

# our grey matter

## Fun and games that can change your brain

A university professor has developed a computer game that has the ability to "re-wire" people's brains, writes EMMA SHAW.

The power of play has been found to effectively train the brain of children taking part in a University of Wollongong study.

Dr Stuart Johnstone, an associate professor in UOW's School of Psychology, has been researching the brain activities of children with ADHD for 15 years. He has developed software that helps children improve their cognitive skills and behaviour by completing a series of specialised computer games.

A pilot study conducted last year among 30 children diagnosed with ADHD reported significant benefits to those taking part in the program.

"What we're trying to do is give people situations where they train to have more control over processes of the brain," Dr Johnstone said.

"The realistic expectation, at the neural level, is that there will be a re-wiring, there will be adjustments, a pruning of connections that are not effective and strengthening of connections that are effective."

Change is measured, and success quantified, in a number of ways, from behavioural aspects monitored by parents and teachers, to performance on neuro-psychological tasks, and the measurement of brain electrical activity.

"After the first study, we saw changes in all of these things," Dr Johnstone said.

He and his research team are about to start in-depth analysis of data from a second study, conducted earlier this year and involving 120 children, both with and without ADHD.

Initial reports are indicating some success, as in the case of eight-year-old Alex, who was diagnosed with ADHD earlier this year.

Mum Trish said her son had been much calmer and less prone to angry outbursts since completing the program of 25 gaming sessions.

"His teacher noticed a big difference in the classroom as well,"



Dr Stuart Johnstone from the University of Wollongong's School of Psychology is conducting study to improve attention and memory in kids, especially those with ADHD. Picture: MELANIE RUSSELL

she said. "Alex has been getting into less trouble at school, his sleep has improved and his speech therapist has also noticed an improvement."

Dr Johnstone said he was now considering the potential impact of the software on mainstream education.

"We're thinking if children with ADHD are starting off behind the eight ball and we're wanting to bring them up to speed, what will it do for

healthy children?"

"I have visions of a primary school taking this on and putting everybody through it, so everyone has the opportunity to do this and push their abilities up a level."

Dr Johnstone has already received positive feedback from school principals who have indicated they would like to see this type of research further developed.



kelton, Rachael Zuzek, SION. Picture: KIRK GILMOUR

Mr Pitt said. The school of St Brigid's Primary in Inverville, in the early 1990s started doing some work about their own learning and its effect on their own learning. It wasn't known it was called "brain-based" and I didn't know that the brain was to develop, but we did know there was far more capacity in the brain than learning than teacher-directed approaches."

The power of play is already being harnessed to help children at St Mary's, with yoga classes offered at

weekly relaxation sessions offered to students during term, using techniques such as affirmations and breathing and change thoughts. Mr Pitt said he was a proponent of the concept of classes for training the brain, he thought it would be fitting such classes already packed

Mr Pitt takes his cognitive program to schools across the state as companies such as Intel, he says the program is already being used in the classroom.

"It's happening with children," he said. "It's a long-term process and change is coming."