

The person in psychological science

Alison Lee, from her perspective in neuropsychology, argues that psychologists need to get to know their participants

One of the reasons I enjoy being a neuropsychological researcher is that it allows me the time to get to know my participants. I mostly work with people who have been diagnosed with Parkinson's disease, a movement disorder primarily affecting the elderly, and they typically approach the lab with some trepidation. The idea of a laboratory, not to mention the idea of a psychologist, can be quite scary, especially when you are ill. I learned pretty early in my career that it would make more sense to collect data from people who were relaxed, because then they would both understand and be engaged in the process of research.

Part of this process involves talking to the participant, not particularly about psychology specifically but also about their lives outside of my lab. It did not take long for me to realise that a benefit of this would be that I could learn of specific problems that would directly feed into my research. I might get ideas for future experiments, and I could help the participant too.

Of course, lab protocol exists for a reason. If you are doing cognitive experiments or psychophysics, it is important to ensure that each participant's lab experience is identical as far as possible. This is important for neuropsychology as well, but we do not always have to be quite so proscriptive, particularly when working with clinical participants. Could other areas of psychology perhaps learn a thing or two from our approach?

Neuropsychology deals with the brain-damaged individual, whether that damage occurs after stroke, a neurological condition such as Parkinson's disease, or traumatic brain injury. One of our methods is to do a single-case study, especially when that single case can tell us something interesting about the patient's condition or rehabilitation or something about the brain generally. Another common method is to take a small, closely matched group of patients with a similar functional or anatomical deficit and compare them with a healthy control group. Both methods can reveal a lot about neural functions and also provide loci of interest for imaging investigations.

Yet neuropsychological case studies frequently get a bad press within wider psychology. For example, cognitive scientists have told me that an in-depth study of one patient is not particularly scientific. They argue that we cannot generalise to a wider population on the basis of the performance of one person. Additionally, as comparative statistics in case studies (for example, comparing one person's behaviour with a control patient) are not really useful or appropriate, it can sometimes be difficult to get such studies published in general psychological journals. However, small group studies with a clinical population emphasise the individual differences between people in a way that is never made apparent with experiments on a larger scale. In an attempt to achieve statistical significance, we can sometimes forget that our

experimental population comprises a group of individuals. As psychology is the study of individual behaviour, this seems a little strange to me. As neuropsychology is predominantly the study of people's acquired deficits after brain injury, it simply makes more sense to me to treat each person individually. The experimental protocol remains the same with each person, but it makes sense to talk to each participant about their perceptions of the experiment within the context of their own lives. Interpretation of that context has led to some interesting experimental findings.

For example, when one participant (I will call her Susie) who had been diagnosed with Parkinson's disease visited my lab, I noticed that she had nasty scrapes and dents along one side of her car. When I asked if she had been in an accident, she told me that it was because she always hit the left gatepost when



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pulling onto her drive. She continued doing so even after the drive had been widened.

I found this really interesting because I had previously been involved with a questionnaire study that revealed that some patients always bumped into the same side of a doorway (Lee & Harris, 2001). Susie's problem sounded very similar (but much more expensive). When this was examined experimentally, we found that some people diagnosed with Parkinson's disease had a small but consistent visual neglect of one side of stimuli. Susie hit the gatepost because she was not sure where it was. The answer to her problem was to put a mark on the inside of the windscreen that corresponded to a mark in the centre of the garage door. Susie stopped hitting the gatepost the moment she stopped worrying where it was.

Doing experiments like this allows the researcher the opportunity to look at problems in the context of the participant's life. We could have simply tested lots of Parkinsonian people with a paper and pencil test of neglect (such as line bisection), but that would not have

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revealed the implications of that neglect. I would argue that working with participants as individuals simply offers richer data.

Talking to a participant can also help illuminate otherwise hidden problems. For example, take the reticence of some of my Parkinson's disease group to talk about their symptoms. One of my group, 'Peter', was very relieved when I asked him whether he had ever experienced an hallucination as a part of his PD. He had, but had not mentioned this to anyone because he was concerned that the hallucinations were a symptom of dementia. He didn't want to mention them to his neurologist in case he confirmed that fear. PD hallucinations were experienced by many patients in the late 1990s as a side-effect of a particular medication. If we had not routinely talked to each volunteer about their personal experience of PD, then Peter would have done a lot more worrying. His hallucination was a benign and comforting one, of the weight and heat of his childhood dog sleeping beside him. He left us feeling a lot better, and looking forward to his hallucination, even though I tried hard to persuade him to tell his neurologist (see Barnes et al., 2003).

Not only can experiences or worries become more readily explicable after simply talking them through; sometimes these conversations give ideas for future experimentation as well. For instance, another questionnaire about akinesia in PD (also known as 'freezing'; losing the ability to move in particular settings, such as on a zebra crossing) revealed that many respondents had tried and tested methods to 'unfreeze' themselves. For example, one man mentally sang a marching song and managed to move on the beat. Another respondent's wife threw a piece of paper on the floor to act as a target. Ultimately these responses gave rise to several specific rehabilitation strategies that we could test experimentally and report to people involved in PD rehabilitation.

I am obviously not the first person to do this. For example, studies such as Marshall and Halligan's 'burning house' study (1988) reported a single case that helped our understanding of unilateral spatial neglect (USN). The patient, known as PS, was shown line-drawings of two houses, one on top of the other. One house had flames coming out of a window on the left. PS neglected the left-hand side of the world and so she



Susie hit the gatepost because she was not sure where it was

she thought the task was a bit silly. After seeing the stimuli with the flames coming out of the right hand window, PS suddenly saw the flames on the original stimuli. Marshall and Halligan concluded that the conscious perception of the flames showed that on some level PS had attended to all of the stimuli and that this perception had eventually filtered through to consciousness. PS told us something about USN (that it was a failure of conscious perception) that had not been understood before, and led ultimately to a better understanding of that condition. Simply showing a group of people with USN similar pictures would have confirmed that they cannot see things presented on the left hand side of stimuli, but the single case investigation of PS revealed something of great importance in the study of unilateral spatial neglect.

Another example is the study of the prosopagnosia patient WJ (e.g. Warrington & James, 1967). Prosopagnosia is a deficit affecting recognition of previously familiar faces when presented visually. WJ eventually began sheep farming as a hobby after several strokes, and McNeil and Warrington (1993) showed that WJ was better at recognising photos of his sheep than familiar human faces. He also performed much better than other similarly aged sheep farmers. WJ showed that prosopagnosia affects human faces, whereas recognition of non-human faces can be preserved. It was suggested that WJ could learn to recognise the faces of his sheep on the basis of pattern recognition (the individual black and white shading of their faces). That he could not do so for human faces was an indication that human face perception is different in some way, supporting other theorists' view that faces were special. The acquired ability of WJ when seen in the context of his hobby helped us understand a facet of a complex human behaviour. If WJ had not decided to acquire a flock of sheep and then talk about this with the neuropsychologists testing him, it would have taken a lot longer to establish this theory.

reported that the houses were identical (as would be typical in USN).

However, when asked which one she preferred, she preferred the one not on fire nine out of eleven times, even though

Papers such as these really add flesh to what can be otherwise impenetrable neuropsychological problems. They also help people like me teach and attract students to this particular branch of the discipline. Describing the behaviour of an individual can offer greater insight to a problem than an averaged representation can. For example, studying the memory problems of Henry Molaison (HM) or Clive Wearing leads to a greater understanding of the specific problems of different types of amnesia than reading descriptions of amnesia in cognitive textbooks ever could. Case studies provide a human face for psychological theories. The heterogeneity of human behaviour becomes apparent in a way that large cognitive samples or descriptions of neuropsychological dysfunction tend to mask.

A neuropsychological case study allows investigation of an individual's day-to-day living and therefore feeds both the rehabilitation of a patient and theory generation that can be applicable to more general psychology. More than this, you can sometimes directly help people with complicated functional deficits instead of merely studying their behaviour.

Given how rewarding talking to someone about their experiences can be, for both participant and experimenter, why is it so rare in quantitative psychology? To be clear, I am not talking about debriefing. I mean simply talking to the participant about their life and their experience of your experiment. You find out about a patient's unique problems and perspective only by asking them. You come to realise that the stuff of psychology is real lives, not data points, and these lives and our work as psychologists should be locked in a reciprocal relationship.

Fundamentally, psychology is a science based on the observation of behaviour. Most psychological theories are generated on the basis of wanting to find out how someone perceives something or why people act in a certain way in a particular situation. We are all individuals and we each behave uniquely – I would argue that it is important to remember that. I would like to hear more of the stories of those who have taken part in psychological research of all types: what did they bring to it, how were they affected by it, and how did their personal take subsequently change the perspective of the researchers? It might be more scientific to collect huge piles of averaged data to test a theory, but I would argue that it is more useful and fun to work with one person at a time.