

From art to autism

Uta Frith takes Lance Workman on a journey through her collection of memories

I believe you initially began your studies with history of art in Germany, but then became interested in psychology, and autism in particular.

Yes, it's quite a long journey. At school I was not particularly good at science subjects and much better arts and languages. No wonder these were the subjects I was expected to study at university. But looking back, this is a common situation for girls to be in, and it was a bit of a trap. Actually, I had many and diverse interests. So, one thing I love to tell girls in a similar situation is that you can escape the trap. You can change your mind about what you'd like to study, and in any case it is very difficult to know what you are good at.

The school I went to in Germany gave me a nice all-round education, including nine years of Latin and six years of Greek. I absolutely loved it. I dreamt my future would be to study ancient civilisations – finding treasures and deciphering texts in some long-lost language! By comparison, art history is far more down-to-earth. The art history courses offered at my university were fascinating. They allowed me to explore different artists, different times, places and materials. But I was very curious about what was on offer elsewhere. I went to lots of different lectures and remember my timetable being completely full up. This seemed to me the best thing about being a student: soaking up learning while being inspired by the commitment that eminent scholars bring to their subjects. At that point I only had a very nebulous and indeed misguided idea of what psychology was about. But I happened to drift into a lecture on analysis of variance. Far from being put off, the idea that you could use stats to measure psychological abilities strangely appealed to me. For the first time I learned that it was possible to do experiments about how people remember things, and how they solved problems, or rather how they failed to solve them.

So I went to the psychology department and asked if they would take me on as a student. It was very small department and you quickly got to know everybody. But it was quite a remarkable department because they followed a natural sciences model using American textbooks. This was tricky for me because



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I didn't have English, and my classical education seemed rather quaint. But I was not deterred. I ended up doing more and more psychology and less and less art history, mainly because the psychology course was well structured with an exam at the end. This certainly gave me some focus. It occurred to me gradually that it was the mind I was interested in, and even more gradually that this included the brain.

As part of the psychology course I took similar courses to the medics. I have to admit that the physiology lab classes were rather tough for me. There were some alarming moments involving

spinal frogs. Better by far were the lectures and case demonstrations in the university psychiatric clinic. This was more than exciting – it was the most intellectually thrilling experience that I ever had. The professor was renowned for his ability to present cases to students. He clearly enjoyed himself in these demonstrations, and the patients he selected played along good-naturedly. I very much wanted to understand what was the matter with them, why they suffered from invisible and intangible phenomena. So if anything, that was what got me totally hooked into psychology.

You came to England around this time – how did that come about?

Well, I needed to learn English to read the textbooks and journals – and so I came to London. I found I liked it even more than Paris, and that was saying something. I went to visit the Institute of Psychiatry, because I had heard of Hans-Jürgen Eysenck, who was the head of department. I was extremely taken with his books that were debunking the woolly end of psychology and psychoanalysis. Like everyone else I had read Freud and swallowed it wholesale. But Eysenck's books threw a different light on things. Where was the evidence for Freud's theories? If the evidence was in the patients that were cured, then it was very thin indeed. If the patients did not get better, then apparently this was because they resisted. Something was not quite right here. It seemed a suspiciously circular argument.

I saw Professor Eysenck only very briefly, but he seemed happy enough for me to stay around to see if I could do odd jobs. One of the lecturers, Reg Beech, gave me some data to analyse from an experiment he had done with patients who had obsessive compulsive disorder. My job was quite basic – correlations, that sort of thing – but I enjoyed doing it. It was an exciting environment where psychologists tested hypotheses, and treated patients, not with psychotherapy, but with methods based on learning theory. I found out that there was a unique course in clinical psychology, and I was longing to be able to do this course. The course was about to start when I had already sent back one suitcase before returning to Germany. Then suddenly somebody dropped out and they had a vacancy. So I went to the head – Monte Shapiro – and asked if he would take me on. Amazingly, he did, and I am for ever grateful to him. Then I had to tell my parents. I knew I imposed a heavy financial burden on them, because the exchange rate between the pound and the

Deutschmark was extremely poor at that time. However, they were always unbelievably supportive of me and of anything I decided to do. So they accepted my sudden change of plan. Still, I intended to go back to Germany after the course had finished. But, I never did. Instead I got married to Chris! He had just finished the course and was starting a PhD. At some point during the course I found out about autism. I was completely fascinated as soon as I met the first autistic child, and have been ever since. By sheer luck, the Institute of Psychiatry was the place to be for anyone interested in autism – Mike Rutter, Lorna Wing, Neil O'Connor and Beate Hermelin, all these heroes were there at that time.

Things were really very different then. What was the prevailing view on autism during the 1960s and 70s in terms of causes?

The prevailing view was that something in psychosocial relations had gone wrong during early development, and that this caused the state of autism. Still, at the Institute there was also the view that autism should be seen in the context of mental deficiency. This was a term for conditions thought to be due to brain pathology. To me however, the autistic children didn't look like other children with mental disabilities. Was there a hidden intelligence? Many of the children I met had no language. Could they perhaps learn to speak? Would they then grow out of their autism? The children with Down's syndrome I met did have language and were quite social – but the autistic children were so strange, so different.

You once described autistic children as being like the ones in John Wyndham's *The Midwich Cuckoos* – later made into the film *Village of the Damned*.

This is one of the romantic images about autistic children I have toyed with. I freely admit that some of my fascination was fed by romantic notions. Perhaps it was possible here to make contact with something like an alien mind. At first I thought it would be very difficult to study autistic individuals in a strict experimental fashion. Perhaps case studies were the only way. Then I happened to read a paper by Beate Hermelin and Neil O'Connor and realised that it was after all possible to do experiments with these children. I plucked up courage and managed to talk to them a couple of times. One day they asked me whether I would like to do a PhD. I didn't hesitate for a second. I immediately knew that this is what I

most wanted to do. But it also put me in a quandary as I had already been talking to Reg Beech about doing a PhD on obsessive compulsive disorders. He was very understanding. He could see that my interest in studying autism was unstoppable. I was extremely lucky. This whole area of research into disorders of cognitive development was only just beginning, and I happened to be in the right place. When people asked what I was doing and I said I studied autistic children, they invariably thought I was studying artistic children! When I did explain about autism, they generally thought it was odd to study something that was so very rare.

Things changed radically, with you as one of the people that suggested autistic children couldn't mentalise. Did that happen overnight or was it an idea that gradually emerged?

The ground for the idea was well prepared in many ways. The rigorous experimental approach to autism pioneered by Hermelin and O'Connor was one thing, and so was the finding that the really critical feature of autism was not people's aloofness, but their strange failure in reciprocal communication. 'Theory of mind' was an idea which just then surfaced and inspired developmental psychologists Heinz Wimmer and Josef Perner. It only needed these strands bringing together. There was a sort of insight moment: If young children needed a 'theory of mind' in order to understand pretend play, as Alan Leslie argued, then it was possible that autistic children who had recently been found to lack pretend play, did not have a 'theory of mind'. Simon Baron-Cohen started his PhD at this time and carried out the critical experiments. One of them has become a classic experiment with the Sally-Ann False Belief Task. Simon found that autistic children aged 9–10 years failed this task when children with Down's syndrome and ordinary five-year-olds succeeded. John Morton suggested the novel term 'mentalising', short for 'the ability to use mental states such as intentions and beliefs to predict behaviour of others and self'. So we all continued to work on the idea that mentalising failure might be key to the social impairments in autism. Convincing other people of this idea was not easy. I tried to do this in my 1989 book *Autism: Explaining the Enigma*.

You found that specific deficit.

Yes we did find a specific deficit in social cognitive processing, and we designed other tests to show that there was no

general cognitive impairment that would explain the results. But it was very difficult to get these ideas accepted. We wanted to claim that there was a neural basis to this specific deficit and that this might help us to identify a cause of autism in the brain. At the time brain imaging had just emerged. It was almost like science fiction. Here was an amazing technique that promised to make thinking in the brain visible. What about thinking about mental states? Of course, I could not have dreamt of doing brain-imaging studies on my own. But fortunately Chris was very much involved in the early development of functional imaging techniques, and he was brave enough to give it a go. His colleagues have told me since that, at the time, they thought he was completely mad to do this. It took about 10 years for other centres to take up these crazy ideas and pursue them further. Today it is taken for granted that there is a mentalising system in the brain. What we still don't know, however, is in what way this system is or is not working in autism. This has proved very elusive. I still remember that we expected to get an immediate and clear answer to this question. How naive!

If you put someone with autism in a scanner and gave them a specific task, how would their pattern of response differ from a non-autistic person?

This is a far more difficult question than it appears. It depends on the task, of course, and on how the person in the scanner decides to do the task. Psychological tasks all involve many different cognitive processes, and we hardly know how even a few of these processes might be manifest in brain activity. There are individual differences in brain structure and brain function within the general population, let alone the autistic population. But we still know very little about individual differences. A lot more work needs to be done here. Studies looking at brain activity during mentalising tasks in autistic people reliably find atypical brain activation in the mentalising system. But it is difficult to interpret this and identify what exactly makes this activation atypical.

You have also suggested that autistic individuals might have some cognitive advantages?

At least 10 per cent have outstanding talents, and possibly as many as 30 per cent have superior abilities in quite specific areas, and it is important to explain these. My hope was that one single cause might explain these special abilities and at the same time the

interview

undeniable weaknesses that show up in tests such as 'Comprehension'. That's how I arrived at the theory of weak central coherence. Basically, there is the Gestalt, and there are the pieces giving you the information about the wood and the trees. Weak central coherence is when you can't see the wood for the trees. This can be both an advantage and a disadvantage. There are tasks where it is important to resist the pull of the big picture, for example when you need to find a hidden object. Amita Shah, another of my brilliant PhD students, showed that autistic children are good at finding hidden figures, and can easily see how to segment a picture in the Block Design Test. On the other hand, they may often miss the main point of a question in the 'Comprehension' test. Then Francesca Happé came along and showed that you don't have to be autistic to have a detail-focused processing style.

Sarah White, a more recent PhD student, found that it is only a subgroup of autistic children who show weak central coherence. To my mind these are the children I used to see long ago, very much like the ones Kanner described. They are the classic cases that still exist,

but now they are only a small part of the whole autism spectrum.

We still don't know how to explain the amazing talent seen in some autistic individuals, but one ingredient may be the ability to zoom in easily on a small detail and stay there until it is mastered by countless repeats.

The film *Rainman* brought autism to the attention of the public in the 1980s – do you think that was a good portrayal of an autistic individual?

It was an outstanding portrayal, even though the character of *Rainman* was based on a composite of a number of autistic people. Apparently, Dustin Hoffman studied these people carefully, and managed to convey for the first time their endearing naivety and their charming social faux pas. The film increased the awareness of the condition, especially in adults. It may also have increased the unrealistic expectation of outstanding talent. Most importantly, it helped to lessen any feelings of fear and dread about autism.

You mentioned your husband earlier, Chris Frith. When I interviewed him,

one question I asked was How do you feel about working with your wife? I'm curious if I ask you the same question about him to see whether you give the same answer?

It's a marvellous feeling. We have always talked to each other about our work and have read each other's papers in early drafts. We have always been interested in each other's work, and it helped that it was different. It was no accident that we were in separate departments and were pursuing different projects. It is only really in recent years that we have been working together. We found that we enjoy it! I think writing together has worked very much to my advantage. Chris often starts drawing out a structure and puts down rough ideas. Then I just have to do a bit of editing and expanding. It seems like a free ride.

Maybe the two of you bring separate skills to the work – a bit like Lennon and McCartney?

I honestly believe I bring much less to it than he does.

Well, I can tell you that's certainly not what he said!



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