How do children with dyslexia combine visual information?

Thank you to all the children, parents, schools and charities who helped with 'The Under-the-Sea Project'!

Background to the research

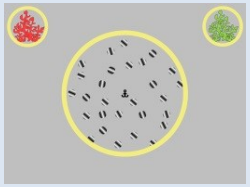
Vision is an important sense as it allows us to interact with our environment and carry out tasks like reading. Here we were looking at how children with and without dyslexia combine information about what they see. This ability is needed to see the overall movement of a shoal of fish, for example.

We previously conducted a similar study with autistic children. We found that some autistic children perform better at combining motion information compared to children without autism. We wanted to see if children with dyslexia showed a similar or different pattern.

What did my child do?

In the 'Hungry Fish' and 'Shark Attack' games, children worked out whether a shoal of fish travelled to the left or right of the screen.

Children needed to combine information across the fish when they moved in different directions.



In the 'Jellyfish Photos' and 'Drifting Jellyfish' games, children were shown a group of stripy jellyfish that stayed still. Children judged whether they tilted overall to the left or right.

Children needed to combine the information across the jellyfish when they faced in different ways.

What did we find out?

- In the Drifting Jellyfish game, children with dyslexia found it slightly more difficult to judge the overall way that the jellyfish tilted compared to children without dyslexia
- In the Hungry Fish game, children with dyslexia were sightly less precise at working out the direction of each individual fish than children without dyslexia
- This is a different pattern to that shown by autistic children, suggesting that children with dyslexia process visual information differently to those with autism
- Some theories have suggested that children with dyslexia have particular difficulties with processing dynamic information. But here we found that there were differences in how dyslexic children process *both* moving and static information
- However not all dyslexic children showed difficulties in these tasks. There was lots of variability

Future research

In future studies we want to understand more about why children differ from each other. It would also be interesting to know whether these differences in visual processing are linked to reading ability.

If you have any questions, please contact Dr Cathy Manning: catherine.manning@psy.ox.ac.uk.