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Maybe having kids is a good idea after all

Who'd ever have thought it could be so difficult to measure happiness? Most large-scale studies rely on so-called "global measures". People are asked to rate how satisfied they are with their life, or something similar. The problems here are obvious: people's answers are likely to be swayed by their current mood, and we probably all interpret labels like "satisfied" in our own way. So along came Nobel prize-winning uber psychologist Daniel Kahneman, with his "day reconstruction method" (DRM). Participants divide the last day up into discrete episodes and rate their feelings during each one. It's a more nuanced measure but it's thrown up some bizarre results. According to the DRM, people seem to spend an inordinate amount of time doing things they claim not to enjoy, like spending time with their children, and commuting. Now Mathew White and Paul Dolan, two British academics, have waded into the morass of happiness research, arguing that the DRM can be improved by measuring thoughts, not just feelings.

Six hundred and twenty-five participants completed an online questionnaire about their previous day, generating an average of ten episodes per person, including eating, reading, time with children, watching TV, and commuting.

Just as in the original DRM research, the participants rated each episode according to the feelings they experienced at the time, thus giving a measure of "pleasure". Unlike the earlier research, they also rated their thoughts about each episode (for example, by rating their agreement with sentences like "I feel the activities in this episode were worthwhile/meaningful"), thus giving a measure of "reward".

In terms of pleasure, the results confirmed earlier findings, suggesting that we spend an awful lot of time doing things we don't find pleasurable, including "work" and "shopping". Out of 18 key activities, "time with children" and "sex" both came in around mid-table, far below "outdoor activities" and "watching TV". However, consideration of the ratings for "reward" (as opposed to pleasure) told a rather different story, with "work" now the top scorer, and "time with children" not far behind.

"If one looks only at pleasure, one could come to the same conclusion as Kahneman et al [about time spent with children]" White and Dolan said "that this is relatively 'bad time', but when reward is also considered, time spent with children is relatively 'good time'. Perhaps the statement that 'I enjoy my kids' is not so wrong after all, if enjoyment is interpreted in a broader sense that includes reward in addition to pleasure."

Unsurprisingly perhaps, there was no new insight when it came to "commuting": participants rated this activity low on pleasure and low on reward.

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The surprising benefits of time pressure at work

The modern office job has made struggling jugglers of us all. Emailing, phoning, writing, accounting, project-swapping, browsing, not to mention snacking, and day-dreaming, all at once.

It helps to have the self-discipline to focus on one task at a time, but even that isn’t always enough because thoughts about a previous task can linger and spoil our performance on our current task.

Now Sophie Leroy has made a counter-intuitive finding that could have implications for reducing interference between successive tasks. She's shown that completing a prior task (rather than leaving it unfinished) helps prevent its interference with a later task, but this benefit arises specifically when that initial task was completed under strict time constraints.

In an initial experiment, 84 undergrads performed a word task and then a second task based on appraising candidate CVs. The ease of the initial word task was manipulated by the researcher - one version could be completed; the other was impossible to complete. Also, time pressure was imposed on half the participants by saying that other people had struggled to succeed in the five minutes available.

Crucially, in between the two main tasks, participants performed a series of "lexical judgements" - deciding whether strings of letters were real words or not. Among the real words that were presented, some were taken from the first main task. The whole point of this was that particularly speedy performance with letter strings taken from the first task would be a sign that a person's attention was still lingering on that first task.

Leroy's first key finding was that participants who completed the initial word task under time pressure (as opposed to those who didn't complete it, or who completed it without time pressure) showed fewer signs that their attention was still stuck on the first task.

A second experiment with 78 undergrads was similar to the first, but this one looked at the effect that being mentally stuck on the first word task had on the second (CV appraisal) task. This time, participants who completed the initial word task under time pressure performed better at the subsequent CV appraisal task, than did participants who hadn't finished the first task, or who had finished it without time pressure.

Leroy further showed that participants who'd completed the first task under time pressure showed the greatest amount of confidence, when asked, that they'd fully completed the first task. Her theory is that task completion under time pressure fosters a sense of cognitive closure, allowing us to fully shift our focus onto subsequent tasks.

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Savants with autism are people who exhibit an exceptional ability whilst also having social and cognitive impairments. One such ability is calendar calculating - being able to say, with astounding accuracy and alacrity, what day of the week a given date falls on. Just how some savants with autism are able to achieve this feat has baffled researchers. It's been suggested that they use complex algorithms, but this seems implausible given that the same individuals often struggle with maths.

To help solve the mystery, Anna Dubischar-Krivec and colleagues recruited three savant calendar calculators with autism and pitted their calendrical skills against three neuro-typical calendar calculators recruited through a Swiss science TV show.

The participants were tested with questions that took the following form: "Is it true that 6 November 1974 = Thurs?". The savants with autism beat the neuro-typical calendar experts, in terms of speed and accuracy, for past dates (these went back fifty years) and dates from the current month. By contrast, the performance of the two groups was matched for future dates, which were taken from up to fifty years ahead.

As usual, the savants were unable to say how they achieved their calendar skills. However, the researchers said the pattern of results implies that the savants were using different strategies from the neuro-typical. Whereas the neuro-typical relied on algorithms for past, present and future dates, the savants probably relied on rote memory for past and present dates, the researchers said, hence their superior speed and accuracy for these, whilst they probably fell back on some kind of algorithmic system for future dates.

These conclusions were supported by the fact that the savants' answers seemed too quick, at least as regards dates in the current month (their average response time was less than three seconds), for them to have performed algorithmic calculations. Also they appeared to have made use of memory "anchor dates" based around the month of December, as betrayed by their reaction times tending to be quicker for months later and earlier in the year.

However, the mystery remains far from solved. For example, if the savants were relying on memory for their astonishing calendrical feats, you'd think a memory test would reveal their unusual memory ability. Yet a standard psychometric comparison of memory performance between the savant and neuro-typical calendar calculators found no differences, except the neuro-typical were better on a form of working memory.


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How romantic jealousy hijacks the mind

"Jealousy can no more bear to lose sight of [its] objects than love" George Eliot (1860)

The mind is altered by the fear that a lover is about to be lured away. Attention and memory systems are hijacked, turned to focus on attractive rivals. That's according to Jon Maner and colleagues who say theirs is one of the first studies to look at how romantic jealousy alters low-level cognitive functioning.

Maner's team conducted four studies with hundreds of heterosexual student participants. All began and ended in a similar way. Infidelity concerns were triggered in half the participants by asking them to write about four or five incidents in which they'd felt romantically jealous. The remaining participants acted as controls and wrote about an anxiety-provoking scenario that had nothing to do with infidelity. Meanwhile, all the studies ended with a test of chronic jealousy. Participants were categorised as jealous according to how jealous they said they would feel in a range of ambiguous scenarios - for example, seeing their partner smile to someone of the opposite sex.

Here are the key findings. The first study required participants to shift their attention away from pictures of faces to make judgements about shapes located in a different part of the computer screen. Prompting concerns about infidelity caused jealous participants to find it difficult to drag their attention away from photos of attractive people of the same sex - as if their minds had become focused on romantic threats. Their attention to average looking people, by contrast, was unaffected.

The second study involved a card game a bit like "pairs" or "concentration" and showed that infidelity concerns prompted jealous participants to have superior memory specifically for attractive faces of people of the same sex as themselves - again, suggesting that their minds were suddenly wired up to detect romantic threats.

The final two studies showed that writing about infidelity caused jealous participants to suddenly develop subconscious negative attitudes towards attractive people of the same sex. For example, they were quicker to respond when attractive faces and negative words were associated with the same response key. This is the opposite to the usual finding that attractive people are viewed more positively.

"The current work provides a rich picture of the cognitive processes that may be involved in protecting relationships from potential romantic rivals," the researchers said. "Priming the threat of infidelity promoted intrasexual vigilance - a functionally organised cascade of lower-order cognitive processes aimed at preferentially processing highly attractive, and therefore highly threatening, members of one's own sex."


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We know a great deal about the relative genetic and environmental influences on average intelligence and on learning disabilities, but far less about the role of genes in exceptional cognitive ability – in lay terms, what we might call genius or innate talent.

A new "mega-analysis" of 11,000 twin pairs, aged between 6 and 71, has helped to plug that gap. The results suggest that genes exert a significant influence on exceptional cognitive ability, similar in magnitude to their influence on the normal range of intelligence. The findings challenge versions of the "discontinuity hypothesis" – the idea that the relative contribution of nature and nurture changes for exceptional ability.

Claire Haworth and colleagues, of the newly-established Genetics of High Cognitive Abilities (GHCA) consortium, combined data from six studies, involving twins from four countries – the UK, Netherlands, Australia and United States. Combining so much data altogether allowed them to restrict their analyses to participants in the top 15 per cent for intelligence performance, whilst still maintaining enough power for statistical tests.

By comparing intelligence differences between pairs of identical twins (who share all their genes) and non-identical twins (who share half their genes like normal siblings), the study showed that genetic differences explained approximately half the variation found in high intelligence, whilst shared environmental factors - those experienced by both twins in a pair, such as education and parenting style - explained just 28 per cent of the variation. The remaining influence is down to unique environmental influences (experienced by one twin but not the other) and other unknown factors.

The observed level of genetic influence on exceptionally high intelligence is similar to that found by the researchers for the normal range of intelligence in the same sample of twin pairs, and supports the idea that exceptional cognitive ability is on a continuum with the normal range of intelligence, and is likely subject to the same genetic and environmental influences. However, final proof that the same genes affect high intelligence and the normal distribution won’t be found until specific genes are identified through DNA testing of gifted and control participants.

It should be noted that the cited contributions of genes and the environment aren’t necessarily fixed. Rather these estimates reflect the amount of variation explained by genetic and environmental factors for this particular group of twin participants at one particular time. The generalisability of the findings are, however, enhanced by the large size and cross-national nature of the sample. Another caveat is that investigating the top 15 per cent of intelligence test performers may not be high enough to capture any influences that uniquely affect exceptional cognitive ability.

"We hope that our study, the many interesting and unanswered questions about high cognitive ability, and the importance of studying the high end of the distribution of ability as well as the low end, will stimulate much-needed research on the genetics of high cognitive ability," the researchers said.


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Realistic view of their popularity protects children against the effects of social rejection

Human immodesty knows no bounds. Most people think they're better looking than average, more intelligent, better at driving and less likely to get ill. Psychologists seeking to explain this common delusion have suggested it serves a protective role: a shield against the depressing realities of fate, fallibility and social spite. However, a surprising new study by Sander Thomaes and colleagues directly contradicts this account. Their investigation with children suggests that a realistic self view is more protective.

Two hundred and six children aged between nine and twelve years rated how much they liked each of their classmates and how much they thought each of their classmates liked them. This gave the researchers a measure of how realistic each child's self-view was. Two weeks later, the children were invited to play a "Survivor Game" - a kind of internet popularity contest in which the least popular of four players would be voted out of the group. The game was fixed and half the children were told that they were the least popular. The other children received neutral feedback: another child had been voted out.

Using a measure of mood before and after the game, the researchers found that children with a more realistic view of their popularity at school were the least badly affected by rejection in the Survivor Game. By contrast, children with an inflated view of their popularity, or a deflated view, experienced a far greater drop in their mood after being told they'd been voted out.

"Our results suggest that vulnerable children holding positively or negatively distorted self-views may benefit from interventions that target their biased social-reasoning processes," Thomaes and his colleagues concluded.


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Psychology is moving away from a view of the brain that ties functions to specific brain areas. Instead, researchers recognise that the brain is made up of dynamic, flexible networks, in which diverse regions are recruited according to task demands. Complementing this account is a growing recognition of the brain's ability to adapt to damage, even in adulthood - a characteristic known as plasticity. These views are captured in a new clinical case study that documents the recovery of language performance in a man known as “FV”. He'd had a tumour removed from a relatively large section of his brain, including "Broca's area" - considered since the nineteenth century to be a vital neural centre for speech production.

Broca's area is named after the nineteenth century French surgeon Paul Broca for his work with a patient who, following localised damage to the rear part of his left frontal lobe, lost the ability to produce speech, with the exception of the syllable 'tan', hence his nickname 'Tan tan'. The man's comprehension, meanwhile, remained intact, leading to the popular conclusion that Broca's area is important for speech production, but not comprehension.

Monique Plaza and colleagues thoroughly tested FV's language skills before, during and after his tumour was surgically removed. Importantly, additional to standard neuropsychological tests, the researchers used a narrative task that required FV to tell the story played out in a children's picture book - a test the researchers said was sensitive to deficits not detected by standard measures.

The researchers found that FV's tumour and its subsequent removal did not lead to the severe language deficits that would be expected based on a traditional localisation approach to brain function. Because his tumour had grown slowly, the researchers said other areas of FV's brain, adjacent to Broca's area, had been able to take over language functions, including the premotor cortex and the head of the caudate nucleus. FV showed some expected deficits after surgery, but quickly regained most of his speech production abilities.

However, the narrative task did expose some intriguing, subtle deficits that FV's brain obviously hadn't been able to shop out to adjacent neural areas. These included an inability to represent speech within speech - that is, FV didn't seem to be able to talk about other people's speech.

The researchers said: "The present case confirms the relevance of connectionist approaches [to language] based on studies of slow-growth tumours, which demonstrate that compensatory mechanisms start before surgery, in reaction to tumour infiltration, and consolidate during and after surgical procedures."


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