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How group cooperation varies between cultures

Researchers use economic games to investigate how people cooperate in real-life. Now a team led by Benedikt Herrmann, at the University of Nottingham, have identified striking differences in the way university students from different countries play one such game known as The Public Goods Game. Compared with students from developed Western nations, students from less democratic countries like Saudi Arabia, Oman and Belarus tended to punish not only free-loaders, but also cooperative players, with the result that cooperation in their groups plummeted.

In 16 countries, researchers gave 20 tokens each to thousands of students who were arranged into groups of four anonymous players. On each round, the students, who interacted via computer screens, had to choose how much to invest in the group kitty, such that every member would be paid 0.4 tokens for every token invested in the kitty, regardless of whether they themselves had contributed.

The nature of the game means that if everyone contributes the maximum amount, all members can gain by receiving a return of 32 tokens each. However, there is also the temptation to be selfish, to 'free-load'. For example, if one member contributes nothing to the kitty, while everyone else contributes the maximum, that selfish member will receive 44 tokens.

Crucially, after each round, players can see the choices of the other players, and in one version of the game they were able punish others if they wanted to, by sacrificing a token of their own so that another player loses several of theirs.

When players had the option to punish, the groups tended to display more cooperation, which is consistent with past research showing that the ability to punish can help foster cooperative behaviour. However, in some countries, 'selfish' players also punished cooperative players, perhaps as a means of revenge for punishments they had suffered, or maybe as a way of punishing do-gooders for showing them up. The researchers called this 'anti-social punishment', and the groups where this occurred tended to cooperate less.

Anti-social punishment occurred more in those countries, including Belarus and Saudi Arabia, shown by surveys to have less faith in the rule of law and less belief in civic cooperation. In a commentary on the findings, published in the same journal, Herbert Gintis of the Sante Fe Institute, said the results challenge the way people have tended to view capitalist democracies. "The success of democratic market societies may depend critically upon moral virtues as well as material interests, so the depiction of civil society as the sphere of 'naked self-interest' is radically incorrect," he wrote.


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More evidence that fear of snakes is hard-wired

Slithery, scaly, and downright terrifying is how many people view snakes. Even in Britain, which has only one species of poisonous snake, people are often afraid. Some experts have suggested the snake's public relations problem is based on the fact humans have a hard-wired fear of snakes and other threatening creatures like spiders. Now this argument has found fresh support from a series of experiments showing that, like adults, pre-school age children have a superior ability for detecting snakes compared with innocuous creatures.

Dozens of children aged between three and five years were presented with 3 x 3 grids on a computer screen. Their task was to touch the one square containing a snake as fast as possible while ignoring the squares which all contained either flowers, caterpillars or frogs, depending on the particular experiment. For a comparison condition, the children had to touch the one square containing either flowers, a caterpillar or frog (again, it depended on the experiment), while ignoring all the other squares which contained snakes.

Throughout, the children were significantly faster when the task was to spot a snake from among distractors than when the task was to spot flowers, frogs or caterpillars. Crucially, in many cases the children's parents said their offspring had never experienced snakes and were unaware of the dangerous reputation they have - yet the kids still showed this selective advantage for spotting snakes.

The researchers Vanessa LoBue and Judy DeLoache said their findings were consistent with the idea that humans have a fear module in the brain which is selectively sensitive to evolutionarily relevant threat stimuli. "The evolutionary claim," they said "is that [in the past] individuals who more rapidly detected the stimulus attributes signifying the presence of a poisonous snake or spider would have been more likely to escape the danger and hence to survive and reproduce."

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Other people's misfortune alleviates our own regret

There can be few feelings worse than that pang of regret when you know you've made a bad decision. The perfect antidote, according to psychologists in Holland, is hearing about the misfortune of others....unless, that is, the future offers us a chance to make amends for our earlier mistake.

Frenk van Harreveld and colleagues first invited nearly one hundred students to place either a large or small bet on how well they thought they'd do at a trivia quiz. The procedure was fixed so that students opting for a safer, small bet were given an easy quiz, whereas the students who chose a large bet were given an impossible quiz, thus inducing both groups to regret their choice of bet.

Afterwards, some of the students were given fake information showing that they'd actually fared pretty well financially compared with the majority of other students -news that helped alleviate their regret. By contrast, hearing that other students had fared better did not serve to increase their regret.

In a second experiment, Frenk van Harreveld and colleagues showed that the best antidote for regret depends on whether or not the future offers a way for us to make amends. Students once again bet on their performance at a trivia quiz - not for cash this time, but rather to determine how long they'd have to spend on a forthcoming arduous memory task.

The procedure was again fixed so that those betting conservatively (for the prize of a short rather than long memory test) were given easy quiz questions, while those who bet riskily (for the prize of no memory test at all) were given impossible questions, thus inducing both groups to experience regret.

Next, half the students were told that yet another quiz would give them a chance to earn some money. With the prospect of a second quiz, the students tended to shun hearing about the relative misfortune of other students at the previous quiz, choosing instead to hear information on likely future quiz topics. In this case, the researchers said, useful information was a better antidote to regret than hearing about others' misfortune.

"When there is no chance to do better in the future, misery seems to love (and even actively look for) company," the researchers concluded. "If however, there is a subsequent opportunity, regret can motivate us to do better next time."


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Psychologists explain the frustrating persistence of tip-of-the-tongue states

Not being able to think of a word that you know you know can be so frustrating. What's extra annoying about these tip-of-the-tongue states is that often we'll keep experiencing them for the same word. That's despite the fact that the relief we experience on finally discovering an elusive word often leads us to feel that we'll surely never forget it again.

The reason we continue struggling with the same words isn't just because they are unusual or awkward. No, according to Amy Warriner and Karin Humphreys, when we're in a tip-of-the-tongue state, we're actually learning the wrong way of retrieving the word, thus making it less likely that we'll successfully recall it in the future.

Thirty students attempted to retrieve words based on definitions given to them by the researchers. Here's an example: What do you call an instrument for performing calculations by sliding beads along rods or grooves? Answer: abacus. If the students reported experiencing a tip-of-the-tongue state, then they were either given 10 seconds before being told the word, or 30 seconds.

When, two days' later, the students were tested with the same definitions again, they were more likely to have a repeat tip-of-the-tongue state for a given word, if they'd previously experienced 30 seconds of having the word on the tip of their tongue, than if they'd previously only been in that state for 10 seconds.

The researchers said this finding was consistent with the idea that when the tip-of-the-tongue participants were previously made to wait 30 seconds, they were effectively spending more time learning that erroneous state - thus reinforcing the incorrect pattern of activation that was causing their tip-of-the-tongue sensation.

"Metaphorically speaking, this is akin to spinning one's tyres in the snow, resulting in nothing more than the creation of a deeper rut," the researchers explained.

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Smokers ignore what might have been

Thankfully, most of us don't keep plumbing for the same option in life, over and over, regardless of how rewarding it might seem to be. No, we take into account what might have happened if we'd taken a different path, made a different decision. These so-called 'fictive' thoughts can lead us to change the way we behave in the future. But now Pearl Chiu and colleagues have shown this ability is lacking in smokers - a finding they say could have implications for treating addiction.

Thirty-one smokers and 31 non-smokers had their brains scanned as they played an investment game. They were given $100 with which to invest in stocks and shares and after each round they were told how much money they'd made, relative to how much money they could have made if they'd invested the maximum amount in their chosen shares.

Discovering how much money they could have made if they'd invested a larger amount affected the subsequent decision-making of the non-smokers but not the smokers. It's not that the brains of the smokers didn't register this information - they, like the non-smokers, showed increased activity in a part of the brain called the caudate when shown what they'd missed - it's just they didn't act on it. Pearl Chiu and co-workers say this cognitive anomaly helps explain why smokers carry on puffing away without regard for the positive outcomes that could have ensued had they have given up.

Co-author Read Montague told The Digest: "It's not at all clear from our work yet whether subjects who end up smoking (chronically) start out with a weak coupling between fictive error systems and behavioural control or whether this connection weakens as they become addicted to nicotine. We are gearing up to do a longitudinal study to find this out."


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Aesthetic appreciation on the line

Seeking to understand aesthetics from the perspective of brain processes is all the rage these days, and has given birth to the nascent field of neuroaesthetics. Now Valeria Drago and co-workers have shown that people who are able to more accurately bisect a line, also tend to be more emotionally sensitive to paintings.

The researchers tested the ability of 17 right-handed participants to accurately bisect 100mm horizontal lines - that is, to mark the midpoint of the lines. The participants also looked at 10 paintings by the relatively unknown abstract artist Stephen Duren, before indicating how moved they were by each picture.

The more accurate a participant was at the line bisection task, the more moved they tended to be by the pictures. Moreover, when the participants were divided into two groups according to their accuracy at the line task, it was those in the more accurate group who were more emotionally affected by the paintings.

Valeria Drago at University Florida College and her truly international team of colleagues, based in Italy, Argentina, Korea, Japan and New Zealand, said this pattern of findings was consistent with the idea that the right hemisphere of the brain is associated both with attentional skills (underlying accurate line bisection) and the perception of emotion.

"For subjects to obtain the full evocative impact, it might have been important for the viewer to be attentive to the entire painting and this might explain why the [more accurate line bisection group] experienced a greater evocative impact," the researchers said.

A flaw in the study is that participants were asked to rate their emotional response to the paintings by marking a point on a horizontal line from little emotional impact on the left, to high impact on the right - a similar procedure to the line bisection task. However, in the bisection task, the less accurate participants tended to mark the midpoint further to the right than the more accurate participants, so if anything they should have shown a bias towards rating the paintings as more emotionally evocative. "It might be useful for future research to...use verbal ratings of evocative impact," the researchers said.

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