2013 has been another big year for our entire team. We would like to thank you for supporting our research and update you about some of our new and ongoing projects. Enjoy!

The Reading Training Study

The aim of Phase 2 of the Reading Training Study (RTS) is to test the reliability of the promising outcomes of Phase 1 of RTS using the new state-of-the-art online platform, LiteracyPlanet (www.literacyplanet.com).

Around 100 children with dyslexia have been allocated to one of two training groups. One group has done 8 weeks of phonics training (i.e., reading with the letter-sound rules) followed by 8 weeks of sight-word training (i.e., reading whole words by sight). A second group has done the same training in the reverse order. All children have been tested for their reading accuracy, fluency and comprehension before and after each type of training. They have also been tested for each component of their word reading system as defined by the Dual Route Model of Reading.

Testing was completed in November 2013. The results will be analysed in 2014.

How can we help children retain their spelling knowledge?

In the initial phase of our spelling training study, we found that all of the participants in the study became better at spelling their training words after an intervention phase. However, as is commonly found, without further training, spelling accuracy for these words declined.

This year we began a new phase of our study investigating retention of spelling knowledge. We are currently trialing a revision technique to investigate if we can increase the time frame over which children can remember word spellings that they have just learned. Pilot data are promising as we are finding that the retention training can halve the loss in spelling knowledge.

This study will run until mid next year. We are hoping that the results will be helpful for clinicians and educators in provide techniques that increasing retention of spelling knowledge.

Saskia Kohnen and her team would like to thank all of the families who have participated in our study!
Learning to spell the sounds of English

Proficient spellers make use of multiple sources of knowledge. They know how to translate sounds into letters, have detailed long-term memories of word spellings, know spelling rules and can rely on their knowledge of meanings and origins of words.

Learning the translations between sounds and letters is one of the most fundamental spelling skills to acquire. However, this is not a trivial skill set! There are many sounds in English, quite a few of which can be spelled in more than one way. Just think of the different spellings of /ee/ in green, stream, and Pete, or /ai/ in aim, lame, and ray.

In this project, Saskia Kohnen and her team asked two main questions: When do children master these different sound-letter mappings? And what are the most common errors they make? To answer these questions, we have analysed over 55000 spelling responses from 750 children in Grades 1-7.

We are expecting the results of this study to be finalised mid next year. The results will be helpful for clinicians and special educators in deciding when to teach which sounds and the order in which they should be targeted in a training program.

Does your child have poor spelling?

The Macquarie Clinic for Cognition offers parents a one-on-one course on how to deliver an evidence-based spelling program suitable to the needs of their child.

For details and pricing information please contact Linda Larsen linda.larsen@mq.edu.au 02 9850 6889

Letter sounds from start to finish!

One of our PhD students – Linda Larsen – has been investigating children’s letter-sound knowledge; namely, the order in which children learn letter-sounds and the factors that may influence the ease (or difficulty) with which individual letter-sounds are learned.

Learning the sounds that letters make – also called letter-sound knowledge – is possibly the most important skill children need to learn when they begin formal reading instruction (or even earlier). Letter-sound knowledge enables children to sound out words they have never seen before.

Linda also has a keen interest in trying to understand how we can best help children who are struggling to learn to read. As part of her PhD studies, she has also investigated the effectiveness of an online reading training program – Literacy Planet – to see its effect on improving letter-sound knowledge in children who struggle to learn to read.

Along with some of our other researchers, Linda travelled to Hong Kong in July to present her research findings from this study at a large international conference. Although Linda managed to squeeze in a bit of sightseeing in Hong Kong, it was straight back to Sydney to finish the last couple of months of her PhD studies. By mid-September Linda completed her studies and submitted her dissertation! Congratulations Linda!

Thank you to all the children and parents and schools who participated and contributed to this research!
The 2013 Holiday Research Program

Each day of the September-October school holidays, up to 12 kids visited The Australian Hearing Hub and completed a series of games and puzzles, all tied together with the theme of space exploration, as part of a project entitled ‘Cognitive and Social-Emotional Development in Learning Difficulties’.

Nic Badcock and a team of 30 researchers and assistants conducted this research programme involving a total of 117 kids aged 7 through 12. This included children with and without reading difficulties and resulted in well over 500 hours of data collection that will address questions from 12 different projects, involving over 30 different researchers.

Activities included one-to-one “Super Puzzles”, helping and defending against Aliens in the “Computing Capsules”, and completing “Neuronaut” challenges and personnel profiles in the “Brain Busting Bungalow”. The project was popular with both kids and parents. One child reported whilst being picked up at the end of the session that it was “like a school day…only the BEST school day ever!”

Auditory ‘perceptual anchoring’ and Dyslexia

As part of last year’s Holiday Research Program, Nic Badcock and his team studied auditory processing in children with and without dyslexia. For the task, children were asked to compare two auditory tones.

The experiment assessed the ability to develop a short cut, called a perceptual anchor, for making the comparison between tones. Due to certain tones being repeated, the pitch of the repeated tone can be stored in memory and compared to the tones presented on each trial. Using this anchor changes the areas of the brain involved in the task and improves performance.

It was discovered that the use of perceptual anchors occurred less often in children with dyslexia. Perceptual anchoring ability is related to knowledge of sound in reading and speech and is thought to be related to reading and speaking. It is not yet clear whether training in perceptual anchoring would positively affect reading performance.

Nic shared the results of this study with other researchers at conferences in Adelaide, San Sebastian, and London, and his presentation was well received.

Want to join the Holiday Program?

If your child is aged between 7 and 11 years and would like to be involved in our next Holiday Research Program, please e-mail Kathryn Preece kathryn.preece@mq.edu.au

Nic and his team would like to thank all of the children who were involved with the research as well as their parents.

Thanks! ☺
Vocabulary and Reading Comprehension

Another of our PhD students, Danielle Colenbrander, has been studying an important aspect of reading – reading comprehension.

Around ten percent of school-aged children have specific reading comprehension difficulties. This means that, although they can read accurately, they have difficulties understanding what they read.

Some researchers have suggested that poor spoken vocabulary skills might play a role in causing these specific reading comprehension difficulties. In order to explore this, Danielle and her team trained spoken vocabulary skills to see if such training improved reading comprehension.

Five children with reading comprehension difficulties participated in an 8-week oral vocabulary training program. Children made large gains on their vocabulary scores when compared to an untrained control group. The reading comprehension scores of the trained group also improved on a test containing some of the words they learnt in the training program.

However, children did not make improvements on a reading comprehension test which did not contain any of the trained words. In other words, training spoken vocabulary skills did lead to reading comprehension improvements, but only for texts containing words that children learnt during the training program. This shows that there is a link between spoken vocabulary and reading comprehension, and that this link appears to be through knowledge of specific word meanings. Danielle is continuing her research on children’s specific reading comprehension difficulties to better understand this.

We need you AND your children!

The Neuronauts Brain Science Club is a register of young people (0 to 17 years) who are interested in taking part in research.

To see what Neuronauts is all about or to register, visit www.ccd.edu.au/neuronauts or email neuronauts_admin@mq.edu.au.

Many reading research projects, like those described in this newsletter, will be advertised through Neuronauts. Once registered, children can be signed up for studies that they are eligible for. Parents are reimbursed for their time and travel costs, and children receive certificates and other rewards.

CALLING ALL ADULTS!

While most of the reading research at Macquarie is focussed on children, this doesn’t give us the complete picture. We also are hoping to understand reading abilities across the lifespan and improve our ability to detect and treat reading difficulties.

What’s involved?

After a series of tests (1-2 hours), you would be invited to participate in appropriate reading studies. We may also be able to provide individuals with suggested strategies to help with specific reading skills.

Sign-me up!

If you are an adult with or without a history of reading difficulties and would like to be involved in our research – we need you!
Contact Marion Kellenbach at marion.kellenbach@mq.edu.au or 02 9850 4125