

## Neuropsychology International Fellowship Visit 2014 – Report

Visit dates: 22 October – 7 December 2014

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### Research units visited

Location (no. of days)	Unit	Liaisons (Profes.)
Oxford (5)	Cognitive Neuropsychology Centre	Glyn Humphries*
	Oxford Center for Human Brain Activity (OHBA)	Kia Nobre
London (8)	UCL Wellcome Trust Centre for Neuroimaging	Eleanor Maguire
	Private Clinic	Narinder Kapur*
	Division of Neuropsychology, National Hospital for Neurology and Neurosurgery	Lisa Cipolotti (via Drs. Natasja van-Harskamp and Lynne Aitkenhead)
	BNS Autumn Meet 2014	The BNS
Manchester (8)	Department of Psychology	Daniela Montaldi, Andrew Mayes
	Cerebral Function Unit (CFU), Royal Salford Hospital	Julie Snowden
	Neuroscience and Aphasia Research Unit (NARU)	Matt Lambon Ralph*
Cambridge (21)	MRC Cognition and Brain Sciences Unit (CBU)	Rik Henson, Andrea Greve, Elisa Cooper
	Department of Clinical Neurosciences	Michael Hornberger*, Karalyn Patterson, John Hodges, Dennis Chan
	Department of Psychology	Jon Simons

\*Primary liaison at destination

### Briefs about visit to each unit

#### Oxford

The visit to Oxford was aimed at better understanding research on attention in healthy ageing, stroke, and vascular dementia being undertaken at both centers. At the Cognitive Neuropsychology Centre, I was part of discussions with Prof. Glyn Humphries and his doctoral students on creating comprehensive tests for assessing and improving chances of detecting different forms of neglect following stroke. We also had discussions on adapting tests used at the Centre but towards an Indian population as well as novel methods of rehabilitating neglect. In addition, I was involved in assisting with ongoing Transcranial Direct Current Stimulation (tDCS) experiments at the Centre, and had an opportunity to shadow Glyn at one of his clinics. At OHBA with Prof. Kia Nobre and team, I learnt about how MEG and TMS are being used to answer questions on attention and long-term memory in healthy ageing and diseased populations.

#### London

With Prof. Eleanor Maguire, I had the opportunity to discuss about creating simple and effective tests that can be used at our Clinic to understand spatial memory and navigation abilities in patients with Alzheimer's disease. During my time in London, I also had the opportunity to shadow three clinic appointments, one on post-traumatic amnesia following TBI (sit-in with Prof. Narinder Kapur) and two TIA cases with the Neuropsychology division at the National Hospital of Neurology and Neurosurgery (sit-ins with Natasja and Lynne,

clinicians in Prof. Lisa Cipolotti's team). These sit-ins were extremely helpful as not only did they inform me of how clinicians operate in the UK, but gave me a better idea of using limited time with the patient to choose tests that not only aid in diagnosis but help answer questions pertaining to research themes of clinics. I also had long discussions with Narinder on using available resources to advance research output in India. Narinder generously donated books on rehabilitation that I intend to circulate to interested students and clinicians on my return to Bangalore. Finally, I had the opportunity to attend the Autumn Meet of the British Neuropsychological Society. This meet consisted of a daylong symposium on time, space, and number perception in the brain with eminent speakers from all over the UK talking on numerical abilities, time perception and spatial abilities in both healthy adults and patients.

### **Manchester**

At Manchester, I met Profs. Daniela Montaldi, Andrew Mayes, their doctoral and postdoctoral scholars to discuss their views on projects on memory and language that I am a part of in Bangalore. Their team's inputs were insightful as they helped me work my way around the neuroimaging components of our project while pointing out essential factors we may want to keep in mind while carrying out our project. We also discussed novel ways of testing memory and other cognitive functions in illiterates, which has always been a challenge at many neuropsychology setups in India.

Following this, I had a daylong meeting with Prof. Julie Snowden and Dr. Anna Richardson (neurologist at CFU) where I sat in on a case of focal cortical presentation of Alzheimer's disease. Not only did this build on the previous clinic appointments I sat in at, I was also able to note how multidisciplinary setups are useful in working around the prognosis of any clinical condition. In addition, Julie's insights on Frontotemporal dementia and Alzheimer's disease greatly refined my understanding of working our way around research goals in projects on cognition and dementia.

My visit to NARU was aimed at shadowing research on language and semantics in Primary Progressive Aphasia and Alzheimer's disease, as this is a major interest of all my team members. I had meetings allotted with each member at NARU and Prof. Matt Lambon Ralph kindly set apart half a day to discuss the research I am involved in. While I got to sample the variety of work being undertaken at NARU, I gained a well-rounded understanding of approaching language and semantics research. Matt also kindly arranged a meeting with the speech and language therapist and his team at NARU whose inputs on rehabilitation of language functions following stroke were extremely helpful.

### **Cambridge**

Meetings with my liaisons at Cambridge were directed towards understanding memory in healthy ageing and dementia better. I first visited Prof. Rik Henson's team at the CBU where I assisted with organizing and programming experiments that his team members (Andrea and Elisa) were involved in. I attended lab meetings, two fantastic talks ('MEG and EEG in PSP and FTD' – Laura Hughes; 'Specificity of effects of early parent-infant interactions in the intergenerational transmission of psychopathology' – Lynne Murray), and also gained Rik's inputs on neuroimaging of memory in neurodegenerative disorders.

At the Dept. of Clinical Neurosciences, I met Prof. Dennis Chan to discuss the use of hippocampal-specific tests that aid in diagnosis and predicting conversion of MCI to AD, as well as adapting the same for India. Dennis kindly introduced me to fellow neurologists and neuropsychologists in the team, who chatted with me about their research. With Profs. Michael Hornberger, Karalyn Patterson, and John Hodges, I had long discussions on refining our testing methods and improving our quality of research on PPA, FTD, and AD. I also discussed the possibility of adapting for India, a social cognition test that one of Michael's postdoctoral fellows (Dr. Maxime Bertoux) has created. Importantly, during my discussions with Michael, I gained a better understanding into the kind of work on FTD and PPA being

undertaken at the Department. I also visited Prof. Jon Simons, who is based at the Dept. of Psychology, to discuss his views on memory deficits following parietal lobe lesions. This was motivated by trying to understand why patients with parietal damage but spared medial temporal and frontal regions show deficits in memory. Following my meet with him, I attended a series of project presentations by his undergraduate students at the Department.

### **Conclusions**

Thanks to this award by the BPS-DoN and the BNS, I maximized my visit by meeting people from both experimental and clinical setups. This not only reiterated the importance of inputs from both schools of thought that help advance research in neuropsychology, but also opened up collaborations in both fields for our Clinic. Visits to these centers also shed light on looking at research problems in new ways. All my liaisons were willing to extend their support towards our work and my discussions with them affirmed that the outlook towards neuropsychology research at some centers in India is, in many ways, in keeping with standards of those of research units in the UK. I am especially grateful to Narinder (my primary fellowship sponsor) for his inputs on developing neuropsychology in India and his assistance with arranging my trip that made my visit memorable. I would again like to thank all my liaisons for hosting me during my trip.

### **Dissemination**

Along with a previous NIF awardee, we have started an informal discussion group in Bangalore that meets monthly to hear experts talk about neuroscience, neuropsychology and related fields. I intend to discuss my fellowship experience here and encourage interested students to apply for the same. Importantly, this visit shed light on the lack of awareness of the field of neuropsychology in Indian colleges, which has direct implications on the dearth of experts in this field in India. I wish to spread awareness amongst college students further about conducting quality scientific research in the field, and offer to circulate any resources that my team currently has or ones we can get our hands on.

### **Recommendations**

A higher amount towards the fellowship may help future fellows visit more centers, helping them gain a more rounded understanding of approaches used by different teams towards the same issues. To maximize their visits, I would recommend that future awardees visit centers with an idea to discuss certain research topics that would greatly help them advance the quality of research on that particular topic in their country.