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The type of interrogation likely to lead to false confessions

Not surprisingly, confessions are extremely persuasive in court, but according to Jessica Klaver and colleagues, all too often these confessions are false, leading to the wrong person being found guilty.

Now Klaver's team have used an elegant laboratory task to compare two types of interrogation technique and found that it is so-called 'minimising' questions and remarks - those that downplay the seriousness of the offence, and which blame other people or circumstances - that are the most likely to lead to a false confession.

Over two hundred Asian and Caucasian students were invited to take part in what they were told was a test of their personality and typing skills. During the typing part of the task, they were warned in advance that pressing the 'Alt' key would cause the computer to crash and a loss of all data. Subsequently, when the participants were required by the task to type 'Z' (near the 'Alt' key), the researchers contrived it so that the computer duly crashed, and the participants were accused of pressing the 'Alt' key.

Next the students were subjected to either 'minimising' remarks (e.g. "Don't worry. It was just an accident" and "This programme seems not to be working lately") or 'maximising' remarks that played up both the evidence for the student being guilty and the seriousness of the alleged error (e.g. "You must have pressed it" and "We have run over 50 people on this test in the past three weeks and the computer hasn't crashed once").

Overall, 43 per cent of the students subsequently signed a confession statement, stating falsely that they had indeed pressed the 'Alt' key. Crucially, the confession rate was four times higher among the students subjected to minimising remarks as opposed to maximising remarks.

The researchers said that in real life, minimising techniques "give the suspect a false sense of security using flattery, offering legal or moral face-saving excuses for actions, conceptualising actions as accidental, blaming the victim and underplaying the seriousness of the charges."

Further analysis showed the female students were more likely to falsely confess, as were those students who scored high on a test of suggestibility. Personality factors such as self-esteem were not related to the rate of false confession.

"A continued investigation of the factors that contribute to false confessions and confession behaviour in general will greatly inform our understanding of the phenomenon and aid in efforts to prevent the occurrence of false confessions and their liberty-depriving consequences," the researchers said.


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Differences in the way teen and adult mothers respond to baby cries

Teenage mothers don't respond in the same way physiologically as adult mothers do to the sound of babies crying. That's according to Jennifer Giardino and colleagues who say the difference is probably due to the neural immaturity of the teenage mothers' brains.

Fifty-six recently-pregnant teenage mothers (average age 18 years), 58 age-matched, non-parent teenage girls, and 49 recently-pregnant adult mothers (average age 31 years) were played audio tapes of babies crying either with hunger or pain. The participants were asked to indicate how the cries made them feel, and their heart rate and cortisol levels were also recorded, the latter via a saliva swab. Afterwards the mothers were also videoed playing with their own baby for 15 minutes.

From a physiological perspective there was no difference in the way the teenage mothers and the teenage non-mothers responded to the sounds of the babies' cries. However, the teenage mums reported feeling more sympathy and being more alert to the babies' cries.

When the teen mums were compared with the adult mothers, the opposite pattern emerged. The teenagers said the cries made them feel the same way as the adult mothers did, but physiologically there were differences. The adult mothers showed increased heart rate and cortisol in response to the cries, whereas the younger mothers did not.

These physiological differences appeared to be reflected in the way the two groups of mothers played with their children - the teenage mothers spent less time interacting with their child when videoed, and more time looking away.

The overall pattern of results held even after controlling for the time of day that testing took place and the socio-economic status of the fathers.

Taken together, the researchers said their results suggest teenage mothers are less attuned to infants behaviourally and physiologically, perhaps due to the fact their own brains are still developing. "In addition to the social and economic challenges confronting teenage mothers that may explain some of the present results," they wrote, "there is also a substantial literature indicating that the medial prefrontal cortex, the brain region important for planning and executive functioning, is still developing through the teenage years..."


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Among the elderly, slower walkers have slower brains

Older people who walk more slowly also perform less well on tests of mental performance - an association researchers say could prove useful for diagnosis and therapeutic interventions.

Having excluded participants with major neurological impairment or obvious cognitive difficulties, Kevin Duff and colleagues timed 675 older adults (average age 73.2 years) walking 25 feet in one direction and then back again. The participants also completed the Repeatable Battery for the Assessment of Neuropsychological Status (RBANS), which tests a range of abilities including language, memory and attention.

The participants were divided into three groups based on their walking speed (50 feet in less than 14 seconds; between 14 to 17 seconds; more than 17 seconds) and it turned out they differed in their cognitive performance, with the slowest walkers performing least well cognitively.

Although it is not clear whether walking speed impacts cognition, if cognition affects walking speed, or indeed if some other factor is responsible for both slow locomotion and thinking, the researchers said their observation was nonetheless useful. "In less than 30 seconds, clinicians have the opportunity to indirectly assess cognition," they said, adding that that their finding "might also guide interventions, as training in physically frail elders can improve walking speed and quality of life, and perhaps cognition."


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Just how representative are the people who volunteer for psychology experiments?

People who volunteer for psychology experiments are more stable and outgoing than those who don't - a finding that has wide-ranging implications for the integrity of psychological research.

Jan-Erik Lonnqvist and colleagues in Finland approached dozens of military officers who had completed mandatory personality tests three years earlier as part of the army recruitment process. The researchers mailed 158 of these men a survey on values and, as an incentive, told them they'd be given feedback on how their answers compared to the general population.

According to their earlier personality test results, the 61 officers who returned the new survey were lower in the Big Five personality dimension of Neuroticism and higher in Conscientiousness, and they also showed a tendency to be higher in Extraversion and Agreeableness, than did the officers who didn't take part in the new survey.

In a second study, the researchers used data gathered as part of a larger epidemiological survey. Siblings from 15 families assessed the personality of their brothers and sisters and were also asked to volunteer for further neuropsychological tests and interviews. Consistent with the study of military officers, the sibling ratings revealed that the 55 participants who volunteered for the further stage of the study scored higher on Conscientiousness, Extraversion and Agreeableness and lower on Neuroticism, than did the 29 who declined to participate further.

The researchers said their findings have important implications for psychology research. For example, it's been shown that people, like those choosing to volunteer, who are lower in Neuroticism, are more likely to show a positive response to drug treatments for depression and panic disorder. Also, when someone completes a personality test, for example as part of a job application process, the idea is that their score is compared against a population average, but this study suggests the personality averages (or norms) that have been calculated for tests are likely to be skewed because they're based on the scores of volunteers.

To combat these problems when recruiting participants, Lonnqvist and colleagues said researchers should "make the research as attractive as possible to potential volunteers" and "attempt to evaluate the representativeness of the volunteer sample against the relevant population on the variables of interest."


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How to promote the MMR vaccine

Rather than stressing its benefits, health promotion campaigns for the MMR vaccine should emphasise the protection that is lost by failing to have a child inoculated.

That's according to Purva Abhyankar and colleagues who said finding the most effective way to promote the triple jab is of vital importance because uptake has dropped in the UK in the wake of health fears that the vaccine is associated with side-effects such as autism.

One hundred and forty-two women, some were mothers, some not, with an average age of 35 years, were asked to imagine that they had to decide whether or not to have their child vaccinated with MMR. They were then presented with one of two possible messages about the MMR vaccine (alternative wording is in brackets):

"By vaccinating (not vaccinating) your child against mumps, measles and rubella, you will be able to (fail to) protect your child against contracting these diseases and take (will fail to take) advantage of a safe and lifelong immunization, which will make you feel less anxious (anxious) and safe (unsafe)."

Afterwards, the women presented with the message version that emphasised the protection and reassurance that would be lost if the vaccine were not given, were significantly more likely to say that they intended to give their child the vaccine, than were the women who read the alternative version. This difference was particularly pronounced among the women who had vaccinated their children previously in real life.

The researchers said their finding can be understood in terms of Prospect Theory - our willingness to take risks in the context of possible losses, in contrast to our aversion to taking risks in the context of possible gains. In other words, because people tend to see the MMR vaccine as risky, Prospect Theory suggests it is better to promote the vaccine in terms of what will be lost if that risk isn't taken, rather than in terms of what might be gained - a prediction that is supported by the current results.

The researchers concluded their finding shows: "that interventions aimed at promoting high perceived risk prevention behaviours are likely to be more effective if designed in terms of messages emphasising the disadvantages of failing to perform the behaviour."


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Introducing the brain's memory bouncer

With a deft mix of brain imaging and memory testing, researchers in Sweden believe they've identified neural activity that is responsible for controlling what information is allowed into our working memory - the mental store we use over brief periods, such as when dialling a phone number.

This activity, which was observed in the globus pallidus (part of a larger cluster of subcortical cells called the basal ganglia) acts as a kind of bouncer to working memory, keeping out the irrelevant riff raff.

Twenty-five female participants had their brains scanned while they memorised the location of squares and/or circles in a circular grid. An instruction before each trial informed them whether the circles, if present, were on the guest list - that is, whether they should be remembered or ignored.

Brain activity observed during these instructions increased in parts of the prefrontal cortex and the globus pallidus - reflecting the metaphorical bouncer readying himself for action.

The amount of filtering activity shown by the bouncer (in this case, in the globus pallidus, but not the prefrontal cortex) was related to how much memory-related activity was observed near the crown of the head, in the parietal cortex, when the participants were presented with a mix of squares to be remembered and circles to be ignored. That is, participants who showed less bouncer-type activity subsequently showed more memory-store activity when to-be-ignored circles were present. This makes perfect sense because it suggests more irrelevant material had been allowed into their working memory.

Of course, storing irrelevant material is inefficient and in a separate memory test, outside of the brain scanner, the participants with the more active 'memory bouncers' were found to have more working memory capacity.

"The present results therefore reveal a specific neural mechanism by which an individual's ability to exert control over the encoding of new information is linked to their working memory capacity," Fiona McNab and colleagues concluded.

http://www.nature.com/neuro/journal/v11/n1/abs/nn2024.html

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