

Tablet technology to help children with autism

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Monash University researchers have developed the world's first tablet technology designed to assist children with developmental disabilities such as autism and Down Syndrome.

The technology aims to help children stay focused, in a bid to facilitate learning and inclusion within the school environment.

The gaming technology - developed with DreamWorks contractor Torus Games and Australian Technology Commercialisation firm, Grey Innovation - has been tested in a pilot study aimed at determining whether using the games for 20 minutes five days a week over a five week period leads to improved attention and focus.

It is estimated that around three per cent of Australian children have a [developmental disability](#), which reduces their ability to concentrate and stay focused on a task, switch attention between tasks, inhibit impulsive responding, and mentally hold and use information.

Disruption to these processes can lead to difficulties in learning and academic performance, as well as difficulties developing [social skills](#).

There are currently very few interventions that aim to improve these core attention skills in these children and, more importantly, current measures focus on the use of standardised tests for assessment of strengths and weaknesses.

Lead researcher, Professor Kim Cornish, from the Monash School of Psychological Sciences, said traditional methods, such as IQ tests, did not accurately capture the range of cognitive and behavioural problems associated with these disabilities.

According to Professor Cornish, these testing methods also did not isolate which areas needed improvement, or in fact which interventions have made the improvement.

The study conducted a randomised trial of 77 children with developmental disabilities.

The intervention group with the tablet technology showed improved:

- Core cognitive attention skills (selective and sustained attention). These were maintained for up to three months after the training ceased (longer term testing has yet to be conducted).
- Numeracy abilities

The new gaming technology developed by Professor Cornish and her team is being commercialised by a spinoff company, Tali Health, in an effort to raise the funding needed to extend the length of the trials and to offer it to more children.

According to Professor Cornish, while there are literally hundreds of apps available that claim to improve attention, intelligence, and brainpower, none have been assessed clinically, so ascertaining the true impact that these interventions may have on childhood cognition is impossible.

"The majority of autism apps focus on social skills training which, while important, it is the ability to improve cognitive skills alongside behavioural skills that is of utmost importance," she said.

At Monash and previously at McGill University in Canada, Professor Cornish has been studying attention delays in children with developmental disorders, and has published over 100 papers on the use of computer based attention tasks.

"Our program is grounded in over twenty years of research," she said.

The training program is the first to be scientifically tested using a Randomised Control Trial, which will enable researchers to determine the long-term efficacy of using interactive technologies to train such core cognitive areas as [attention](#).

Provided by Monash University

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