Research title: Combined cognitive-and-state-control training for children with and without Attention-Deficit Hyperactivity Disorder

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This research is conducted by the School of Psychology at the University of Wollongong

What is the aim of the research?

The aim is to test a computer-based cognitive training program designed to improve impulse-control, working memory and attention in children. Cognitive training involves practicing tasks designed to involve a specific cognitive function, for example memory. We are interested in examining the differences in performance for both children with and without AD/HD. In our pilot study (Johnstone, Roodenrys, et al. 2010), we found that 25 sessions of working memory (WM) and inhibition training substantially reduced symptoms of inattention, impulsivity and hyperactivity in children with AD/HD. In an extended study (Johnstone, Roodenrys, et al., 2012), we found both children with and without a diagnosis of AD/HD benefited from 25 training sessions, showing some cognitive and behavioural improvements. These results were published in peer-reviewed scientific journals. Based on these results an independent software company designed a themed game to make the training more fun for children – the game is called FOCUS POCUS. The game provides a fun environment for children to exercise working memory, impulse-control and attention. Some games are controlled entirely using “brain power”, with ongoing brain activity measured via a simple comfortable device, with this type of training designed to promote awareness and control of attention and relaxation. In our 2012 study, participants’ attention levels were monitored only passively, but this software will allow us to examine how “brain power” works in combination with cognitive processes to affect performance. Therefore, in this study we would like to examine whether playing Focus Pocus can result in improvements in behaviour and learning in children both with and without AD/HD aged 8-12 years.


What will the student do?
The child will complete a pre-training assessment session (at their home or at the university) where they will do a few pencil-and-paper tests, have EEG recorded from a comfortable device (the epoc headset which takes less than 30 seconds to fit), do a few simple computer tasks, and you’ll fill in some questionnaires about them. We will install the software on a home computer. They will need to complete 25 sessions over a 4-6 week period with each session taking 20-25 minutes. The software consists of 12 simple and fun games that are very easy to play. At the end of each training session children are rewarded with a “boss game” which is just for fun, where they battle a boss wizard using spells and items unlocked during training - for more information visit www.neurocog.com.au. After the training is complete, the child will complete a post-training session (at their home or at the university), where we do the same tests as in the pre-training session. We’ll contact the child again 6 months down the track to see if they’re willing to do a follow-up assessment session for us.

Are there any important considerations?
It is important that you are aware that this is a randomised wait list control trial and some children will be required to wait 4-6 weeks to begin the training, this allows us to compare children doing the neurocognitive training with a group of children who are just going about their normal lives. If you are interested in this study we are able to provide an information session to teachers to further explain the study.

Please note that the data obtained will be used only for the purposes of this study and will not be made available to any persons other than the research team. All data will be grouped and therefore, no individual will be identifiable.

We do not foresee any risks involved for your child in performing these tasks, but if they feel any discomfort you can contact the research staff or withdraw from the study at any time.
**Benefits of Participation**

The child will undertake neurocognitive training. The cognitive component of this training has been shown to improve behaviour in our two previous studies. Additionally, the school will receive a report generated by Focus Pocus on the group's performance across the training sessions, including performance and EEG changes. The child will be given a certificate of appreciation, and a small chocolate bar, for their time and effort (regardless of their performance) and parents will receive individualised reports. If you have any questions relating to the report, A/Prof. Stuart Johnstone will be available to discuss the contents – see contact details below.

If you have any questions, please contact A/Prof. Stuart Johnstone (02) 4221 4495 or email sjohnsto@uow.edu.au. If you have any complaints about the conduct of the study please contact the Complaints Officer, University of Wollongong/ Illawarra Shoalhaven Local Health District Human Research Ethics Committee on 4221 4457, or email rso-ethics@uow.edu.au. The child's participation in this research is entirely voluntary, and he/she can refuse to participate, and is free to withdraw from the research, at any time. His/her refusal to participate or withdrawal of consent will not affect any relationship with the School of Psychology.