

Developing and validating eye-tracking based Executive Functions tests for children with Cerebral Palsy

Cerebral Palsy (CP) indicates a range of movement difficulties caused by damage to the developing brain. CP is the most common cause of physical disability in childhood, but children with CP are also at increased risk for cognitive and communication difficulties. Children with CP often display deficits in Executive Functions (EFs), which indicate high-order abilities that allow devising own goals and the execution of plans to achieve these goals. However, EFs deficits may go unnoticed in children with CP because commonly-used EFs tests rely on intact fine-motor and communicative skills.

The aim of this study is to develop and validate a battery of EFs tests for children and young people with CP using eye-tracking technology. Eye-tracker based tasks require minimal visual-motor skills, and can be administered without verbal instructions. These features make eye-tracker EFs tasks suitable for administration among CP children with different levels of motor and communication impairments. The study will recruit a representative sample of children with different degrees of impairment from the Northern Ireland Cerebral Palsy Register. Eye-tracking tasks can be administered with fidelity across settings: the study will develop screening tools to identify the profile of EFs strengths and difficulties in this population.

Student skill-sets:

The student will be responsible for: familiarising with relevant literature; developing the eye-tracking based tasks; recruiting children and families to the study; collect and analyse data. Necessary skills include: Background in related discipline (e.g. nursing, psychology, health science); IT literacy and ability to become proficient in using software syntax and coding; Interest and experience working with children and families, and/or children and families with disability; Good communicative and interpersonal skills; Attention to details; Good grounding in quantitative skills and research methods.

Primary contact:

Dr Oliver Perra

Lecturer

Email: o.perra@qub.ac.uk

Phone: +44 (0)28 9097 2313

Supervisors:

Dr Oliver Perra (SoNM); Dr Claire Kerr (SoNM); Dr Kostas Papageorgiou (SoP).