

Research from Emily Farran and the CoGDeV Lab

<http://cogdevlab.weebly.com/>

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The CoGDeV Lab has changed a lot over the last six months. Harry Purser has now moved to Kingston University. The ‘finding your way’ project that Harry was working on at the Institute of Education (IOE) will continue, and we are delighted that Kerry Hudson will be taking over from Harry in April. Hannah Broadbent is now on maternity leave. Tobias Samuel Edward Broadbent (aka Toby) was born on 22nd December 2012. Hannah is very much enjoying motherhood and describes Toby as “an absolute delight”. Susie Formby, who was working on a short term project, in collaboration with Jo Van Herwegen, has also moved on to a new job. We wish her the best of luck.

I have recently secured some new funding from the Leverhulme Trust, in collaboration with Marie Smith and Annette Karmiloff-Smith. We are interested in the strategies that children use to process facial identity (e.g. which face is Bob?), gender and emotional expressions. As part of this project we want to understand which aspects of face processing in WS are typical and which aspects are atypical.

I reported in the last WSNews that Jo Van Herwegen, Debbie Riby and I had secured funding from the BPS and the WSF to hold three seminar days to discuss Neurodevelopmental disorders including WS. We have now held all three seminar days (at Kingston University, IOE and Newcastle University); they were all very well received and attended by close to one hundred delegates each. For more information see: <http://www.neurodevelopmentaldisorders-seminarseries.co.uk/>. We are very grateful for the contribution from the WSF towards the cost of hosting these seminar days.

Finding your way (project ELSTRAD; funded by the ESRC)

Harry has included a brief update of the finding your way project in the ‘WS research from Kingston University’ section. To elaborate, using our virtual reality mazes, we were interested in whether individuals with WS would be able to learn two routes and then use this knowledge to find a short-cut between them. The WS group were able to learn the two routes, but made many more errors when learning the routes than typically developing children. We found that just over a quarter of our WS group were able to find a short-cut. This tells us that the individuals who could find the short-cut had some understanding of the spatial relationship between parts of the environment (e.g. the skill that you would use to point in the direction of the local shops from your house, even if the shops aren’t directly visible), a skill which is very useful if you get lost or disorientated. In our next study, we aim to determine how best to train individuals with WS to learn to find their way to the best of their abilities. We have a number of training strategies in mind, and Kerry Hudson will be contacting many of you very soon to ask you to be involved.

Finding your way and eye-tracking (funded by the British Academy)

Many of you visited Susie Formby at Kingston University to take part in this study. In this study we used virtual reality mazes and recorded where people looked when they were learning the routes. We have now collected all of the data and will begin analysis soon. We will be able to find out how much people use landmarks, and which types of landmarks people find most useful when learning a route. We aim to use this knowledge to suggest ways of helping people to learn their way around new environments.

Depth perception (funded by Autour des Williams)

Kerry Hudson worked with many of you on this project. Data collection finished in February. Preliminary analysis has shown that, as many parents have been telling us, that depth perception is poor in WS. Specifically, people with WS find it difficult to use the information from both eyes (binocular vision) to process depth (even those who don't have strabismus). We also tested people's ability to use cues that can be processed with one eye (monocular cues) such as linear perspective (i.e. that parallel lines travelling away from the viewer come together at a point in the distance) and relative height (i.e. when looking across a flat surface, closer objects appear to be lower in the field of view, than further ones). On this task, the WS group were performing at the same level as typically developing children who were matched on non-verbal ability to the WS group. This tells us that individuals with WS can use monocular depth cues to process depth, but that this does not come very easily to them. A greater awareness of this difficulty could vastly impact everyday life. For example, textured carpets or lines on the playground, might cause an individual to misinterpret the depth cues available.

Problem solving: Jo Camp (funded by a Bloomsbury colleges studentship)

I am now in my third and final year of my PhD studies, looking at problem solving abilities in developmental disorders. Problem solving is something that we deal with every day, whether that might be travelling to a specific destination, planning a meal or going about finding a misplaced item. I'm looking at several different aspects of problem solving skills, in order to put together an overall picture of what's going on when people are presented with a problem to solve. At the moment I am looking at the way in which specific skills are related to the ability to solve problems on the wooden problem solving puzzle, the Tower of London, as shown in the figure. In my study, the WS group scored at about the same level as a group of typically developing children who had the same non-verbal ability, and the skills that were related to the Tower of London score in the WS group were vocabulary knowledge, planning ahead, and memory. In addition, there were several rules to remember while completing the task, and the ability to follow these rules when solving a problem correctly was related to memory and non-verbal ability in the WS group. I'll be reporting further results of my studies in the next WS News. In the meantime, many of you have taken part in my study so I'd like to say thanks very much again to you and your families for your help with the research.