

Mind of the 'living dead'

The headlines were dramatic and for once they were justified. 'Scientists read the minds of the living dead' was *The Independent's* chosen angle; 'A voice for the voiceless' trumpeted *New Scientist*. The cause of the excitement was a brain-imaging study of 54 seriously brain-damaged patients, published in the *New England Journal of Medicine* (<http://bit.ly/9aDxFS>). At the time of scanning, the patients had awoken from coma, but showed either no outward signs of awareness (a persistent vegetative state: PVS) or inconsistent signs of awareness, with no ability to communicate (known as a 'minimally conscious state' – a term introduced only in 2002).

Martin Monti at the MRC Cognition and Brain Sciences Unit at the University of Cambridge, and colleagues, scanned the brains of these patients while instructing them to imagine either playing tennis or walking around their house or home town. Amazingly, five of the patients appeared to heed the task instructions – their brain activity varied across the two imagery conditions in exactly the same way as observed among a group of 16 healthy controls. Exhaustive bedside testing of two of these five patients had identified no outward signs of awareness whatsoever. And yet here they were, participating in a visual imagery task.

But the greatest excitement arose from

further testing with one of these five patients, to see if the imagery task could be used as a communication tool. The man had been diagnosed as PVS, although at the time of scanning he showed some fragile, fleeting signs of awareness consistent with a diagnosis of a minimally conscious state. Monti's team asked the man six questions, such as 'Is



Brain activations of a healthy individual, and a presumed VS patient, answering 'Yes' and 'No' to autobiographical questions

your father's name Alexander?', with the instruction to imagine playing tennis to answer 'no' and to imagine navigating his house to answer 'yes', or vice versa.

Despite exhibiting the briefest flickers of awareness on the outside, and having no outward ability to communicate, the

man manipulated his brain activity in such a way as to answer five of the six questions with 100 per cent accuracy. For the sixth question, no reliable brain activity pattern was detected. It's not known if the patient had fallen asleep, lost consciousness or chosen not to answer.

This isn't the first time that a PVS patient has been shown to respond to visual imagery instructions. A study published in 2006 in *Science* described a female PVS patient whose brain activity varied according to the tennis or navigation commands. Similarly, last year, neuropsychologist Caroline Schnakers at the University of Liege instructed a female PVS patient to pay special attention to the sound of her name, which led to an enhanced EEG signal compared with when the instruction wasn't given. However, this latest research represents the first time that brain imaging has been used to 'converse' with a patient judged unable to communicate by traditional means.

The implications of the new study are profound. Other patients judged to be unaware by traditional methods may also have inner awareness with the cognitive capacity to converse. 'In patients without a behavioural response, it is clear that functional MRI complements existing diagnostic tools by providing a method for detecting covert signs of residual cognitive function and awareness,' the researchers said.

The findings also pose disturbing, yet intriguing questions about what it feels like to be conscious within a frozen exterior. Did the researchers have the chance to ask the patient who conversed any questions about how he feels or what he wants? 'We didn't,' co-author Adrian Owen told us. 'At the time of the scan we only had ethical permission to ask him the same biographical questions that we asked the volunteers in the control study. Of course, this is something that we will pursue in future subject to the appropriate ethical frameworks being set up.'

'We are really only in the first stages of the research,' Owen added 'that is to say, we have only just shown that it is possible to do this – the next step is to ascertain whether we can do this with others, how many people it applies to and then, what should we do with them. Only further research will tell us what kind of "consciousness" these patients have.' CJ

ROOTS OF SCHIZOPHRENIA

Researchers at Duke University have reported new details concerning the neurodevelopmental roots of schizophrenia. Terrie Moffitt and colleagues investigated 1073 participants born in 1972 or 1973 in Dunedin, New Zealand, all of whom undertook repeated cognitive tests between the ages of three and thirteen. By 2005, 2.5 per cent of the cohort had received a diagnosis of schizophrenia and 1 per cent were on antipsychotic medication.

Analysis of the participants' childhood test results revealed that those later diagnosed with schizophrenia had early, stable deficits in verbal and visual knowledge acquisition, reasoning and conceptualisation, together with slower growth than their peers in processing speed, attention, visual-spatial problem-solving ability and working memory. Crucially, these distinctive patterns of cognitive development were not observed in participants who would go on to receive a diagnosis of depression in adulthood.

The researchers hope that further insights into the developmental roots of schizophrenia will provide opportunities for early intervention. 'What we think of as adult psychiatric disorders have their roots much earlier in life,' said co-author Avshalom Caspi. CJ

Baby Einstein founders – show us the data

One of the co-founders of the Baby Einstein range of DVDs for infants is suing the University of Washington. William Clark wants access to data reported in two studies, both co-authored by Dimitri Christakis. The first, published in 2004 in *Pediatrics*, tested 1200 seven-year-old children, and found they were 10 per cent more likely to have attentional problems for every hour of television they watched daily between the ages of one and three (<http://bit.ly/6ec09t>).

The second paper, cross-sectional in design and published in 2007 in the *Journal of Pediatrics*, involved interviews with over a thousand parents. It reported that for 8- to 16-month-old infants, every hour per day spent watching baby DVDs and videos was associated, on average, with knowing six to eight fewer words, compared with infants who did not watch them (<http://bit.ly/a878Du>). The latter paper specifically mentions Baby Einstein products.

Clark and his wife Julie Aigner-Clark sold Baby Einstein to Walt Disney in 2001 and have no ongoing commercial interest

in the company. 'All we're asking for is the basis for what the university has represented to be groundbreaking research,' Clark said in a press statement. 'Given that other research studies have not shown the same outcomes, we would like the raw data and analytical methods from the Washington studies so we can audit their methodology, and perhaps duplicate the studies, to see if the outcomes are the same.'

In a separate statement Aigner-Clark said the motivation behind the litigation was her and her husband's legacy: 'The researchers who conducted the studies have apparently lost all of the records for one study, and refuse to share all of the raw data for their other study. I believe it's

because their claims that my videos harm children are invalid. I want to clear my name. I'm proud of what I made.'

The developments follow a decision by Walt Disney last year to offer refunds to anyone who purchased a Baby Einstein DVD between 2004 and 2009. This was claimed as a victory by the Campaign for a Commercial Free Childhood (CCFC), led by psychologist Susan Linn (see December News). CJ



New qualitative resource

A new resource to be used in the teaching of qualitative methods has been made freely available online.

The resource, based around a set of five semi-structured interviews, was funded by the Higher Education Academy Psychology Network. In 2005 they established a working group to develop resources and disseminate ideas for teaching qualitative research methods at undergraduate level. Stephen Gibson, of

York St John University, has chaired the group since 2008. He told us: 'Changes in the requirement for Society-accredited undergraduate degrees to cover qualitative approaches appears to have led to increased demand for teaching resources. We felt that one thing likely to be lacking was access to primary empirical data for use in qualitative methods teaching.'

Video, audio and transcripts of the hour-

long interviews, conducted with undergraduate students on the topic of 'friendship', are available via tinyurl.com/yayb57e.

They are intended to support a wide array of teaching activities, ranging from a basic introductory session on interviewing methods, to a full-blown practical course aimed at introducing specific approaches to qualitative research design and analysis (e.g. discourse analysis or grounded theory). JS

SOCIAL IMPACTS OF BRAIN RESEARCH

Never mind a mountain to climb, there's a whole range to traverse before the courts of England and Wales will accept the use of fMRI-based lie detection evidence. That was the gist at least of a presentation made to the UK Parliamentary and Scientific Committee in January by David Omerod, Professor of Law at Queen Mary, University of London.

Such evidence would contravene the 'principle of orality', Omerod said, which is that jurors are supposed to base their judgement on what they hear the suspect say in court. Among other problems is that the questions in the lab wouldn't replicate those in the trial. 'Many questions can't be addressed with a simple Yes/No answer,' Omerod explained – imagine a question about stealing; a suspect might admit to taking something but claim that he believed he had consent. 'You'd effectively need to conduct the trial in the lab,' Omerod said.

But the final killer blow to fMRI evidence playing any part in an English or Welsh trial is that it's just not reliable enough. 'You'd need to show the evidence was necessary for the jury to hear for their understanding of the case,' Omerod said. However, technophiles need not lose all hope. The Offender Management Act 2007 apparently allows polygraph tests to be used as a condition for release, for example to see if treatment has worked.

Omerod was speaking as part of a meeting on the probable social impacts of new brain research. Professor David Nutt, sacked from his position as a government adviser late last year, opened the session with a warning about the increasing use of synthetic compounds to circumvent drug regulations – laws which he said are not currently fit for purpose.

Professor Colin Blakemore followed with an overview of the neuroscience and psychology-related breakthroughs likely to pose ethical questions for society, including new ways of eavesdropping on the brain, technologies for controlling and extending brain function, and challenges to the concept of responsibility. 'I've tried to show that I'm not too impressed by the stage of many of these technologies,' Blakemore concluded, 'but the situation will improve, so we need to discuss these issues now.' CJ

Occupational psychology and the new

Jon Sutton and Christian Jarrett report from the Division of Occupational Psychology's Annual Conference in Brighton

Chairing the opening symposium of this conference, on the past, present and future of occupational psychology, Professor Fiona Patterson (City University) promised to find lots of things to be optimistic about. The speakers were not so sure, with Professor Rob Briner (Birkbeck) warning that there was nothing he liked more 'than to give a moany, depressing rant to start a January conference'. Occupational psychologists, he said, had 'lost our way a bit. We're in a bit of a mess, but can we fix it?'

Professor Don Ferrin (Singapore Management University) certainly thinks occupational psychology has the tools. 'Just think – we can measure something as intangible and ethereal as trust,' he enthused. Yet he bemoaned the fact that 90 per cent of occupational psychology's empirical evidence is laboratory based and cross-sectional, and we don't have the research on the effectiveness of interventions. Academics have to start collaborating with practitioners more, and ensuring that knowledge produced is applicable cross-culturally – otherwise, in a globalised world, it becomes increasingly irrelevant.

In the midst of a move back to the UK from Holland, Professor Neil Anderson flagged up some cultural differences between the two in terms of occupational psychology. There is a split between science and practice in the Dutch professional body, but Anderson's impression is that links are better and

occupational psychology consequently has a stronger influence on government policy there. He also warned that the migration of UK occupational psychology departments to become part of business schools raised challenges for its independent status.

Briner followed, saying that occupational psychology is 'churning out boring, pedantic, badly written and



MIKE THOMPSON

irrelevant research – and that's me trying to put it nicely'. There is no attempt to pull together and evaluate what we know and do not know about a range of important issues, he said. 'We peddle fads rather than killing fads.' Briner called for more 'practice-based evidence', and said that 'we shouldn't allow ourselves to be defined by technical competence'.

More confident in the profession's ability to put things right in organisations was Professor Mike West (Aston Business School), who said we should be training occupational psychologists to be leaders in organisations. 'If not us, then who?' He agreed with Briner that occupational psychologists shouldn't just be technicians, saying that the failure of the entire capitalist system internationally has been about values, and the profession should therefore be values-based.

Providing graphic illustrations of that the following day, Professor Don Ferrin returned to talk about the rise and fall of trust: 'A great leader has to have absolute integrity in everything he or she does... said Ken Lay, founder and CEO of Enron.' But according to Ferrin, 'Only 51 per cent of employees have trust and confidence in senior management, and there has been a huge drop in trust in recent years. Competence, concern and character are what is needed, and if a leader has these traits there will be a strong correlation with their employees' commitment and job satisfaction, but less so with performance.' However, Ferrin argued that trust problems are not automatically an indictment of character, and we should remove the taboo from talking about trust. Leaders need to be much more inquisitive about how they are perceived: if your employees are reluctant to accept vulnerability in your presence, you may have a trust problem.

Trust was also identified as crucial by Will Hutton (Executive Vice Chair, Work Foundation), who gave an enthralling account of just what a state we are in. He said that a 10 per cent increase in employees' trust in management has the same effect on general levels of satisfaction as a 36 per cent increase in monetary reward. There are clear opportunities for occupational psychology, he said, in increasing control and autonomy in the workplace, developing a skills agenda, improving employee engagement and organisational development, and helping employers and employees deal with a changing relationship. This would be based on 'flexicurity': ease of hire and fire must be matched by high benefits and investment in active labour market programmes to equip unemployed people with the skills

IN BRIEF FROM BRIGHTON

■ Susan Paddock of QinetiQ described how her team applied a human factors approach to the design of a new data-processing control room for a security client. 3D visualisations, user interviews, mapping of desk to equipment and desk to window distances, consideration of shift-patterns all fed into the design. The client was so impressed with the end result they've asked for the same approach to be applied to the rest of the building.

■ A diary and interview study of 29 healthcare engineers by Kevin Daniels at Loughborough University found that effective problem solving was associated with a mix of high motivation, support from others and having the autonomy to change things when necessary. Poor problem solving tended to be associated with relying on past solutions, avoidance and low motivation.

■ From a survey of 188 UK clergy – an under-researched group in occupational psychology – Gail Kinman of the University of Bedfordshire found that greater job involvement, past training in counselling and social support all buffered against the emotional demands of the job. A mismatch between one's felt emotion and the emotion that must be conveyed on the job – known as 'dissonance' – was a particular threat. Younger clergy appeared to be at greater risk, even though they reported greater overall job satisfaction.

economic world order

they need to find work in a rapidly changing economy. The approach is well established in Denmark and has contributed to high levels of growth and employment over the last decade. Perhaps most of all, Hutton said, Britain needs a thriving 'knowledge economy', driven by an 'innovation system' that can create knowledge and disseminate it into business: a clear role for occupational psychology.

The economic downturn remained on the agenda the final day, with Kamma Braham of PDI Ninth House, a 'global leadership solutions company', recalling how last year's conference was all about the expected 'doom and gloom' of the coming year. Her own organisation responded by leaving empty roles vacant, freezing freelancers, and inviting staff to take voluntary salary reductions, though thankfully Braham said there had been no occupational psychology redundancies in the UK.

Another consequence of the recession was a change in demand from clients, with more money spent on selection and assessment and less on talent programmes. 'I've actually been doing more assessment work than I've done for the last ten years,' Braham said, as clients wanted to make sure that the few empty posts they did have were filled successfully.

An occupational psychologist in the audience whose firm works with the public sector said they had noticed how organisations were increasingly taking work in-house. Another audience member had similarly noticed that clients wanted to be upskilled so they could take work in-house. 'It's good short-term work but could be damaging later on,' she said.

Looking forward, Braham said there was likely to be a 'résumé tsunami' as job openings begin to appear. There were already hopeful signs of more demand from clients, she said, but also an increased desire to see evidence for a financial return from occupational psychology services. On that note, Braham pointed to a recent study her firm had conducted on work they'd done with American Express. This showed that the blended training programme they devised and recommended (involving classroom and online study) led to increased sales among staff, equating to a 1599 per cent return on the cost of the course.

In his keynote address, also on the topic of the recession, Dr John Mahoney-Philips, Global Head of Human Capital at UBS AG, sounded a less optimistic note. He warned that uncertainty still exists and that discretionary spending ('that includes us') will reduce further. 'It's going to be a tough time, and yet also an opportunity to become more relevant to organisations.'

How can occupational psychologists capitalise on the new economic world order? Mahoney-Philips candidly discussed various weaknesses that the profession needs to fix if it is to adapt rather than die:

- | Occupational psychologists often don't know enough about their clients and their clients' strategy, so make sure you do your research.
- | Get more involved in performance definition and appraisal: 'it's vital and core to management and engagement with staff,' Mahoney-Philips said, 'yet we're not thinking about this enough.'
- | In particular, he added, there should be greater use of 360-degree rating scales (feedback about an employee from everyone who works with them).
- | Our assessment tests haven't changed much in years, besides putting them on computer, Mahoney-Philips said. 'We need to assess people's competencies for dealing with future uncertainties, not their competencies that got them where they already are.'
- | New forms of virtual communication are posing challenging questions about trust – this is a whole research area that could be exploited.
- | Bridge the practitioner/academic divide. At UBS, Mahoney-Philips has deepened links with the University of East London master's programme and initiated a project with Kings College. Post-docs have come into the organisation to work on UBS data on staff engagement.
- | There's a lack of a good independent outlet that reports occupational psychology findings in a language that's understood by those who can use and implement it at speed. [But watch this space for news of an occupational Research Digest]
- | Training needs to become more vocational, perhaps requiring MSc and PhD candidates to have work experience. 'We need real-world simulations of practitioner assignments', Mahoney-Philips said.

FUNDING NEWS

The ESRC in agreement with ANR France, DFG Germany, and NOW Netherlands are seeking to fund the best **joint research projects in social sciences**. Proposals should be for integrated projects by researchers from more than one of the four participating countries. The closing date for applications is 13 April 2010.
| tinyurl.com/yb3c3tt

In 2010 **MRC Programme Grants in Neurosciences and Mental Health** have closing dates of 21 April, 29 July and 16 December. Programme Grants provide larger, long-term and renewable funding.
| tinyurl.com/a39nsv

The Foundation for the Scientific Study of Sexuality has a Grants-in-Aid programme that provides up to \$1000 to support **scientific sexuality research in areas not likely to receive support from other sources**. Applications can be made at any time: grants are usually made in May and November.
| tinyurl.com/ye976uj

PhD studentships are available from the Alzheimer's Society. The studentships provide support for **postgraduate students, with a relevant first degree, who wish to pursue an academic career in the field of dementia**. The primary objective of the research must be to contribute to the understanding of the causes of dementia, the development of cures for dementing disorders, or to advance the evidence base for effective dementia care. Studentships should be applied for by prospective supervisors. The closing date for applications is 28 May 2010.
| tinyurl.com/yl2regw

Funding is available for healthcare professionals to undertake **research into obesity management, in either children or adults** (prevention of obesity is beyond the scope of the award). The National Obesity Forum is offering a £16,000 grant in partnership with WeightWatchers. Any healthcare professional with day-to-day contact with patients can apply. Research mentorship is also offered as part of the award. The closing date for applications is 20 June 2010.
| tinyurl.com/ygbkn9y

info

For more, see www.bps.org.uk/funds
Funding bodies should e-mail news to elibee@bps.org.uk for possible inclusion

Debrief encounters

Deception was a fundamental part of some of the most famous experiments in psychology, and it is still common for even the most sedate studies to involve giving participants false test feedback or misleading them about the true aims of the research. A vital element of psychological science, therefore, is to debrief participants after experimenting on them – telling them the truth about what happened and why, and listening to their feedback. Even studies that don't deploy trickery have the potential to leave a lasting impression – consider all the tests of new interventions aimed at outcomes from improving memory to ameliorating depression. We know from past research that simply asking someone about a behaviour, such as drug taking, increases their likelihood of indulging in that behaviour. Of course, telling participants too much up front can be detrimental to the results, and fully informed consent is therefore far rarer than most researchers would care to admit. That's why it's so important to debrief fully afterwards. And yet, having said all this, an alarming new survey of researchers by Donald Sharpe and Cathy Faye suggests that debriefing is a neglected practice in contemporary psychology. Ironically for a science that's supposed to be about people and behaviour, there's also scant research on what kinds of debriefing are even effective – for example, is it enough to tell participants they were given false feedback or should they have the chance to complete a real test?

Sharpe and Faye surveyed over 200 researchers who'd published during a 12-month period from 2006 to 2007, either in the American Psychological Association's flagship social psychology journal *The Journal of Personality and Social Psychology* or in the *Journal of Traumatic Stress*. Just one third of articles in the social psychology journal had mentioned debriefing and fewer than on in ten of the trauma journal articles had done so. Those mentions that were found were usually cursory, such as 'Participants in this and all following experiments were debriefed prior to dismissal'. If the purpose of a particular study was obvious, the survey suggested most researchers considered debriefing to be unnecessary, with nearly all their focus placed instead on informed consent prior to the study.

Set against this worrying picture, Sharpe and Faye make a strong case for just how vital debriefing ought to be to good-quality research. Taking their lead from a provocative article published on this topic 30 years ago by Frederick Tesch, the pair say that effective debriefing is vital not only for the ethical

reasons outlined above, but for educational and methodological functions too.

Explaining to participants why and how a study was performed ought to be given far higher priority, they argue, especially when one considers how many studies are performed on psychology students. Even with non-psychology students, the exercise of carefully explaining the rationale, methodology, and perhaps even results, of a study, could help to promote the scientific cause. 'Participants would learn about doing research, the joys and frustrations, and the excitement of discovery,' Sharpe and Faye said.

Regarding the methodological benefits of debriefing, the authors said that the process ought to be two-way, and that information garnered from participants can illuminate study findings and help improve future procedures. 'Researchers would learn about how participants view the experimental task, what makes sense and what does not, and what the participants think it was all about,' Sharpe and Faye said.

Their paper ends with seven recommendations for how to improve the situation, including greater discussion of debriefing in the research literature; more thorough reporting of debriefing practices in journals' methods sections; use of online overflow pages for discussing debriefing; and formalising the debriefing procedure. 'Progress will be made when researchers recognise the importance of debriefing or when some unfortunate circumstance forces such recognition,' the authors said.

Natural history of the earworm

In press in the *British Journal of Psychology*

Earworms are those songs that get lodged in your cranium, playing over and over and over. There's been surprisingly little published research on the phenomenon, and two British psychologists from the University of Reading have decided it's time to fill the empirical void.

Philip Beaman and Tim Williams surveyed just over one hundred railway travellers, students and visitors to a public garden about their earworm experiences, and they also asked 12 other participants to keep diary records for four weeks about their earworms. They found, contrary to the speculation, that earworms don't seem to be more common in people with musical expertise. Instead, they found that it is people who judge music to be of more importance who are more likely to get a song stuck in their head.

Only a minority of earworms (33 per cent in the diary study) were described by participants as unpleasant. Very few recurred in the same day and most were usually gone by the next day. Participants reported that most strategies to banish earworms, such as trying to think of another song, actually made the original earworm worse. Different participants named and shamed different earworm songs, rather than all pointing to the same offending tunes. Earworm potential appeared to be determined by amount of exposure to a tune combined with that tune's relative simplicity and repetitiveness.

The September issue of *Ethics and Behaviour* reports that debriefing is a neglected practice

How to brag

In the January issue of *Social Influence*

No one likes a show-off. But to get ahead in this world, you're going to need to let at least some people know what you're capable of. Thankfully Nurit Tal-Or has arrived with a pair of studies that offer some insight into how to brag without coming across as big-headed.

Over a hundred undergrads were presented with the script of a conversation between two people – a 'show-off' called Avi who boasted about his A-grade in stats exams, and his friend. Crucially, there were four versions of the conversation, with each undergrad participant reading just one version. In two versions, the friend raised the topic of the exam before he either did or did not ask Avi what grade he got; in the other two versions, Avi first raised the topic of the exam, which either did or did not provoke a question from his friend about his grade. In every version Avi ended up boasting that he got an 'A+'. Afterwards, the students rated Avi's character based on the version they'd read.

The crux of it: context is everything when it comes to boasting. If Avi's friend raised the topic of the exams, Avi received favourable ratings in terms of his boastfulness and likeability, regardless of whether he was actually asked what grade he got. By contrast, if Avi raised the topic of the exams, but failed to provoke a question, then his likeability suffered and he was seen as more of a boaster.

Tal-Or thinks the asking of the question is all-important

because of our usually mindless approach to conversations. As a kind of mental short-cut we assume that if a conversant asks a question on a topic then they were probably the ones to have raised that topic in the first place. And once a topic has been raised, a subsequent boast is not seen as such a social sin because it's in context.

Tal-Or tested this idea with a second study, almost identical to the first, but instead of the participants rating Avi's character, they were given a memory test on the conversation. As Tal-Or expected, when participants read the story version in which Avi's friend asked Avi about his grades, they tended to mistakenly remember that the friend had also raised the topic in the first place, even when he hadn't.

Before you takes these tips onto the streets, there's one major caveat worth noting. Tal-Or only looked at the perception of the boaster in the eyes of onlookers, not one's actual conversation partner.

Hospital staff make better decisions using textual information rather than medical charts

In the January issue of *Applied Cognitive Psychology*

Medical graphs are prone to misinterpretation by inexperienced, distracted staff, whereas text leads to more accurate courses of action. So say Marian Van Der Meulen and colleagues, who argue that new software could automatically translate data into text-based summaries.

Van Der Meulen's team asked 35 nurses and doctors from a neonatal intensive care unit to scrutinise real data from 24 infant patients, presented via time series graphs, in the conventional manner; as text-based summaries translated from the graphs by medical experts; or as computer-generated text. Remarkably, the participating nurses and doctors chose significantly more appropriate courses of action after looking at the textual summaries written by an expert as compared with looking at the standard time-series graphs. Decisions made after looking at the computer-generated text were poorer than decisions taken after the human-

generated text but were just as accurate as decisions made from the graphs.

'Overall, these results confirm that in a neonatal ICU, human generated descriptions of time series physiological measures are better able to support medical decision-making than graphs with trend lines,' the researchers said.

There's hope that the computer-generated text can one day become as effective as the text written by a human expert. A research paper by Van Der Meulen's team that's in press has compared the two types of text to look for differences that could help improve the software used in this study. Such differences include the human text having a more coherent grammatical structure and narrative and a tendency to group physiological measures together.

'[F]urther development of this technology is likely to be extremely fruitful in supporting complex real-world cognition,' the researchers concluded.



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Devils in the detail

Christian Jarrett on thorny issues of nature and nurture

After the sentencing of the brothers from Edlington, aged 11 and 12, for the torture and abuse of two young boys, the questions have come thick and fast: Why did they do it? Could society have intervened earlier? And can they ever be rehabilitated?

The attention of many commentators turned to the brothers' upbringing. Writing on the *Guardian's* Comment is Free blog, criminology professor David Wilson said that labelling the brothers as devils (as the *Sun* did) absolves society from its part in their creation. '[A]ny child can quickly become socialised into doing awful things – and seeing such behaviour as "normal" – if the only thing that has characterised their upbringing has been abuse and neglect.'

Over at *The Times*, Camila Batmanghelidjh, the founder of Kids Company, was more specific and unequivocal: 'Incubated in terror, their brain functioning was altered by a chronic secretion of fright hormones, combined with an inability to modify behaviour because the pro-social parts of their brain failed to thrive, after a lack of love and nurture.'

These accounts show a desire to go beyond a knee-jerk demonisation of the child torturers. But did the columnists' exclusive focus on the brothers' upbringing

betray an equal and opposite naivety? Milgram, Zimbardo and Asch showed how ready many people are to bend to authority or peer pressure, how quick to sink to depravity. But not everyone was. Similarly, the groundbreaking longitudinal research by Terrie Moffitt and Avshalom Caspi showed that a history of trauma increased some children's risk of developing conduct disorder more than others, depending on which alleles they carried for the MAOA gene.

By suggesting that the Edlington brothers were made into sadists, Wilson and Batmanghelidjh are subscribing to a crude nurturist model: one that ignores the thorny question of how exactly their natures mixed with their circumstances to create the unthinkable.

Elsewhere, the BBC's home editor Mark Easton used his blog to illustrate the dilemmas involved if one keeps pushing back in time to find the roots of criminality. He recalled an interview in which Tony Blair championed the idea that we could spot children at risk even before they were born, and then step in with the right support – an idea dubbed 'FASBOs' – fetus ASBOs – by a sceptical press.

Indeed, policy makers will need to tread carefully if they

are to avoid stigmatising children for crimes they haven't yet committed. However, there does seem to be a growing cross-party consensus that early intervention is vital. 'Former Tory leader Iain Duncan Smith and the Labour MP Graham Allen are both evangelical about it and have together written a pamphlet on the subject (<http://bit.ly/9jO4rf>),' Easton said.

On the question of how to rehabilitate the Edlington brothers and others like them, *The Independent* published an intelligent feature drawing on interviews with a raft of experts including psychiatrists and psychologists (see <http://bit.ly/8SLfBJ>). 'One of the main therapeutic agents is the stability of the place,' Dr Eileen Vizard told them.



Camila Batmanghelidjh

'These children are taken away from disrupted backgrounds, with no boundaries, and are put somewhere where they are safe, fed and housed and told "No" by people who understand how to set limits. It's tough love. It's a great skill, creating an experience that approximates to a proper family life.'

Another key element to rehabilitation is education. 'It is the tool which opens up a young person's confidence in

themselves and awakens them to the possibility that they can achieve something while they are detained,' said Roy Walker, who ran a secure unit in Hull.

Before child offenders can recognise the wrongs they have committed, *The Independent's* quoted experts said there is a need to understand how they see themselves. 'You have to start from where they are,' said Professor Sue Bailey. 'What they think their life is about. What they think their needs are. What they want out of life. It gives you a common point from which you can gradually introduce other concerns and points of view.' Other approaches used by secure units include points-based systems to reward good behaviour, art therapy and group work.

The most difficult children to work with are those showing early signs of emerging severe personality disorder (ESPD). Dr Vizard, who interviewed the Edlington brothers for the trial, told the court that she feared the younger brother fell into this category. Psychologist Professor Mark Dadds of the University of New South Wales explained to *The Independent* that most children displaying problematic behaviour exhibit 'high emotional states' whereas children with ESPD are unemotional, with a tendency for cold, predatory aggression. 'It's someone who is on the look out for an opportunity to be aggressive in order to further their own ends,' he said. Dadds warned attempts to punish children with ESPD 'become escalating and quickly move into very extreme levels'. Rewards and encouragement are much more productive. A specific therapeutic tactic is to encourage children with ESPD to make eye contact. Certainly research with patients with damage to the amygdala has shown that their impairment in recognising fear can be ameliorated if they are trained to focus on people's eyes.

contribute

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promoting and discussing psychology in the media. If you would like to contribute, please contact the 'Media'

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