

Aphasia Research Newsletter



ARC CENTRE OF EXCELLENCE IN
COGNITION AND ITS DISORDERS

Issue 3: December 2016

Our Mission: is to better understand the impairments of people with aphasia and to enable more effective treatments. We do this not only by investigating whether treatments work, but also by trying to understand how and why they work – much harder questions! To move towards answers we need to understand how language works, so some of our research focuses on this. However, theories of how language work aren't enough to help us improve treatment, we also need to understand what happens when the system 'breaks' as it does in aphasia. Another strand of our research looks at this.

Welcome to our recap of 2016! 2016 sped by for the Macquarie Aphasia group! We've been busy with many projects and so many people have helped us by participating. Thank you to all these people with and without aphasia who have been involved in our research this year! We are also very grateful to those people who have volunteered to help us in the future: your details are on file and we will contact you to see if you are interested when a suitable project comes up. Last but not least, thank you to the speech pathologists who have supported us by spreading the word about research participation opportunities and who have collaborated in research with us – we are indebted to you.

Our team is always changing! We are lucky to have PhD students from around the world, some of whom visit for a few months and others for several years. Our team currently has people from Germany, France, Portugal, USA and UK, which gives us wonderful diversity and multilingual and multicultural insights. We are also pleased that the number of Australians is growing! As always, we have been to conferences in Australia and worldwide to speak about our findings and learn what others are doing – e.g., five of us (Lyndsey, Ana, Cathy, Leanne, Solène) gave talks at the Aphasiology Symposium of Australia in Adelaide. We have also successfully published some of our work – finding the time for writing as well as doing is sometimes hard! 2017 looks to be another exciting year with some projects nearing completion and others just starting. We've tried to give you a taste of what we're up to and hope you enjoy reading about our work. Please contact us if you want to know more!



Professor Lyndsey Nickels
Macquarie Aphasia
Group Leader



Macquarie Aphasia Group

New publications this year

Using volunteers to provide aphasia therapy

Nickels, L., & Osborne, A. *Constraint Induced Aphasia Therapy: Volunteer-led, unconstrained and less intense delivery can be effective. Neurorehabilitation. Published online June 2016*

This paper reports the results of a study carried out by Lyndsey Nickels and Amanda Osborne at Royal Rehabilitation Centre Sydney. They investigated the effectiveness of a lower-cost version of 'Constraint Induced Aphasia Therapy' (CIAT). This aphasia therapy has been found to be effective by other researchers, but CIAT involves an intensive schedule of sessions administered by clinicians - several hours every day - making this therapy option very time consuming for speech pathologists and very expensive for the health service. The intensive group schedule can also be too demanding for some people with aphasia.

Our new research found that CIAT continues to be effective for some people with aphasia using a much less intense schedule of two 90 minute sessions a week, and importantly, when the groups sessions were run by trained volunteers (instead of clinicians). We found that individuals who had stopped making gains in traditional therapy showed improvements in their language skills.

Inga Hameister's work showing that CIAT can be effective with people with Primary Progressive Aphasia was also accepted for publication in 2016:

Hameister, I., Nickels, L., Abel, S., & Croot, K. (2017). "Do you have mowing the lawn": Improvements in word retrieval and grammar following constraint induced language therapy in primary progressive aphasia. *Aphasiology*, 31(3), 308-331.

Conversation in aphasia

Barnes, S. (2016). *Aphasia and open format other-initiation of repair: Solving complex trouble in conversation. Research on Language and Social Interaction*, 49, 111-127.

Conversations for people with aphasia are often affected by communication problems and breakdowns. Scott Barnes explored how people with aphasia and their family and friends indicate and solve these problems. His study focused on when words like "what?", "huh?", and "sorry?" were used to indicate communication problems. This way of signalling of problems is common to all known world languages. He found that although these words don't provide much direct support for solving problems (e.g., providing new words or ideas), they can help communication get back on track because they "reset" the conversation, and encourage people with aphasia to change the ways they are using language or communicating (e.g., focusing on a certain word or gesture). Scott's findings have been used to inform advice that speech pathologists provide about promoting successful communication.

Primary Progressive Aphasia

Primary Progressive Aphasia (PPA) refers to a cluster of symptoms caused by neurodegenerative (progressive brain) diseases. At first, PPA results in communication difficulties rather than memory changes usually associated with dementia. People with PPA usually experience anomia (difficulty finding the right word) and may also experience various speaking, writing, and comprehension difficulties, or apraxia (uncoordinated speech movements). Although language difficulties can be similar to in aphasia after stroke, people with PPA can't reasonably hope to recover. There are currently

no pharmacotherapies (drugs) to slow down or cure PPA, but recent research suggests the progression may slow or become more manageable with behavioural therapies. Current therapy approaches and research in speech pathology focus on assisting people to maintain recall of personally relevant words, teaching families to adapt the strategies they use when communicating as language problems increase, providing alternative and augmentative means of communication (such as personal communication books, or apps) plus addressing quality of life and coping strategies.

Research Highlights from 2016

Studies of the efficacy of Aphasia Rehabilitation

Lyndsey Nickels

It is very exciting that, currently, there are four national clinical trials underway across Australia (**LIFT, VERSE, ASK** and **COMPARE**). These trials will work together to improve the lives of people with aphasia by looking at the effectiveness of different types of aphasia therapy.

Professor Lyndsey Nickels is involved in the **COMPARE** trial.

COMPARE is a research study that compares the outcomes of two different intensive treatments for people with aphasia: multi-modal aphasia therapy and constraint induced aphasia therapy. The study will enable us to see whether these treatments result in better outcomes compared to the usual care aphasia treatments. It will also help us work out which treatment works best for people with aphasia and whether this varies depending on how severe their aphasia is and/or what types of problems they have. The study already has groups running in Melbourne and the Gold Coast, and groups will also be running in Sydney based at the Macquarie University clinic starting in 2017.

Please get in touch if you are interested in being involved in this trial later in 2017 (and haven't already told us).

Treating writing in Primary Progressive Aphasia

Trudy Krajenbrink, Karen Croot, Cathy Taylor-Rubin and Lyndsey Nickels

Not being able to say the word you want to say is one of the most common complaints of people with progressive aphasia. Research has shown that treatment can be effective in improving the ability to retrieve words that have been practiced.

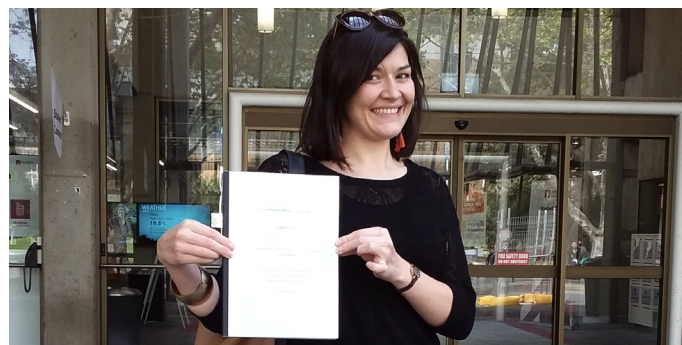
Most studies have focused on spoken language production, however people with Primary Progressive Aphasia (PPA) often also report difficulties writing. Over the last year, we have investigated treatment options for written and spoken word retrieval with two individuals with progressive aphasia. In our first study we found that a copying treatment resulted in significant improvement of single word spelling. A second treatment study with a man with the semantic variant of PPA consisted of repetition and writing of words in the presence of a picture. This method resulted in an improvement of both spoken and written word retrieval for the treated words.

However regular practice seems important to maintain the level of improvement. In future projects we would like to continue to investigate how we can improve the transfer from practicing words in treatment to using these words in natural speech. We hope that better understanding of the mechanisms of treatment will help us improve treatment outcomes for people with progressive aphasia.

Semantic neighbours and aphasia

Solène Hameau

This year, Solène completed her PhD, which investigated the influence of semantic neighbours in picture naming in individuals with aphasia.



Solène Hameau, submitting her PhD thesis

When we say a word, both the intended word as well as some words that are related in meaning (semantic neighbours) to that word are activated in the language system. Solène's thesis focused on whether words that have many (semantic) neighbours, or particular types of neighbours, are easier to name compared to words that have few of these neighbours, and whether these words benefit better from naming treatment compared to words with few neighbours.

One study showed that in people with aphasia, in general, words that have many semantic neighbours of a certain type (i.e., neighbours with many semantic features in common like orange and lemon) were more likely to be correctly named than incorrectly named compared to words with few of these neighbours. However, this effect was modulated by the type of impairment of participants: a sub-group of individuals with a phonological impairment but no semantic difficulties

was least influenced by semantic neighbourhood measures. A second study used a facilitation paradigm (i.e., similar to a very short naming treatment) to investigate the influence of the semantic neighbourhood of treated words on treatment outcomes. Two individuals with aphasia showed different effects of the task in general, and with respect to semantic neighbourhood variables. It seemed nevertheless that words that were incorrectly named at baseline were more likely to be correctly named after facilitation if they had very similar semantic neighbours, for both participants. Solène's findings suggest that words that have either many or very similar semantic neighbours are easier to name and are more likely to benefit from naming treatment in aphasia compared to words that have less similar semantic neighbours.

'Assessment and Management of Progressive Aphasia' - 10th International Conference on Frontotemporal Dementias (Munich, Germany)
Cathy Taylor-Rubin and Karen Croot

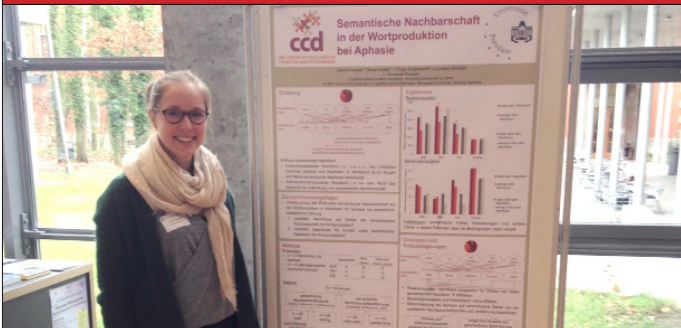
Cathy and Karen were invited to present a three-hour Educational Workshop at this conference in September 2016.



Left to right: Cathy Taylor-Rubin and Karen Croot

This was the first time that this major international conference has offered a clinical training workshop and this workshop provided a framework for the holistic care of people with Primary Progressive Aphasia (PPA). The workshop was aimed at an audience of health care professionals working with people who have PPA associated with frontotemporal dementia, and over 120 people registered to attend across a wide range of health care disciplines. Cathy and Karen have compiled additional resources to accompany their Workshop, available at: ccd.edu.au/research/language/aphasia/ppa-resources

Celebrations...Comings...Goings



Leonie Lampe presenting her poster at Panorama Patholinguistik (Potsdam, Germany)



Inga Hameister presenting her poster at CCD's 2016 Annual Workshop (Leura, Australia)

Congratulations!

Our congratulations to Solène Hameau, Polly Barr, Oksana Lyalka on their PhD submissions:

Solène submitted her PhD in September and remains at Macquarie University working on a project 'Computational modelling of spoken word production' funded by an ARC Centre of Excellence in Cognition and its Disorders (CCD) Cross Program Support Scheme grant.

Polly submitted her PhD in December, and is continuing her work at Macquarie University as part of the Aphasia Research Group.

Oksana submitted her PhD in September (in Newcastle, UK) and is now based in Berlin, Germany, busy writing up papers for publication.

Congratulations also to **Leanne** (and partner, David) and **Margaret** (and partner, Adam) who were married recently!

Greetings and farewells

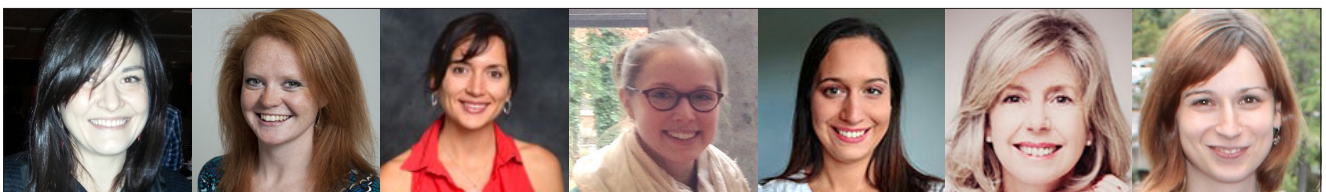
Welcome to Leonie Lampe, a visiting Masters student from Potsdam University (Germany); Leanne Ruggero, a new MRes student going into the PhD program; and Cathy Taylor-Rubin, a new PhD student.

Leonie visited us for a semester during 2016. She is currently based in Germany while she completes her Masters of Science degree. She will commence her PhD at Macquarie in the second half of 2017.

Leanne started her Masters of Research with us in July. She has previously studied psychology, linguistics and speech pathology, and has returned to her interest in research after five years' experience working as a speech pathologist.

Cathy started her PhD in the department in late December 2015. Cathy has worked as a speech pathologist with adults with neurological disorders for over thirty years, being one of the first graduating year of the BAppSc (Speech Pathology) in 1978. Her growing caseload and expertise in PPA lead to her completing a Masters of Applied Science (Speech Pathology) in 2015, investigating conversation breakdown in PPA. She is now continuing her interest in this emerging field by combining research and clinical practice.

We also say farewell to Dr Nora Fieder. **Nora** is a postdoctoral research fellow at the Berlin School of Mind and Brain at Humboldt University of Berlin, Germany.



Left to right: Solène Hameau, Polly Barr, Oksana Lyalka, Leonie Lampe, Leanne Ruggero, Cathy Taylor-Rubin, Dr Nora Fieder

New publications for 2016 (continued)

Group therapy may not benefit language as much as we hope!

Nickels, L., McDonald, B., & Mason, C. (2016). *The impact of group therapy on word retrieval in people with chronic aphasia*. *Neurorehabilitation*, 39(1), 81-95.

Lyndsey Nickels, Belinda McDonald and Catherine Mason carried out this study based at St Joseph's Hospital, Auburn. They were interested in the fact that while traditional group-based aphasia treatment has been shown to benefit people with aphasia in a variety of ways, there hadn't been investigation as to whether it had any effect on word retrieval. This seems important as word retrieval impairment (anomia) is so common in aphasia. They found that while participants felt the group was beneficial, there was little clear evidence for treatment-related gains in word retrieval. It is clear that 'traditional' group treatment has many positive features, but clinicians need to be cautious in the extent to which language-related gains can be expected as these may be small at best.

Treatment for problems with spelling in aphasia

Krajenbrink, T., Nickels, L., & Kohnen, S. (In Press). *No effect of orthographic neighbourhood in treatment with two cases of acquired dysgraphia*. *Aphasiology*.

Some people with aphasia have trouble spelling because of a problem 'holding onto' the letters of the word long enough to get them onto the paper – they know the word and know how it is spelled but somehow the correct letters fade from memory during the process of spelling.

This is known as 'graphemic buffer dysgraphia' and Trudy Krajenbrink worked with two people with this disorder. Using a copy and recall treatment both people improved on the words that they practiced spelling. However, it seems as though for people with this type of spelling problem regular practice is needed so that the words are not 'forgotten'.

It is therefore particularly important that the words treated are the ones that people will use in their everyday writing.

Coming up in 2017

Gestures and communication in aphasia

Ana Murteira

Gestures are a critical component of human communication. Through gestures, it is possible to convey new information while speaking or even fully replace speech. Gestures reflect how body action and language might be linked. Speech pathology rehabilitation often uses gestures to promote communication in people with aphasia, for example to help retrieve nouns and verbs. The extent to which gesture may benefit performance in people with aphasia is not clear. Ana's project investigates the processes underlying the gesture-language relationship to increase understanding of how gesture can be best used to facilitate speech production in people with aphasia.

Living with PPA

Leanne Ruggero

Awareness of PPA is slowly growing, however, we still know surprisingly little about the impact of diagnosis and living with PPA on a person's life. Research in stroke aphasia over the past few years has found that certain factors promote quality of life or help people to live 'positively' with aphasia. Factors can include things such as 'having a support network', 'finding hobbies you enjoy', or 'maintaining independence'. Leanne's research is investigating whether there are similar factors affecting the lives of people with PPA. It is also looking at mood and communication confidence in PPA. If we can identify common positive factors it might mean we can tell patients and their families more about what others find helpful living with the condition. It may also form a strong argument for requesting increased services for people with PPA such as speech pathology, social work or psychology.

Enhancing communicative effectiveness and satisfaction between people with PPA and communication partners

Cathy Taylor-Rubin

For people with PPA, gradual and insidious deterioration of the ability to communicate profoundly affects their lives and that of their partners. Behavioural interventions can make

communication and quality of life better. The aim of this project will be to determine which behavioural interventions are most effective in improving communication, well-being and support for people with PPA and their partners. In recent years, word learning treatment programs have been shown to be effective in successfully training words that have been lost in PPA. In a series of three studies, this project will seek to better understand rates of adherence to treatment and factors that affect treatment adherence, demonstrate whether word learning can lead to improved connected speech and identify techniques that may facilitate generalisation of learned words to everyday communication.

Do you want to help?

Are you interested in helping us learn more about aphasia and develop effective treatments?

We are currently looking for:

- Older adults without aphasia for us to compare with people with aphasia
- Anyone with aphasia or Primary Progressive Aphasia. We're very happy to hear from everyone but we are particularly interested in:
 - Anyone with word retrieval problems (whether mild or more severe, fluent or nonfluent!)
 - Anyone who seems to have problems 'conceptualising' what they want to say
 - Anyone who is a nonlinear speller (e.g., may write the last letter of the word first)

If you or someone you know might be interested in helping our research by participating in a study, please contact us:

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