

## Worrying on the Edge

Edge.org, the online soapbox for scientists and other intellectuals, has published the answers to its latest annual question – What *should* we be worried about? As usual, numerous psychologists were invited to contribute, including many of our home-grown colleagues. Recurring anxieties were cultural homogenisation and the march of technology, especially the internet (read all the answers at <http://edge.org/annual-question>).

At the Institute of Cognitive Neuroscience, University College London, Sarah-Jayne Blakemore believes we should be concerned about the effect of environmental factors on the development of the adolescent brain, something she says we know little about. She highlighted the possible adverse effects of excessive gaming and social networking, and the UNICEF estimate that 40 per cent of teenagers worldwide lack access to secondary education. 'Adolescence represents a time of brain development when teaching and training should be particularly beneficial. I worry about the lost opportunity of denying the world's teenagers access to education,' she said.

For Susan Blackmore, what's worrying is that we're losing our manual skills and developing an ever deeper dependent relationship with technology. 'Whether it's climate change, pandemics, or any of the other disaster scenarios... and we can no longer sustain our phones, satellites and Internet servers.

What then?' she asks. 'Could we turn our key-pressing, screen swiping hands to feeding ourselves? I don't think so.'

The availability of superficial knowledge at the touch of a button is creating 'a drearily level playing field', according to Nicholas Humphrey at the LSE. We used to have to work hard to discover and learn things, he said, and the journey was arguably more important than the ultimate facts. But 'soon no one will be more or less knowledgeable than anyone else,' Humphrey warned, '...it will be knowledge without shading to it, and, like the universal beauty that comes from cosmetic surgery, it will not turn anyone on.'

The loss of death, that's what Kate Jeffery, Head of the Department of Cognitive, Perceptual and Brain Sciences at UCL, thinks we should be worried about. Death allows species to improve and flourish, she said, and yet genetic research promises to create a world filled with not just your grandparents' parents' parents, and their parents, but everyone else's too. 'Truly would the generations be competing with each other: for food, housing, jobs, space.'

Away from the concerns of technical and medical progress, it's the persistence of the gap between C.P. Snow's two cultures that worries Simon Baron-Cohen, director of the Autism Research Centre at Cambridge University. In particular, he thinks the gap may have widened when it comes to the way that



sex differences are understood. '[T]he debate about gender differences still seems to polarize nature vs. nurture,' he said, 'with some in the social sciences and humanities wanting to assert that biology plays no role at all, apparently unaware of the scientific evidence to the contrary.'

Meanwhile, Bruce Hood, Director of the Bristol Cognitive Development Centre at the University of Bristol, argued that we should be worried about the recent trend towards placing so much value on the societal 'impact' of science research, especially its economic merits. 'I would submit that focusing on impact is a case of putting the cart before the horse or at least not recognizing the

## SURVEYING OUR VALUES

Social commentators often bemoan the loss of family values and rise in selfishness in contemporary Britain. A new survey of the nation's values paints a far more positive picture.

Last December, the Barrett Values Centre asked 4000 people across the UK to pick the 10 values or behaviours that most reflect who they are. The five most commonly chosen values were 'caring', 'family', 'honesty' and 'humour/fun'. Respondents also said they experienced values in their local community that largely matched their own values, in terms of family and friendship.

It was a different story at the national level, where there was a striking disconnect between the values people would like to see reflected in the way the UK operates, and the values they perceived to be operating. The top three desired values were: employment opportunities, caring for the elderly and caring for the disadvantaged. Yet the top three perceived values at the national level were: bureaucracy, crime and violence, and uncertainty about the future. The UK's 'cultural entropy' score (based on the proportion of negative values selected by respondents) was higher than eight of nine other

European nations surveyed, and higher than in the US, Canada and Australia.

The survey was supported by the Action for Happiness movement and the UK Office for National Statistics. The chief executive of Action for Happiness, Dr Mark Williamson, said: 'At a time when many people fear we are losing our moral foundations, this research shows that what people in the UK actually value most of all is caring for others.'

Critics may have concerns about the survey methodology. As well as the reliance on self-report, respondents' choice of values was inevitably constrained by the values they were given to choose from.

For instance, in the list of 93 national values, people could choose 'animal welfare' but not 'mental health', which wasn't in the list; 'environmental pollution' but not 'green space' or 'scientific progress'; 'tolerance' but not 'uncontrolled immigration'. **CJ**

*The United Kingdom Values Survey: Increasing Happiness by Understanding What People Value* is available in PDF form at [tinyurl.com/bzkqxdj](http://tinyurl.com/bzkqxdj)

value of theoretical work,' he said.

Among the international contingent of psychologist contributors were Mihaly Csikszentmihalyi, the man who developed the concept of 'flow', and Alison Gopnik the author and developmental psychologist. Like many of his British colleagues, Csikszentmihalyi highlighted his anxieties about technology, especially the arrival of 3D immersive role-playing

games. The 'incessant warfare' involved in such games is not virtual to the child, he warned – it's the child's reality – and within one or two generations Csikszentmihalyi believes our children will grow up unable to tell reality from imagination. 'Of course

humanity has always had a precarious hold on reality,' he said, 'but it looks like we are headed for a quantum leap into an abyss of insubstantiality.'

Alison Gopnik is also worried about children; in particular she's worried that many parents worry about the wrong things – middle-class concerns like the direction of push-chair seats or the rights and wrongs of co-sleeping – but that as a society we don't worry enough about the bigger picture, the huge numbers of children who continue to live below the poverty line and who lack a safe, stable environment in which to develop. 'Children, and especially young children, are more likely to live in poverty than any other age group,' she said. 'This number has actually increased substantially during the past decade. More significantly, these children not only face poverty but a more crippling isolation and instability.' CJ

**I What do you think we should be worried about? Send your thoughts to [psychologist@bps.org.uk](mailto:psychologist@bps.org.uk)**

## Rapid deployment

January saw a British Red Cross psychosocial support team hurry to Algeria to help Britons who had been involved in the four-day siege and hostage crisis. The team, including clinical psychologist Dr Sarah Davidson, travelled to North Africa the day after militants overran a gas plant facility.

Davidson, Deputy Clinical Director on the professional doctorate in clinical psychology at the University of East London, said: 'We went as part of the Foreign and Commonwealth Office's rapid deployment team, which is responsible for supporting Britons overseas. We were there to provide emotional support and practical help to British nationals caught in the situation, and their relatives.'



**Dr Sarah Davidson in Algeria**

Part of the team's role was 'bearing witness'. Davidson said: 'We listened to what the people affected wanted to share and helped them think of ways of understanding their traumatic experiences and how to deal with them. Those who escaped were worried for those

they'd left behind and they felt a huge responsibility for getting the best outcome possible. We helped them focus on what they could do, but also to recognise the limitations of what they could do. We also worked with them on looking after themselves, for example trying not to spend lots

of time imagining what their friends were going through, and encouraging them to seek support from friends and partners. As they begin to recover it will be important to not constantly retell the story but to plan points to grieve and mark what happened.' JS

**I Davidson wrote about her work in *The Psychologist* in April 2010 (see [tinyurl.com/a9j2mev](http://tinyurl.com/a9j2mev))**

## NEW CENTRE IN BATH

A new centre providing specialist treatment for anxiety disorders is to open later this year in Bath. A partnership between the University of Bath and Avon & Wiltshire Mental Health Trust, the new Centre for Specialist Psychological Treatments of Anxiety and Related Problems will also conduct cutting-edge research and provide assessment and training. BPS Fellow and Chartered Psychologist Professor Paul Salkovskis will be the Centre's new clinical director.

## SOCIAL PSYCHOLOGY REPLICATIONS

In the wake of recent concerns about the replicability of findings in social psychology, a special issue of the journal *Social Psychology* has been announced, dedicated to replicating important results in social psychology. The deadline for full replication proposals is imminent, closing on 28 Feb (grants of up to \$2000 are available); proposals based on aggregating existing data have until 30 March.

[tinyurl.com/bh2ctjh](http://tinyurl.com/bh2ctjh)

## NORMAN KREITMAN

Norman Kreitman, the psychiatrist and psychotherapist who coined the term 'parasuicide', to refer to non-fatal acts of self-harm, has died aged 85. A pioneer in suicide research, he identified self-harm and previous attempts at suicide as major risk factors for a person later taking their own life. Kreitman was also a poet. 'Yet you imply your history/requires a unique and loving repair/I think that where you have come from/depends on where you are now' are lines from 'Therapist', published in 1984.

## CARE QUALITY CONCERNS

Concerns have been raised by the Care Quality Commission (CQC) about the treatment of people detained or treated in the community under the Mental Health Act. The number of people subject to the Act has risen by 5 per cent, and evidence was found in some hospitals of a lack of patient autonomy. 'CQC is concerned that some hospitals have allowed cultures to develop where control and containment are prioritised over treatment and care,' said the organisation's chief executive. CJ

[Full findings at tinyurl.com/adfjfr8](http://tinyurl.com/adfjfr8)

## fMRI retrospective

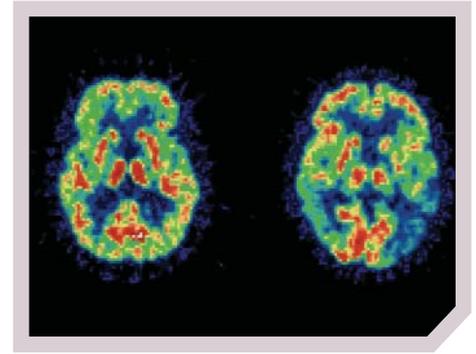
Last year marked 20 years since the first functional MRI paper was published, a milestone that's prompted a series of retrospectives on the field (see also News, October 2011). The latest appears as a special section in the January issue of the journal *Perspectives on Psychological Science*. The emphasis of the (mostly US) contributors is on ways that functional MRI has indeed informed and constrained cognitive psychology theories.

Recalling the advent of the technology, the section editors Mara Mather (USC Davis), John Cacioppo (University of Chicago) and Nancy Kanwisher (MIT) observed in their introduction how 'few events are as thrilling to scientists as the arrival of a novel method that enables them to see the previously invisible'. But they also noted the later onset of scepticism. For instance, Michael Page (University of Hertfordshire) wrote in 2006 (see [tinyurl.com/b8aemgq](http://tinyurl.com/b8aemgq)) that the explosion of fMRI 'has not resulted in a corresponding theoretical advancement, at least with respect to cognitive psychological theory'. Was he right?

Denise Park and Ian McDonough (University of Texas at Dallas) argued for

the major theoretical contribution of fMRI in the field of ageing. Traditional cognitive theories – such as limited resource theory and speed of processing theory – tended to espouse a view of ageing as 'a passive model of decline', they said. Since then, findings from fMRI, showing, for example, bilateral activation in older brains versus unilateral activation in younger brains (to the same tasks), had fundamentally changed this view, leading to more dynamic models of adaptation 'characterized by plasticity and reorganization of function in response to neural degradation and cognitive challenge'.

Examples of fMRI research advancing cognitive theory are rare, admitted Michael Rugg (University of Texas at Dallas) and Sharon Thompson-Schill (University of Pennsylvania), but examples do exist. The pair described work comparing brain-activation patterns associated with colour memory versus colour perception. Results have shown that the amount of anatomical overlap depends on task difficulty and subject factors (such as a preference for verbalisation or visualising information).



These findings suggest colour is represented at different levels of abstraction, available for both perception and memory – 'it is arguable that no other method possesses the combination of spatial resolution and coverage necessary to identify this phenomenon,' Rugg and Thompson-Schill said.

It's also important to note that the relationship between cognitive theory and functional brain imaging isn't just one way – cognitive theory also influences the way we interpret fMRI findings, so said John Wixted and Laura Mickes (University of California San Diego). They gave the example of memory experiments in which participants say whether a stimulus is merely familiar to them (they 'know' they've seen it before), or if they can actually 'remember' encountering it. 'Remember' responses tend to be associated with increased hippocampus activity, but how to interpret this depends

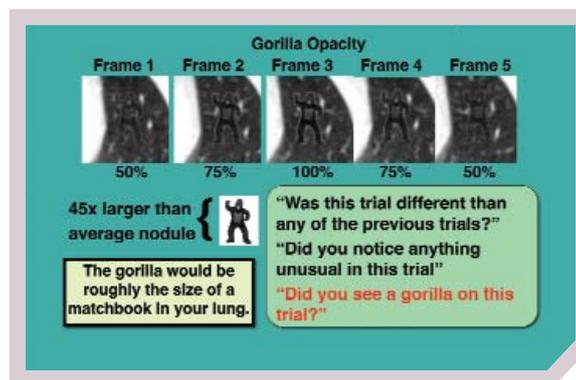
## Spotting the gorilla on the lung

When our attention is consumed by a challenging task, it leaves us surprisingly oblivious to the unexpected. In a dramatic new study, this 'inattention blindness' led 20 out of 24 experienced radiologists to miss the presence of a surprise matchbox-sized gorilla located on five slices of a lung CT scan (a picture is available at [tinyurl.com/awtbq87](http://tinyurl.com/awtbq87)). The radiologists had been searching through several such scans looking specifically for light, circular nodules, which are a sign of lung cancer, although they would usually be expected to also notice any other aberrant structures.

Trafton Drew, Melissa Vo and Jeremy M. Wolfe (Brigham & Women's Hospital and Harvard University), who

conducted the study, were interested in the extent to which expertise at a primary challenging task can offset the effects of inattention blindness.

As expected, the radiologists exhibited less inattention blindness than a control group of 25 non-medical participants, none of whom spotted the gorilla. The radiologists also spotted more of the nodules (55 per cent vs. 12 per cent). Nonetheless, the degree of inattention blindness exhibited by the radiologists was striking. Eye-tracking



are highly skilled practitioners of a very demanding class of visual search tasks. The message of the present results is that even this high level of expertise does not immunize against inherent limitations of human attention and perception.'

The researchers said

records showed that 12 of the radiologists who missed the gorilla had in fact looked right at it for an average of half a second.

'It would be a mistake to regard these results as an indictment of radiologists,' Drew and his colleagues concluded. 'As a group, they

that furthering our understanding of these processes will help in the design of optimal medical and other search tasks, so minimising the risk of important information being missed. CJ

**I The study is in press at *Psychological Science***

on cognitive psychology theory. The dual-process signal-detection model says this means the hippocampus supports recollection. By contrast, the continuous dual-process (CDP) model says that 'remember' responses reflect the strength of the memory signal (regardless of whether it's based on recollection or familiarity), and that hippocampus activity is therefore a mark of memory signal strength, not recollection *per se*.

A more sceptical contribution came from Max Coltheart (Macquarie University, Sydney). He highlighted a review he published with others last year of cognitive neuroimaging articles published in leading journals between 2007 and 2011. Of the 199 articles concerned with cognitive functions, just 10 per cent had attempted 'any kind of evaluation of cognitive theories.' Coltheart also warned against what he called the 'consistency fallacy' – the tendency for brain imaging researchers to report ways that their results are consistent with some cognitive theory without pointing out 'explicitly what pattern(s) of neuroimaging data that are inconsistent with the theory could plausibly have been obtained in the neuroimaging study'.

Wrapping up the special section, Mara Mather and her co-editors shared their view that fMRI can inform cognitive theory by helping to answer four questions: 'Which (if any) functions can be localized to specific brain regions? Can markers of Mental Process X be found during Task Y? How distinct are the representations of different stimuli or tasks? And, do two Tasks X and Y engage common or distinct processing mechanisms?' But the editors also listed fMRI's limitations, including its inability to demonstrate the causal role of brain activity, and the limits of its spatial resolution, with each voxel reflecting the activity of hundreds of thousands of neurons.

'The best approach to answering questions about cognition', they concluded, 'therefore is a synergistic combination of behavioral and neuroimaging methods, richly complemented by the wide array of other methods in cognitive neuroscience.' CJ

**I All 12 contributions to the special section are at [pps.sagepub.com/content/8/1.toc](http://pps.sagepub.com/content/8/1.toc). Please send your verdict on the contribution of fMRI to cognitive theory to [psychologist@bps.org.uk](mailto:psychologist@bps.org.uk)**

## Cosmetic surgery guidelines

Psychological assessment is at the heart of new cosmetic surgery 'professional standards' guidelines published by the Royal College of Surgeons. The new document states that it should be standard practice to discuss relevant psychological issues with a patient during consultation prior to cosmetic surgery. 'It is neither possible nor necessary for every patient to undergo a detailed psychological assessment with a clinical psychologist,' the document states. 'However, all practitioners should consider if they should refer a patient to a clinical psychologist before proceeding with further consultations or treatments and referral pathways should be in place.'

The guideline draws particular attention to patients with a history of psychiatric problems, especially eating disorders, body dysmorphic disorder or personality disorders. Concerns about cosmetic gynaecological surgery are also addressed, and it's stated that: 'High levels of anxiety regarding body image where appearance is within the normal range should trigger psychological referral.'

Among the contributors to the professional standards document were Chartered Psychologist and Associate Fellow Dr Andy Clarke, a Consultant Clinical Psychologist in Plastic and Reconstructive Surgery at the Royal Free Hospital; and Chartered Psychologist and Associate Fellow Professor Nichola Rumsey, Research Director of the Centre for Appearance Research, University of the West of England. CJ

**I Professional Standards for Cosmetic Practice is at [tinyurl.com/axnmeq](http://tinyurl.com/axnmeq)**



## FUNDING NEWS

The Wellcome Trust has launched **The Hub at Wellcome Collection**, an initiative to provide resources and a stimulating space for researchers and other creative minds to collaborate on an interdisciplinary project linked to the Trust's vision of improving human and animal health. Up to £1m is available for up to two years. Applications can be made by universities, charitable bodies and other not-for-profit organisations. Preliminary applications deadline: 3 May 2013. | [tinyurl.com/azptrs2](http://tinyurl.com/azptrs2)

The Worshipful Company of Curriers has healthcare bursaries available to enable established primary healthcare professionals to undertake research or personal study to enhance the **healthcare of families and children in inner London** who, through socio-economic deprivation or other adverse social factors, are at high risk of physical and psychological illness. Further details are available on the website. The closing date for applications is 31 March 2013. | [tinyurl.com/a6q7k6x](http://tinyurl.com/a6q7k6x)

The **ESPRC** has a call to fund **Centres for Doctoral Training**. The closing date for outline proposals is 4 April 2013. | [tinyurl.com/9wd6fq6](http://tinyurl.com/9wd6fq6)

The **BBSRC Strategic Longer and Larger Grant scheme** is open for the submission of outline proposals. Applications are encouraged in specific strategic areas, including ageing across the life-course. Deadline for outline applications: 18 April 2013. | [tinyurl.com/y6v8y2e](http://tinyurl.com/y6v8y2e)

The **Society for Education, Music and Psychology Research (SEMPRE)** has two grant schemes available:

- | The Arnold Bentley New Initiatives Fund: one grant of up to £3000 to support new interdisciplinary initiatives concerned with the advancement or promotion of research in the psychology of music or music education.
- | Reg and Molly Buck Award: one grant of up to £2500 to support a postdoctoral research project in an area of study that embraces SEMPRE's aims.

Applications to both schemes can be made at any time.

| [www.sempre.org.uk/awards](http://www.sempre.org.uk/awards)

info

For more, see [www.bps.org.uk/funds](http://www.bps.org.uk/funds). Funding bodies should e-mail news to Elizabeth Beech on [elibee@bps.org.uk](mailto:elibee@bps.org.uk) for possible inclusion.

## HUMAN BRAIN PROJECT

A project to create a computer simulation of the human brain has won €1 billion of funding from the European Commission as part of a Future and Emerging Technologies competition. It's hoped the Human Brain Project will lead to medical benefits, including advances in diagnosis, and the development of systems with brain-like intelligence ([www.humanbrainproject.eu](http://www.humanbrainproject.eu)).

## STANDARD GUIDELINES CALL

Psychologists at the University of Sussex have called for standardised global guidelines on what constitutes safe levels of alcohol consumption. Richard de Visser and Nina Furtwængler looked at government guidelines across 57 countries and found huge discrepancies, including a 10-fold difference in accepted blood alcohol levels for drivers. 'Agreed guidelines would be useful for international efforts to reduce alcohol-related harm by increasing people's capacity to monitor and regulate their alcohol consumption,' said de Visser (see [tinyurl.com/a9aypum](http://tinyurl.com/a9aypum)).

## ROBOT INTERVIEWS

Leading questions are known to provoke inaccurate information from eye-witnesses, but intriguing new research suggests this isn't the case when a robot does the interviewing. The findings by Mississippi State University researchers were reported by *New Scientist* and are due to be presented at the Human-Robot Interaction Conference in Tokyo this month.

## MORE NEGATIVE OUTCOMES

The UK Council for Psychotherapy and the British Psychoanalytic Council (BPC) have published a survey of their members, which they argue shows longer-term psychotherapy on the NHS is under threat. Seventy-seven per cent of the 800 therapists surveyed said that they'd observed negative outcomes for clients as a result of cuts to services. Gary Fereday (Chief Executive of BPC) said 'IAPT [improving access to psychological therapies] services are helping many people, but the service was intended to be a way of improving access, and not become the only service available.'

# Silent witnesses: Using theatre to combat crime

How can we reduce the risk of children who witness or experience violent crime becoming perpetrators themselves? Perhaps some answers will be gleaned from Silent Witnesses, an 18-month long collaboration between Theatre Centre and senior developmental psychologists Dr Edward Barker and Dr Natasha Kirkham from Birkbeck, University of London.

Working with Year Five pupils across 10 inner-city primary schools from Birmingham, Cardiff, Liverpool, London and Manchester, Silent

Witnesses will aim to help children deal with violence they may have witnessed in their community, on television or in computer games. The project also seeks to raise awareness among parents and teachers of the role they can play in improving children's safety and well-being. It will culminate with a tour of a new play by Ed Harris in spring 2014, commissioned and produced by Theatre Centre.

The project comprises three stages. First, the pupils will participate in a two-day residential programme run by playwright Ed Harris and Dr Kirkham. These involve creative writing workshops and group discussion. Then Harris will draw upon the material created in the workshops and the conversations held in schools to create a script that will be developed and rehearsed by Theatre Centre. The production will then be toured to targeted primary schools across the UK. Children, teachers and parents of children at participating schools will complete pre-play and post-play questionnaires evaluating their attitudes to violence and their responses to the play.

By the end of the 18-month long project researchers from Birkbeck will have gathered evidence from over 5000 children, teachers and parents about the role of creative expression in changing responses to, and understanding of, violent behaviour.

Dr Barker said: 'We hope that by including children's voices in the development of the play we will help to engender an atmosphere where children can talk to adults about their experiences of witnessing violence, and adults are equipped to support children and help them reduce their potential to react aggressively themselves.'

Emma Penzer, Headteacher at Mandeville Primary School, Hackney, said: 'This project will be of great benefit to the children and staff at Mandeville Primary School. Gilpin Square and other neighbouring areas experience a high level of crime. Many children have witnessed shootings, knife crimes and criminal damage, amongst other crimes. Very rarely do they talk about them, particularly to school staff.' JS



Dr Edward Barker and Dr Natasha Kirkham at a workshop in Hackney

# Suicide rates rising

Months after the UK government launched its new suicide prevention strategy for England, the latest published figures from the Office National Statistics show that suicides rose significantly in the UK in 2011, with 437 more people taking their own lives compared with 2010 (a rise of 11.1 to 11.8. deaths per 100,000 population).

The latest figures show men remain at particular risk, with three times the number

of suicides compared with women. For both men and women, the rate of suicide was highest among the middle-aged. A decade prior to 2010, male suicides had been almost consistently in decline. Female suicides declined from 2004 to 2007, but have mostly been rising ever since.

For information on a recent Samaritans report on suicide and the government suicide prevention strategy, see November News. CJ



# First Steps to Your Own Private Practice

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**One of the past delegates, Tracey Hampton – Smith, Senior CBT Therapist says:**

"Having worked in the NHS for the best part of 30 years the prospect of going it alone in private practice was daunting to say the least. Actually, it was downright terrifying! I had no idea where to start to even think about whether it would be a possibility for me, tax and financial things bought me out in a cold sweat, what if I got it all wrong?"

So, when I saw that there was a workshop which would answer my questions, I dived straight in. I just needed to have all my questions answered, even though I am not planning to go into private practice at the moment!

By halfway through the morning, I'd got my money's worth! Most of my questions were answered, or on the way to being. Colin Clerkin was an excellent presenter, keeping us engaged throughout, enthusiastic about the subject and clearly knowledgeable...

Read more at [www.skillsdevelopment.co.uk](http://www.skillsdevelopment.co.uk)

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# One personality to rule them all?

The general factor of personality, or GFP, is analogous to *g*, the intelligence quotient that predicts to differing degrees the multiple intelligences – verbal, musical, numerical – that sit below it. This symposium at the Division of Occupational Psychology's Annual Conference reminded us that whereas Spearman posited *g* in the 1900s, and Thurstone the model of multiple differential intelligences in the 1920s, it took until the 1950s for Phillip Vernon to finally reconcile the models.

Practitioners who use personality emphasise its differential qualities: many facets, no one right profile. But the researchers who advocate GFP argue that there is indeed such a thing as having lots of personality, and this global factor is meaningful as it predicts a range of life outcomes. Critics question whether the GFP is down to statistical artefacts, such as an individual's desire for social desirability influencing all their questionnaire responses.

Rob Bailey, of OPP, used his presentation to question whether a GFP could truly be useful for practitioners. He pointed out the global factor is described as reflecting people who are relaxed, sociable, emotionally intelligent, satisfied with life, and altruistic, with a low score meaning the opposite of these things. He challenged the audience to imagine cases where such information could be provided to an individual in any constructive fashion, compared to the conventional profiling approach. Bailey then presented a data set of over 1200 individuals paid to complete a 16-factor personality questionnaire, the absence of career

implications giving them little incentive to 'fake nice' and apply spin to their results. His analysis suggested that folding factors together into more global ones lost power in predicting variables like job

satisfaction, and that granular measures may be a better bet.

Rainer Kurz and Rob McIver of Saville Consulting also presented, looking more sympathetically at how a GFP-approach might be useful. McIver's presentation showed the farthest extent of their work, which explores focusing less on one invariant global factor in favour of a particular super-score that predicts success for a particular job. He demonstrated that when a personality test is built item by item to fit with the aspects of job success that matter in the role, this criterion-based approach can let you produce single personality super-scores that are good predictors of success. The data suggested that with methodological pruning of what traits to value and which to discount, even tests that aren't developed this way can be effective predictors. This approach is very different from a purely statistics-driven factor extraction of a global factor, and calls for psychologists to know their psychometrics and understand the target job. But it seems a promising direction to take in this area. **AF**



## A BALANCING ACT

Who is responsible for work-life balance? The individual, the organisation, or even the legislative system? That was the question posed at the start of this symposium, and it became clear that 'one size fits all' policies and practices don't exist: we must tailor solutions according to needs and wants.

First up was Dr Ellen Ernst Kossek (Purdue University, USA), who identified the importance of feeling in psychological control of boundaries. Based on three validated measures of 'cross role interruption behaviours', 'boundary control' and 'work-family identity centralities', Kossek outlined different profiles. You're either an 'integrator' or a 'separator', or you cycle between the two: a 'volleyer'. Add in consideration of whether your well-being level is high or low and you end up

with six styles, including the 'fusion lovers' who are happy to integrate work and family life, the 'job warriors' who volley away to their heart's discontent, and 'captives' who are the separators with low well-being. It's also important to note that although most measures of work-life balance focus on the family, it's an issue for the childless too.

The image of Winston Churchill in his pyjamas, as an early remote worker, was a rousing one to begin the talk by Dr Christine Grant and colleagues from Coventry and Warwick Universities. Grant described her work to outline competencies related to the effective e-worker, and to develop an assessment tool. Organisations can provide training for existing and new e-workers, Dr Grant said, before

leaving us with the thought that 'a good manager is always a good manager; a bad manager is worse as an e-worker'.

It's one thing taking your work home with you when you're an academic, but another entirely when you've just been pulling a family out of some motorway wreckage. Dr Almuth McDowall (University of Surrey) looked at work-life balance self-management strategies in the police force, eliciting 134 behaviours from interviews. Some were context-specific, for example in the police it's actually very important not to take work home with you, as it is confidential and often intrusive material. McDowall said communication and negotiation over work-life balance is vital, and that there is a separate competence for line managing work-life balance in others.

Finally, Professor Gail Kinman (University of Bedfordshire) tackled a subject close to home for many: work-life conflict in UK academics. She noted that academics vary in the extent to which they wish their roles to be integrated, with many highly absorbed in the job role and most working considerably over the 48-hour working time directive. In Kinman's survey of 760 academics in at least 99 universities, most academics weren't getting the separation they wanted. Working at home and ICT use predicted work-life conflict. Kinman called for enhanced sensitivity to variation in boundary management styles and preferences amongst colleagues and supervisors, citing the example of sending e-mails at the weekend as potentially role modelling that behaviour for the recipient. **JS**

# Evidence-based management

Most managers use everything but the evidence, lamented Michael Frese of the NUS Business School, Singapore, and Leuphana University, Germany, in his keynote on evidence-based management. They use obsolete knowledge, draw on personal experience, they apply specialised skills to general situations, they're a sucker for hype (following the latest popular book), and they mindlessly mimic top business performers.

Part of the problem, Frese believes, is with the field's academic journals. He criticised the *Harvard Business Review* for its plethora of anecdotes, misguided assessments of the literature, and for proliferating confusing concepts like 'deep smarts' (instead of 'expertise'). 'Science does not produce actionable knowledge,' Frese said, 'managers do not know the little evidence that there is, even business journals are not very good at providing evidence to managers, and consultants are often negligent in their role to translate evidence into actions.'

Evidence-based management aims to overcome these problems by going beyond personal experience and single studies. It uses meta-analyses and systematic reviews to combine the evidence from multiple studies, thereby cancelling out the biases of individual studies and allowing identification of moderating factors.

Medicine has shown us how to use evidence professionally, Frese said, and evidence-based management can translate this approach, using the current best evidence to inform managerial decisions. Here Frese struck a more optimistic tone – 'the correlations being produced in medicine are not that

outrageously different from the correlations we produce in occupational psychology,' he said.

Take the example of the relationships between personality characteristics and entrepreneurial success. A meta-analysis of the complex literature showed that there is a relationship (need for achievement, innovativeness and proactivity are all important; risk taking not so much), despite a widespread belief of a lack of any relationship. Indeed, the correlation between these personality characteristics and success was high – 'equivalent to the effect of Viagra' in medical research, Frese said.

How to apply the findings from evidence-based management? Frese cited a study about internationalisation and success from 2007, which showed an international approach was advantageous for young firms and small firms, but that this was moderated by country – it was true for American firms and, to a lesser extent, European firms, but not for Japanese.

Frese's approach wouldn't be to fly out to a Japanese company and simply tell them not to bother going international. Rather, he'd say, 'You have to worry more, you have to be more attentive to how you internationalise compared to an American firm.' The reasons for the Japanese situation may have to do with culture or language – we don't know – but the important message is 'evidence-based management is not a recipe; you have to think about it, use your knowledge and expertise, be vigilant and have a good feedback system'.

To help translate science into actionable science-based management, Frese has



**Success of small firms was connected to the importance of personal initiative**

developed an Action Principles approach, incorporating an action pathway including goals, information search, planning, execution and feedback. He gave an example of the success of small firms in Africa, drawing on a meta-analysis that highlighted the importance to success of personal initiative (made up of the factors self-starting, proactivity and overcoming barriers). Frese and his colleagues conducted a randomly controlled trial, training entrepreneurs in Uganda for three days to be more proactive and anticipatory in their planning. The trained entrepreneurs outperformed controls, and in one striking example, it was those entrepreneurs who'd undergone the training who adapted to a visit by the Queen and turned it to their advantage, an outcome mediated by their increased personal initiative.

The small business owners didn't start conducting regression analyses, Frese explained. Rather, they started asking more questions, paying attention to feedback, seeing what worked and adopting the perspective of the customer – what would a customer see here, what would bother him? The policy implications are huge, Frese concluded. If 10 per cent of small business managers undertook the same training, on average they'd each employ two to three extra employees, which would translate into hundreds of thousands more employed across the country. CJ

## LIFETIME ACHIEVEMENT

The 2011 Lifetime Achievement Award went to John Toplis, an expert in top management selection. Now semi-retired, for many years Toplis was head of psychological services at the Post Office. He was also mentored early in his career by Dick Buzzard, who founded the Division of Occupational Psychology.

Toplis used his talk to share a shopping list of seven concerns he has about the practice of occupational psychology today and in the future:

1. The fact that only very short training is needed to enable anyone (psychologist or not) to use the best psychometric tests.
2. Licensed test-users are qualified for life, which disregards inevitable changes in best practice.
3. How to integrate results from staff annual appraisals with the results obtained when existing staff are sent to assessment centres – 'What if a sterling member of staff flunked at 24-hour assessment?'
4. The diagnostic skills of occupational psychologists are still in the dark ages, 'it's a huge black hole', with most having no training in how to diagnose and treat organisational problems.
5. Are occupational psychologists aware of recent threats to the scientific freedom of speech? (Toplis mentioned Simon Singh's troubles with the British Chiropractic Association).
6. Are we taking sufficient note of advances in devices for measuring brainwaves, and the potential these may have for assessing and developing cognitive abilities?
7. Finally, Toplis made a case for establishing a new advisory body, an independent organisation to 'assess the impact of work, working practices and legislation at work.' CJ



## BANKING CRISIS

The complexity of the banking crisis was brought home by Binna Kandola of Pearn Kandola (with help from Rose Challenger of Leeds University Business School) in an interactive session that applied socio-technical systems theory to the collapse of the Lehman Brothers bank in 2008.

Kandola described how the bank's demise was caused by a system-wide failure. There were issues of leadership (Chairman and CEO Richard S. Fuld, Jr. and his deputy Joseph Gregory were overconfident, egocentric and fell victim to groupthink); issues around goals (e.g. 'growth at all costs', governments wanting more home-owners, negligent ratings agencies); issues of culture (mergers were allowed in defiance of financial regulations); of processes and procedures (the bank's own risk procedures weren't followed); of technology (even economists didn't understand the new financial products); and infrastructure (which led to situations such as people in

Hong Kong owning the deeds of property belonging to people in California).

Regarding the larger financial crisis, this was also a system-wide failure, not just a banking failure, Kandola said – and there's a need to address the whole system to stop it happening again, including the wider political culture. As an example, Kandola pointed to the knighthood awarded to the CEO of the Royal Bank of Scotland, Fred Goodwin in 2004 (later annulled in 2012). 'He didn't give that knighthood to himself,' Kandola said.

After a group discussion about whether the financial crisis was due to flaws in the design of the system, or to a failure to properly implement the system, Kandola warned 'this will happen again'. He said financial protections were put in place back in the 1920s after the last global financial meltdown, which stopped it happening again for a long time. 'But gradually people lifted the safety nets...' CJ

## No dearth of thinking

Bar a bit of 'Gangnam style' in the speed networking session, my introduction to this year's DOP conference was Rob Briner's annual iconoclastic talk on becoming more of an evidence-based psychologist.

The University of Bath professor was on fine form as ever, always on hand with a quote that sounds throwaway but really gets you thinking: 'experts are not good people to ask about stuff', and 'single studies in general just don't matter'. (That one led to discussions around a change of practice on the Society's own Occupational Digest: see [tinyurl.com/occdigrob](http://tinyurl.com/occdigrob)).

Briner challenged the audience to think about how much evidence there actually is for a lot of psychology's core findings, and what proportion of it they are aware of. Are we really 'standing on the shoulders of giants'? Or are we caught up in the narrative of 'it has been demonstrated that...',

seduced by the confident language of most journal articles? 'I've only ever seen the word "dearth" in the context of literature reviews,' Briner mused. 'Nobody goes to the fridge and says "Oh, there's a dearth of milk".'

According to Briner, systematic reviews are where it's at. The audience were challenged to work with occupational psychology colleagues to develop groups who conduct and share rapid evidence assessments. Prepare to have cherished beliefs and preferred techniques challenged, become more efficient at reading journal articles and consider what databases you have access to. Briner left us with the thought that 'people who say I don't know often know a lot more than people who don't say it': accept and be explicit about ignorance, and a different and more rewarding way of working lies ahead. JS

## In search of rationality

According to keynote speaker Gerard Hodgkinson (Professor of Strategic Management and Behavioural Science at Warwick Business School), 'Descartes' error is alive and well in the workplace'. In a bold and wide-ranging address, Hodgkinson made the case for why and how occupational psychology needs to connect with the social neurosciences.

Hodgkinson is bringing psychology into the field of strategic management, trying to help decision makers become more rational. Take how organisations tend to respond to a major threat or opportunity (HMV and Blockbuster come to mind as I write this). Usually there are small, incremental changes, and when it becomes apparent this isn't sufficient, what does the organisation do? Nothing. There is a period of 'strategic drift'. Then there is a period of 'flux', which on Hodgkinson's graphic representation looks rather like a tailspin. This is followed by 'phase 4', 'transformational change' or 'complete demise'.

But to what extent can psychology shed light on this process? Hodgkinson's 2002 book *The Competent Organization*

# Emotions at work

'Part of being a manager is faking it,' said PhD student Chiara Amanti of Edinburgh Napier University. 'This doesn't really come up in the emotional intelligence literature. Yet emotional regulation is required to get on in life and with people.'

Amanti interviewed eight managers in a university and then analysed the transcripts using interpretative phenomenological analysis. All of them agreed that regulating emotions is a highly important part of being a manager. In fact, it grew more important with increasing seniority, such that many felt they could never be emotionally spontaneous at work.

The most interesting thing for Amanti was that this also applied to positive emotions, not just to controlling negative emotions like anger and frustration. For instance, one manager recalled how she'd 'gushed' with wonder and delight at the performance of a new lecturer during a review, and yet the manager admitted to Amanti 'I wasn't really pleased or happy but I felt that was what was needed.'

The interviewees differed in how they felt about the pressure of regulating their emotions. One male manager said there were certain emotions he simply didn't feel at work. It's as if he had fully internalised the role and the organisation's objectives, such that he felt no contradiction with a 'true self'. Others made a distinction between their managerial identity and their genuine selves, with both having value. Another man experienced far more tension, tying himself in knots trying to be genuine at work, which he felt was important, while also not really showing his true feelings.

Amanti concluded with an impassioned case for the value of her methodological approach. 'We want to find simple models, to show a correlation, the high variance that's explained – that's part of what psychology is – but actually when you get talking to people, their experience is so much more complex, full of paradoxes and contradictions. If we miss that, the interventions we develop are poorer as a result.' CJ

argued the case for the centrality of the psychological contribution to organisational learning and strategic adaptation, yet 11 years on, he said, there was still only a passing consideration of affective and non-conscious cognitive processes. Why do we continue to sidestep it?

Using examples from his practice, Hodgkinson demonstrated how strategising is both an inherently cognitive and affective process. Eliciting a cognitive taxonomy from senior figures in a UK grocery firm, he found that although the market conditions had changed dramatically, mental models – individually and collectively – had not. Decision makers were slaves to their basic psychological processes, for example still focusing on the 'magic number' of '7 plus or minus 2' competitors. Hodgkinson showed how he confronts strategic inertia in top management teams, stimulating individual cognitive processes by scenario analysis. Some organisations excel at this: Hodgkinson claims that Shell closed all their facilities within 45 minutes of 9/11. While others were still struggling to comprehend what was happening, their scenario planning had allowed them to take quick and decisive action.

Hodgkinson's latest research draws on social cognitive neuroscience and neuroeconomics to develop a series of counterintuitive insights. His hope is that these can teach people to be more skilled in their control of their emotional, limbic system. True rationality, he concluded, is the product of the analytical and experiential mind. JS

# Better for all

Can occupational psychology play a part in saving the world? Absolutely, insisted Professor Stuart Carr in his keynote presentation. After all, work is deeply woven into the world, so transforming one can influence the other. Carr brought this home through examples of the United Nations' 2015 Millennial Development Goals; these include reduction of poverty, which manifests in the wages that workers derive; education, which depends on the capability of teachers and other staff; and gender equality, which can be combated in the workplaces where we spend much of our waking hours.

This exemplifies a humanitarian approach to work psychology, ensuring decent work for all workers and ensuring that the work they do meets responsibilities towards multiple stakeholders, rather than the bottom line. Carr provided some examples of how he and collaborators are making inroads into this, for instance by organising a Global Special Issue on Psychology and Poverty reduction that spanned multiple journals, raising awareness of how psychology can point at these issues (see <http://poverty.massey.ac.nz/#globalissue>).

Carr also raised another way to use psychology to improve the world: by applying it directly to the conditions of those involved in humanitarian work. These roles can involve risk and be demanding, so it would be useful to investigate this and take steps to foster well-being. And any way to improve the impact of the humanitarian work itself would obviously be beneficial. Carr reported on the creation of online networks such as Humanitarian Work Psychology (see [www.humworkpsy.org](http://www.humworkpsy.org))

that connect researchers, students and those on the ground, who are commonly isolated, to allow them to share knowledge and put it to work on actual problems.

So we can change the world through 'humanitarian' work psychology to make conditions of work decent everywhere, coupled with 'humanitarian work' psychology that focuses attention on those aspiring to be levers of change in the world. Further examples abounded in the presentation, including a global task force to address pay disparities in humanitarian work: the dual pay levels for foreign and national staff causing distancing of the two groups due to negative appraisals – the former rationalising the latter's low pay as reflecting their capability, the latter becoming demotivated and distrustful of the attitude of the foreigners, causing a vicious cycle.

There is much more to do, and the keynote was a call to arms to the profession as a whole. As Carr reminded us, much occupational psychology work developed in the Peace Corps in the 1960s and following, and only later became concentrated in focus on the for-profit sector. A shift is possible and long overdue. Carr likened this to a Koru, the fern frond native to many countries including his home in New Zealand, whose spiral shape suggests a return to beginnings, and whose swift unfurling denotes the possibility of change. AF

## MORE REPORTS

For more from the Division of Occupational Psychology Annual Conference, including the dark side of behaviour at work, see the Society's Occupational Digest at [www.occdigest.org.uk](http://www.occdigest.org.uk).

# 'Tan Tan' regains his identity

Monsieur Leborgne, nicknamed Tan Tan, for that was the only syllable he could utter (save for a swear word or two), died in the care of the neurologist Paul Broca in Paris on 17 April 1861. Arguably the most important case in the history of neuropsychology, Leborgne's death coincided with a debate raging in scholarly circles about the location of language function in the brain. When Broca autopsied Leborgne's brain, he observed a malformation on the left frontal lobe – 'Broca's area' – and concluded this was the site of speech production, a moment that the historian Stanley Finger has described as a 'key turning point in the history of the brain sciences'.

Broca was far from being the first person to propose that speech function is located in the frontal lobes (see [tinyurl.com/abtq2uv](http://tinyurl.com/abtq2uv)), but crucially, the evidence from Leborgne helped him persuade the academic community. For centuries experts had believed mental functions were located in the brain's hollows; that the cortex (Latin for 'husk') was little more than a rind of tissue and blood vessels. Today, problems producing language are still termed Broca's aphasia in recognition of Broca's landmark contribution, although Broca in fact named Leborgne's problems *aphémie* (meaning 'without speech'). The Greek term 'aphasia' (also meaning 'speechlessness'), adopted by medicine, was coined in Broca's day by the physician Armand Trousseau.

In terms of the historical record, Leborgne is like a mirror opposite of Phineas Gage – another of neuropsychology's legendary cases. The story of Gage's life and infamous accident, in which a tamping iron shot through his brain, has been researched in depth, inspiring books, poems, YouTube skits and snowmen makers along the way. Yet relatively little is known about the brain damage Gage suffered because no autopsy was performed when he died and his brain was never preserved (that hasn't stopped scientists from attempting to simulate the likely damage: [tinyurl.com/a6u3ljz](http://tinyurl.com/a6u3ljz)).

In contrast, Broca was careful to save Leborgne's brain for posterity. He decided against a full dissection, performing a surface examination only. Today the preserved organ is housed at the Musée Dupuytren in Paris, where Broca placed it. The brain has been scanned numerous times using modern methods, allowing detailed analysis of the location and nature of any lesions. We now

know that the frontal lobe damage to Leborgne's brain was more extensive and deeper than Broca had realised based on his superficial examinations. But, contra the situation with Gage, while we are well informed about Leborgne's brain, before now his identity and life story have remained largely mysterious. Broca's medical notes revealed little.

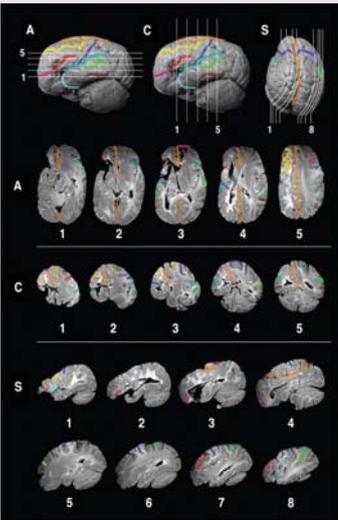
Thankfully, in a new paper, Cezary Domanski at Maria Curie-Skłodowska University in Poland has used archive registers in France to uncover hitherto unknown detailed biographical information about Monsieur Leborgne. Born in Moret-sur-Loing – the picturesque town that inspired Monet and other impressionists – 'Tan's' full name was Louis Victor Leborgne. He was the son of Pierre Christophe Leborgne, a school teacher, and Margueritte Savard. He had three older siblings, Lucille, Pierre and Anne, and two younger siblings, Arsene and Louise.

An epileptic since his youth, it was Leborgne's loss of speech that led to him being hospitalised at age 30. Unmarried, he ended up spending the remaining 21 years of his life in hospital. Before this incapacitation through illness, Domanski tells us Leborgne was a *formier* in Paris, a kind of skilled craftsman who made the wooden forms used by shoemakers in their work. Together with the information on Leborgne's family, this news corrects at least one historical myth. The oft-told idea that Leborgne 'was an uneducated illiterate from the lower social class should once and for all be deemed erroneous', writes Domanski.

Based on his inquiries, the Polish historian offers an intriguing speculation – given that Leborgne's birthplace of Moret was home to several tanneries, Domanski wonders if his repeated utterance of *tan* was somehow connected to childhood memories of the pretty town.

'One thing remains certain,' Domanski concludes, 'the memory of the disease and cause of death of "Monsieur Leborgne" proved far more enduring than the story of his life, which was deemed irrelevant even when the patient was still alive. It is time for Louis Victor Leborgne to regain his identity ...'

In 2009, out of the blue, a photograph was discovered of Phineas Gage ([tinyurl.com/a42wram](http://tinyurl.com/a42wram)). I wonder if we will ever look upon an image of Leborgne?



In the January issue of *Journal of the History of the Neurosciences*



## Can you will yourself happier?

In the *Journal of Positive Psychology*

'Happiness is as a butterfly, which, when pursued, is always beyond our grasp, but which, if you will sit down quietly, may alight upon you.' (Nathaniel Hawthorne)

A key question for people hoping to improve their well-being is whether it is counter-productive to focus too hard on the end goal of being happier. Philosophers like John Stuart Mill have proposed that it is – he wrote that happiness comes to those who 'have their minds fixed on some object other than their own happiness'. A pertinent study published in 2003 by Jonathan Schooler and his colleagues supported this idea: participants who listened to music with the intention of feeling happier actually ended up feeling less happy than others who merely listened to the music with no happiness goal.

But now a new study has come along which purports to show that trying deliberately to be happier is beneficial after all. Yuna Ferguson and Kennon Sheldon criticise the Schooler study on the basis that the music used – Stravinsky's *Rite of Spring* – is not conducive to happiness, and that's why it interfered with deliberate attempts to feel happier.

Ferguson and Sheldon had 167 participants spend 12 minutes listening either to *Rite of Spring* or an upbeat section from *Rodeo* by Copland. Crucially, half the participants were instructed to relax and



observe their natural reactions to the music. 'It is important that you do not try to consciously improve your mood,' they were told. The other participants received the opposite instructions – 'really focus on improving your mood'.

Afterwards, two measures of mood were taken – one based on six words like 'joyful'; the other a continuous measure of positive feelings. The participants who'd listened to the cheery music, and simultaneously tried to improve their mood, reported feeling in a more positive mood than the participants who'd merely listened to the upbeat music, and the participants who'd listened to the down-beat music, whether they strived to feel happier or not. This was despite the fact that the groups did not differ in how much they'd enjoyed the activity, or how 'pressured' they'd felt to complete it.

A second study was similar, but this time 68 participants visited a psych lab five times over two weeks to spend 15 minutes each time listening to music they had chosen from a pre-selected list covering various genres from folk to hip-hop. Again, half the participants were instructed to focus on the music and not their own happiness (they were told that doing so could backfire); the other half were told to think a lot about their happiness and to try to feel happier (they were told that doing so is beneficial).

At the end of the two weeks, the group who had deliberately tried to feel happier showed an improvement in their happiness levels compared with baseline; in contrast, the participants who

had merely focused on the music did not enjoy this benefit. This was despite both groups believing to the same degree that the intervention would make them happier, and both groups enjoying their music the same amount.

'The results suggest that without trying, individuals may not experience higher positive changes in their well-being,' Ferguson and Sheldon concluded. 'Thus practitioners and individuals interested in happiness interventions might consider the motivational mindset as an important facet of improving well-being.'

Sceptical readers may not be so easily persuaded. Because there was no attempt to measure the participants' thought-processes, it's difficult to know how they interpreted and acted on the two forms of instruction. In the second study in particular, even though they were told there was no need, how do we know the participants didn't go to lengths outside of the lab to boost their happiness? From a statistical point of view, the first study lacks any measure of change in mood.

The second study is also complicated by the music-focus group starting out with, and ending up with, a slightly higher average happiness score than the happiness-focus group (albeit these differences were not statistically significant). This raises the possibility of a ceiling effect for the music-focus group – perhaps they were already too happy for the intervention to make a difference.



## Lying becomes automatic with practice

In the November issue of *Frontiers in Psychology*

Forget shifty eyes or fidgety fingers, psychology research has shown that these supposed signs of lying are unreliable. A more useful foundation for lie-detection is the simple fact that lying is more cognitively demanding than telling the truth. False answers usually take slightly longer than honest responses, especially when a suspect is burdened with an extra mental challenge, such as telling their story backwards.

However, a new study suggests that the cognitive demands of lying can be reduced with practice. Xiaqing Hu and his team presented 48 participants with dates, place names and other information and asked them to indicate with one of two button presses whether the information was self-relevant or not. In real life this would be equivalent to a suspect posing as a different person. Instructed to lie, the participants took longer to respond than when they told the truth, consistent with the well-established idea that lying is cognitively demanding.

Next, a third of the participants were told about the reaction time difference and given extensive practice at lying more quickly about the self-relevance of information. The requirement to get faster was made explicit because past research found lying practice without such an instruction was ineffective. On retesting, the trained participants no longer took more time to answer dishonestly compared with telling the truth. 'Deception is malleable and... can be voluntarily controlled to be more automatic,' the authors said.

Another group had no training but were told about the reaction time difference between lying and truth telling, and encouraged to answer faster when lying. They got faster at lying compared with a control group, but still they were speedier when being honest.

The researchers claim that to be more realistic, lie-detection research based around the cognitive demands of lying should incorporate the effects of practice.



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