Possible Secondments</p>	<p>The academic secondment may be pursued at the Centre of learning and development Lab.D.A. srl. The centre is a spin-off of the University of Padova (www.labda-spinoff.it).</p> <p>The non-academic secondment may be completed at the Regional centre for Autism spectrum disorders – Verona Hospital, child psychiatry department.</p>

3 Research Option Description

Doctoral Course	Psychological Science
Department name	Department of Developmental Psychology and Socialisation (DPSS)
Research topic B	Promoting development and well-being from early infancy to adulthood
Research option	The winding roads to math achievement: a comprehensive account of cognitive, personality, and environmental correlates explaining math anxiety
Supervisor	Sara Caviola, PhD (DPSS, UniPd; email: sara.caviola@unipd.it) Potential co-Supervisor: Margherita Malanchini, PhD (Queen Mary University of London, email: m.malanchini@qmul.ac.uk)
Webpage	https://orcid.org/my-orcid?orcid=0000-0002-4556-3179 [Personal web page – under construction]
Context of the research activity and objectives	<p>Mathematics is one of the most important areas of academic achievement with several implications in many contexts of everyday life. Despite its importance, a large proportion of children present with mathematics difficulties, often associated with emotional difficulties (e.g., Math Anxiety [hereafter: MA]; Caviola et al., 2021). These emotional barriers heavily concur to avoidance behaviours observed later in the future academic and career pathway.</p> <p>A growing body of literature suggest that MA, typically measured by self-report questionnaires, is heterogenous in its manifestations, with varying expressions at different developmental phases, due to the dynamic interplay between cognitive, personal and environmental factors. In contrast, there is a broad consensus about the importance of several positive factors that contribute to children’s academic achievement and well-being, such as motivation, self-efficacy and resilience (Donolato, et al., 2020).</p> <p>The research will aim to study the reciprocal relationship between different cognitive and emotional aspects that are involved in math achievement in children from 8 to 12 years old, by (a) enhancing MA assessment and its understanding; (b) developing specific training on both MA and math skills.</p> <p>In a first study, a stress appraisal paradigm will be adopted to understand what physiological responses (i.e., autonomic responses, electroencephalography or eye movements) better identify individuals who experience MA. The results will provide an insight into those implicit measures that may help overcome the limitations of self-reports and shed better light on the intrinsic factors linked to MA. A second study will investigate how children’ positive factors, moderate the relation between math anxiety and academic avoidance, tested by using a novel effort-based decision-making task. These outcomes will help in defining the role of protective factors in promoting students’ well-being. Finally, a third study will be devised to specifically predict and evaluate treatments response by comparing a) training focused</p>

	on emotional components related to math achievement (both positive and negative factors) with b) a combined math and metacognitive training.
Infrastructures	DPSS facilities, including laboratories and equipment.
Skills and competencies for the development of the activity	The ideal candidate should have excellent English proficiency (both oral and written), knowledge of main computer applications, basic programming knowledge, basic statistical skills and should be available to spend training periods (secondments) abroad.
Training offer	Doctoral Course will offer intensive training on more advance statistical analyses, scientific writing and methodological courses. As for the specific research content, the candidate will be offered training on Open Science policy and principles, psychophysiological research techniques, cognitive methodological paradigms and cognitive and neuropsychological testing. The candidate will be integrated in the research group receiving individual training in the lab, by attending formal lectures and practicals on topics relating to the research. Moreover, they will participate to weekly meetings during which research and training issues will be discussed, allowing to a quick integration of the candidate.
Possible Secondments	Academic secondments: Queen Mary University of London (UK; in the alternative University of Cambridge, UK). Non-academic secondments: APRE – Agency for the Promotion of European Research (with a focus on dissemination strategies and public engagement).