Prosopagnosia Newsletter 2016
This newsletter provides a summary of our ongoing research into prosopagnosia

Since our last newsletter, some people in Sydney and Perth who live close to our research centres — at the University of Western Australia and Macquarie University — have been involved in some of our research projects. We are very grateful for the time that you have so generously given to our research projects.

For people who live further away, we have recently developed an online face recognition test that can be completed by adults. This test provides a basic, preliminary assessment of face memory skills, regardless of where you live.

Online Face Recognition Test
We recently developed an online version of one of our face memory tests: see http://facememory.psy.uwa.edu.au/
Upon completion you will receive your score, with a brief explanation of what that refers to.
(Please note that we won’t be able find your score unless you provide your name as part of the test session).

Prosopagnosia
People with prosopagnosia find it difficult to recognise faces. Some people are able to recognise faces but can no longer do so after a brain injury (known as acquired prosopagnosia). Some other people have never developed the ability to adequately recognise people by their face (known as congenital or developmental prosopagnosia). Our research has focused on the latter type.
Face recognition abilities vary across the general population. Most people are ‘average’, with some a bit better than average and some a bit poorer than average. A small number of people seem to never forget a face — so called ‘super recognisers’ — while a small number of people have severe difficulties recognising faces — what we would classify as prosopagnosia. How to determine when people are very good (or very poor) as opposed to just moderately good (or poor) is a matter of debate.

Cognitively, face recognition involves a number of processes, from the initial detection of a face, to perception of what the face looks like, and then storing a memory of that face that can later be retrieved. Difficulty recognising faces could occur from a breakdown in one or more of these stages. Moreover, some people could find it relatively easy to remember faces that they just studied but quite difficult to remember faces of people that they haven’t seen for a while.

Assessing children’s face recognition presents further unique challenges. Children may be less forthcoming about their difficulties recognising faces because they may not be aware that they find it more challenging than other children. Thus, it may be up to parents to realise that there is a problem. There are tests available to assess face recognition abilities in children. However, they are not appropriate for very young children, and are not yet precise enough to distinguish children with likely prosopagnosia from children who just find face recognition difficult.

Source:

Current Challenges and Guidelines for the Study of Congenital Prosopagnosia

We are learning more and more about prosopagnosia each day. However, face recognition is complex, and there is debate as to how to best measure face recognition difficulties.

Suggested Guidelines for Diagnosing Prosopagnosia

General:
• Ask people whether they have everyday face recognition difficulties, via interview or questionnaire.
• To distinguish congenital prosopagnosia, the person should not report a previous brain-injury or disorder associated with face recognition impairments (i.e epilepsy), which would be more consistent with acquired prosopagnosia.
• Prosopagnosia typically involves poor performance on tests of face memory.
• Other tests can help to determine whether the

Additional considerations for children:
• Reports from parents / teachers are necessary to know about everyday
Variation in oxytocin receptors, a promising genetic basis for congenital prosopagnosia?

Evidence suggests that face recognition ability is heritable. Some people who have trouble recognising faces also tend to find that (some) other family members also find it difficult to recognise faces. There is little direct information as to any potential genetic factors underlying these difficulties. A recent study in Italy tested the face memory skills of a group of people with prosopagnosia and a group of people with average face memory skills. They investigated three forms of the oxytocin receptor, because previous research has suggested that oxytocin may be involved in face recognition. They found that individuals clustered into two distinct groups based on the oxytocin receptors. All the people with prosopagnosia (and a few of the average recognisers thought to have one similar genetic component) formed one group, with the other group composed of most of the average recognisers. This suggests that variations in the oxytocin receptors might be associated with congenital prosopagnosia. Although in its infancy, this research provides an important and exciting new avenue for exploring a genetic basis for face recognition difficulties.


Face Networks in Congenital Prosopagnosia

Functional Magnetic Resonance Imaging (fMRI) measures blood flow in the brain and provides an index of neural activity which helps us to know where something is happening in the brain. We used fMRI to measure neural responses to faces, objects, bodies and body-parts in a group of seven people with congenital prosopagnosia and ten matched control participants. We demonstrated that neural activity within face-specific areas — the occipital face area, fusiform face area, and anterior temporal cortex — in people with prosopagnosia showed reduced discriminability between faces and objects. That is, compared to controls, those with congenital prosopagnosia showed less face-specific activity in these areas as compared to when shown objects. Thus, difficulties in face recognition may be mediated by reduced functional specificity of multiple ‘face-specific’ cortical brain regions.


Regions where activity was greater to faces than objects in controls than in people with congenital prosopagnosia.
Is face recognition taken for granted? Insight into face recognition

Face recognition ability varies from person to person. However, very little is known about peoples’ levels of insight into their face recognition ability. Typically, unlike other more ‘visible’ abilities, such as reading or mathematics, face recognition ability is not measured and rarely is extensive feedback provided.

We recently asked people how good they thought they were at recognising faces with different types of questionnaires. People who had sought out information on congenital prosopagnosia (e.g., by signing up to our register) tended to respond that they found face recognition difficult and they tended to find tests of face memory difficult. However, the questionnaire responses of people without prosopagnosia tended to show that they had only minimal insight into how they would perform on tests of face recognition. That is, some people thought that they would be very good but were average whereas others thought that they would be average but were then relatively poor.

Although we found that people with congenital prosopagnosia may be more aware of their difficulties recognising faces relative to typical-recognisers, insight into face recognition seems generally low. These findings help us to understand why some individuals who perform poorly on face recognition tests might have expected that this would be the case.

Source:
Processing identity from groups of unfamiliar faces

Research has focused on how people with congenital prosopagnosia recognise individual faces. Recently we have extended our research to also look at how people process groups of faces.

When we look at objects in groups, we are able to extract information about the whole group. Specifically, if you saw a group of different-sized circles, you’d be able to judge the average size of the all the circles in the group. This process of forming the average of the group is known as ensemble coding and it happens seemingly automatically. Interestingly, this process also occurs for groups of faces, with people able to judge the average identity of a group of faces.

We showed people with congenital prosopagnosia, along with a group of people with typical face recognition, a group of four unfamiliar faces followed by a single face. Participants had to say whether the single face was part of the previous group or was a different face. If people tended to say ‘same’ to a picture of a face that was in the group and ‘different’ to a face that was not in the group, then recognition of individual faces was good. Unsurprisingly, the group with congenital prosopagnosia found this more difficult than people without congenital prosopagnosia.

We also showed people average faces, that were blends of all the four faces in the group. Typical face recognisers often tend to say ‘same’ to this face, even thought they didn’t really see it (but rather four faces that combine together to form this face). This shows that they are forming an ensemble of the group. The group of people with congenital prosopagnosia did show ensemble coding (i.e., they did tend to say that they had seen the average face before), however it wasn’t as strong as for people with with typical face recognition skills.

These findings are another important step in characterising the nature of face recognition in people with congenital prosopagnosia and provide evidence that any difficulties with identity recognition goes beyond single-face processing.

This study was part of Matt Robson’s PhD project and he is now writing up a paper that explains his findings in more detail. Thank you to every-

On October 30th 2016 Channel 7 ran a special on congenital prosopagnosia. See:

https://au.news.yahoo.com/sunday-night/features/a/33047344/i-didnt-recognise-my-own-son-face-blindness-affects-one-in-50/#page1

Thank you!

To everyone who signed up to the register, especially to those who have given up their time to participate in our research studies. Thanks also to those who wanted to participate but were unable to due to distance or other commitments. Thanks also for your messages of encouragement, gratitude and stories of what it is like to have face recognition difficulties in everyday life.
This article in The Conversation explains more about Prosopagnosia and can be a handy guide for family and friends who have never heard of it before: https://theconversation.com/i-should-know-you-face-blindness-and-the-problem-of-identifying-others-8884

Stay up to date with our research projects into person perception at the official CCD person perception webpage: http://www.ccd.edu.au/research/personperception/

You can also find the CCD on Facebook at: https://www.facebook.com/CCDPersonPerception/
or follow us on twitter @PersonPercept to be notified of new developments in the lab.

Happy Holidays!
We wish you and your family a safe and enjoyable holiday season.
Best wishes for the coming year!

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Please contact Romina if your contact details have changed or if you would like to be removed from the Register.

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