Getting some attention

Research

Dr Stuart Johnstone is a senior lecturer in the School of Psychology at the University of Wollongong. He has been researching the brain activities of children with ADHD. He recently developed computer software that helps children improve their cognitive skills and behaviour.

"I've been doing research looking at the brain electrical activity of children with and without Attention Deficit Hyperactivity Disorder (ADHD) for about 14 years.

Most of my early research focussed on finding out if kids with and without the disorder processed information in the same way, in terms of attention and impulse control.

During the many hundreds of data collections sessions, I was asked this question many times by worried parents of children with ADHD. "I'm not keen on medication - are there any options?"

I used to answer by saying "yes, but none that have a very strong base of evidence". However, now the research has moved forward, and I'm glad to be able to say "yes, and the evidence supporting some of them is very strong".

The treatment options I'm referring to are cognitive training, which involves using purpose-built computer software to practice using and improve a particular psychological ability (eg memory, attention), and near-threshold feedback, where people use live brain activity displayed on a computer and reward system to learn to improve their attention or to relax.

Each treatment now has strong research support as reliable ways to reduce symptoms of ADHD and improve behaviour. Guidelines are set by the American Psychological Association to state the value of a treatment - neuro-feedback has the highest level of support.

Recently, I've been working on bringing these two treatment areas together - to enhance the benefits to children with ADHD and also for kids without ADHD to improve their memory, impulse control and attention.

These abilities allow you to focus on things that are important, remember what is being said and to resist distractions. If you can do all of those basic things, you can get the most out of learning and social situations.

The software we've developed combines cognitive training and near-threshold feedback training - it's a computer game with a purpose - requiring kids to practice using these abilities, and being rewarded for doing well.

Like most things, if you practice something, you'll get better at it over time.

This combined treatment approach has not been done before, so it's full of challenges, but that's what makes this such an interesting area to work in.

Q&A

Are you getting anywhere? I'd like to think so. My current focus is developing alternative treatment options for children with ADHD, and our cognitive training software appears to be a step in the right direction but there's lots more research work to do.

Best part of your research? I've enjoyed building something from nothing. Before Steve Roodenburg and I started talking about cognitive training we had nothing - now we have fully functional software that kids are using and we are investigating it in a real-life adventure, using what we've both learned from years of our own research to design the software and then seeing programmers turn it into reality. I also really enjoy working with students, and of course helping the children who participate in our studies, and their families.

Funniest moment: A seven-year-old girl once asked me if I could read her thoughts using the EEG headset. When I said no, she said "well I knew you were going to say that" so maybe it works the other way.

Ugliest moment: Well not ugly, but hard - identifying unusual brain activity in the EEG of a 10-year-old research participant, and having to tell their parents about it, and refer them on for specialist help.

Have you had a true "Eureka! I've found it!" experience? Not exactly, but I did once spend about 7½ hours unable to eat or sleep as all I could think about was a software design. I took pages and pages of notes, it was worth it!

Has it made you rich? Not yet. Perhaps it will in the future.

What did you want to be when you were a kid? A carpenter.

Has your career followed a straight line? Left school after Year 10 and completed an apprenticeship as a carpenter, which I enjoyed, but decided I wanted to try something new, so did my HSC at TAFE and then went to university. After I got interested in psychology the line has been quite straight to where I am now (i.e. degree, PhD, academic positions).

What would you change? I'm a lucky man, I wouldn't change a thing.

Advice for young researchers? Be passionate about your research. It makes everything easier.

Next adventure? In terms of research, I'd like to push forward on the training/ applied side of things. If this kind of training can help kids get more out of school and also live a richer life, that'd be great, if it's beneficial for kids, I wonder if it could work for young adults?

Website for further information: www.uow.edu.au/health/pacy/staff/ UO024944.html

Students' chance to get ahead in a sound career

A new course at 313 Training next year offers high school students the opportunity to become sound engineers before they leave school.

The Certificate III in Music (Technical Production) course will start in February 2010. Students will learn different aspects of music production, including recording, mixing, mastering and producing.

Training manager Vanessa Marshall said 313 had received a lot of interest in the course.

"We have a fantastic facility and recording studio at 313 so it's great for the students to utilise this course and receive a full Certificate III in Music before they finish their studies," she said.

The course will involve two evenings of study per week and is a four-unit subject that can be included as part of the HSC.

"We are the only training organisation in Wollongong and Nowra offering this particular course to students so we expect the course to fill up very quickly," Marshall said.

An interview process will take place mid-November in Wollongong and Nowra 313 locations.

For more information go to www.313.com.au.

313 Training is offering a music production course to senior high school students, beginning next year.