Teaching Social Attention Skills to Children with Autism using a Computer Game

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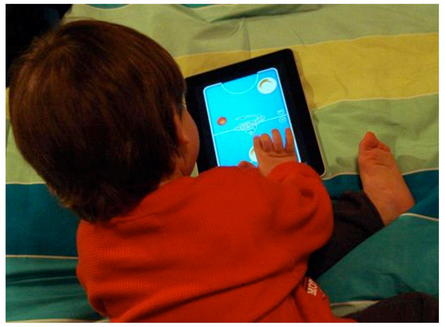

Summary

- Children with autism rarely attend to social information and this affects their ability to learn, especially from people
- Children with autism often show a strong preference and facility for technology, including computer games
- Our research will attempt to harness this technical strength by teaching social attention with a computer game, and thereby open up a range of real-world learning opportunities

Background: social attention

- Typically-developing children show a strong preference to attend to social information: as a rule, they look at people and listen to voices above anything else.
- In contrast, children with autism often ignore other people[1], or only interact with them to, for example, use them as tools.
- It is very important to pay attention to other people, both for our own safety and also so we can learn from them
- The fact that children with autism often ignore other people means they have severely limited opportunities to learn living skills and language[2].

Background: computer games

- Children with autism often enjoy playing computer games[3]
- One of the strengths associated with autism is an ability with technology & systems[4]
- Many individuals have already employed computer technology to support the learning of children and young people with autism. Research has found:
  - Improved concentration and task focus
  - Increased spontaneous, task-relevant communication
  - Efficient learning of the target skill
  - Higher enthusiasm and motivation
- The strengths of computer-based learning can even be seen in studies using the technique to teach interpersonal skills such as emotion recognition and social reasoning
- We believe that computer-based learning may be particularly appropriate for teaching social attention because interpersonal methods often require the very skill they're trying to teach

Our game

Aims to teach three fundamental components of social attention, in the order they would be automatically learnt in typical development

1. **Attending to people**: example task = can you spot the person hiding in this busy picture?
2. **Following social cues**: example task = what is this person pointing at?
3. **Giving social cues**: example task = can you help this person find what he is looking for?

It will take the form of an App developed for the iPad, which allows the game to be intuitive, toddler-friendly and portable.

The game will feature large numbers of opportunities to practice social attention skills in an appealing but realistic animated environment. There will be a narrative structure, autism-specific rewards and customisation options to maximize appeal.

Our project

Three research phases:

1. Participatory design: getting the input of children, professionals and parents to help design a game appropriate for children aged 2 - 6 years with autism
2. Piloting: testing out versions of the game for appeal, usability, and family-friendliness
3. Trial: evaluating the effect of the computer game on the learning of children with autism

This Nuffield Foundation funded project will develop the game and test its efficacy between now at 2013. In the future, we hope to further develop the game and eventually make it available as a free download for anyone to try. We can't promise anything but we're excited and optimistic about this new approach to intervention for autism.

For the design and pilot phases, we're looking for families with a child with autism, or interested professionals, who'd like to help. Our goal is to create a computer game and a trial design which is as effective and relevant as possible. We do not believe that research should be carried out in a vacuum - we welcome all your comments and ideas.

If you think you might like to help, please take a flyer!

The project has been subjected to ethical scrutiny and copies of relevant approvals are available upon request.

1. Dawson, G., Meltzoff, A. N., Osterling, J., Rinaldi, J. and Brown, E. (1998). Children with autism fail to orient to naturally occurring social stimuli. *Journal of Autism and Developmental Disorders*, **28 (6)**: 479-485.
2. Mundy, P. and Sigman, M. (1990). A longitudinal study of joint attention and language development in autistic children. *Journal of Autism and Developmental Disorders*, **20(1)**: 115-128.
3. Shane, H. and Albert, P. (2008). Electronic Screen Media for Persons with Autism Spectrum Disorders: Results of a Survey. *Journal of Autism and Developmental Disorders*, **38(8):** 1499-1508.
4. Baron-Cohen, S. (2002). The extreme male brain theory of autism. *Trends in Cognitive Sciences*, **6(6):** 248-254.
5. Quotation sources available on request

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