Research from Emily Farran and her group

Dr. Emily K. Farran
Department of Psychology and Human Development
Institute of Education
25 Woburn Square
London WC1H 0AA
UK
Email: e.farran@ioe.ac.uk
tel: 0207 6126272

Emily Farran

Many of you in London and the surrounding areas have recently been visited by Jo Van Herwegen. We are conducting a second virtual reality study to investigate how individuals with WS remember landmarks (e.g. a postbox on a corner, or a particular tree) when learning their way around a new environment. We'd like to thank you for taking part and we hope to tell you about the results of this study in the next WS news. We are also still looking for more volunteers to take part in this study (either at your home or her, at the Institute of Education), so please do **contact me if you are interested**.

In the last WS news, I talked about another virtual reality study. In this task, participants learnt a series of turns, in order to find their way from the start to the finish of a brickwall maze. We manipulated whether the task relied on visual memory or on verbal memory. We found that the individuals with WS needed more repetitions of the route in order to learn each route and that they were more likely to repeat an error again, than the typically developing (TD) children. What is very encouraging, is that with repeated experience, the WS group were able to learn a route from start to finish without making any errors. We found that the WS group prefer to code landmarks verbally than visually, and have a stronger memory for landmarks that were easy to verbalise than landmarks that are more difficult to verbalise. This pattern of performance was also seen in the TD children, which suggests that in spite of taking longer to learn a new route, many aspects of route learning in WS are typical. It seems then, that when learning their way around in the real-world, in order to form a strong memory of how to get from A to B, it is important to make sure that individuals with WS are shown a new route many times, and that key landmarks (specific buildings, trees, etc) along the route are pointed out. Of course, in the real-world, there are many distractions, and having talked to many parents, concentrating on where you're going is also an issue. One way to try to combat distractibility is to ask the person with WS to lead you from A to B, correcting their errors as you walk along.

Finally, I was recently very honoured to receive an award for my research into Williams syndrome. The British Psychological Society (BPS) presented me with the Neil O'Connor Award for research into developmental disabilities, for my work with Mark Blades, Jill Boucher and Lesley Tranter into real-world route learning in WS. Thanks again to all of the participants who took part in this research.

PhD students

Kerry Hudson

The data from two recent experiments looking at planning drawings (Experiment One) and the influence of the area around drawings (Experiment Two) are now collected and analysed. In Experiment One participants with WS and typically developing children (TD) drew diamond and square shapes in different conditions which provided increasing amounts of facilitation to assess the effect on planning of the drawings. Participants drew shapes within an eight-dot circular array (coloured, white salient start-point amid black dots or all black), diamonds and squares had dots at each corner which corresponded to the response paper, i.e. dots could be joined to reproduce the shape. Additionally, two conditions provided only a single starting-dot or no cues (control condition). It was predicted that the most accurate drawings would be in the coloured dot condition as the colours help dot-joining and the least accurate copies when no assistance was provided as all drawing decisions had to be made by the participant. This proved to be incorrect; both participant group, WS and TD, had difficulty using the circular array and joined all the dots instead of copying the target shape. Both groups also performed best when only a starting dot or no cues were given. When a circular array was given a coloured set of dots gleaned the most accuracy. Diamonds were also more poorly drawn than squares, this is because of the presence of diagonal lines which are more complex to copy. Interestingly both groups behaved very similarly, suggesting that poor graphic planning ability is not the root of drawing difficulties in WS.

In Experiment Two a WS and TD group drew diamonds and squares inside cardboard frames that were square-, diamond- or circular (serving as a control) shaped. Participants increased the size of their drawings when the shape to be copied and the shape of the frame were the same. The WS group were more likely than the TD group to increase the size of their drawing and to draw it at an incorrect angle. Both groups also traced the frame, especially when the model and frame were the same shape. When drawing squares both groups were no different, however, when drawing diamonds participants with WS were more likely than TDs to draw the shape at the wrong angle. This suggests that individuals with WS are sensitive to environmental cues, especially when the shape to be copied is difficult to replicate. I would like to thank everyone who took part in the study for providing me with yet more interesting results.

Susie Formby

I am now starting the third year of my PhD. In my last study, participants with WS and typically developing participants searched a computer display for 4 big circles (targets) which also contained distracter circles of different sizes (small, medium, or large); and of different numbers (4, 8, or 12). Accuracy, reaction time and search distance were recorded. Participants found targets more slowly and made more errors when lots of large distracter items were presented. In the next session, participants were provided with visual feedback (targets changed colour when correctly identified). This reduced the necessity to remember which targets had previously been found. Both groups made fewer errors and had shorter reaction times with the addition of visual feedback. We found a difference between the search distances used by participants with WS and typically developing participants when similarity between distracter and target items was

manipulated. In the WS group, search distances remained similar without and with feedback whether the distracter items were small, medium or large. In contrast, the TD group travelled shorter distances in the large distracter condition when visual feedback was provided. This indicates that participants with WS might be less able to make use of salient visual information in the environment than the typical population. I am running similar studies in the winter and spring to investigate these findings and would like to thank everybody who has been involved in the studies to date.