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No future for egoists—that's what their brain says

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Some people are worried about the future consequences of climate change, while others consider them too remote to have an impact on their well-being. Researchers at the University of Geneva (UNIGE), Switzerland, examined how these differences are reflected in our brains. With the help of neuro-imaging, the scientists found that people deemed "egotistical" do not use the area of the brain that enables imagining a distant future. In "altruistic" individuals, on the other hand, the same area is alive with activity. The research results, published in the journal *Cognitive, Affective & Behavioural Neuroscience*, may help psychologists devise exercises that activate this specific area of the brain. These could be used to improve people's ability to project themselves into the future and raise their awareness of the effects of climate change, for example.

The concerns of individuals are based on their values, which determine whether they prioritize their personal well-being or put themselves on an equal footing with their peers. In order to encourage as many people as possible to adopt sustainable behaviours, it is thus necessary that they feel the consequences of climate change are relevant to them. More self-centred individuals do not worry about consequences, believing that these potential disasters are too far in the future.

"We wondered what magnetic resonance imaging (MRI) could teach us about how the brain processes information about the future impact of climate change, and how this mechanism differs depending on the self-centeredness of the individual," says Tobias Brosch, professor of psychology.

Are egoists only afraid of what directly concerns them?

The UNIGE psychologists turned to the report drawn up by the Intergovernmental Panel on Climate Change, where they identified predictions about the outcomes of climate change, such as a reduction in drinking water supplies, an increase in border conflicts and a spike in natural disasters. They then assigned a year in the future to each of these effects, stating when it would come to pass.

Brosch's team invited a panel of participants to complete a standardized questionnaire to measure the value hierarchies, marking the selfish or altruistic tendencies of each individual. The participants underwent an MRI before being shown the dated consequences of the events; they then answered two questions with a rating on a scale of 1 to 8: "Is it serious?" And "Are you afraid?"

"The first result we obtained was that for people with egotistical tendencies, the near future is much more worrying than the distant future, which will only come about after they are dead. In altruistic people, this difference disappears, since they see the seriousness as being the same," explains Brosch.

Selfishness makes the brain lazy

The psychologists then focused on the activity in the ventromedial pre-frontal cortex (vmPFC), an area of the brain above the eyes that is used when thinking about the future and trying to visualize it. "We found that with altruistic people, this cerebral zone is activated more forcefully when the subject is confronted with the consequences of a distant future as compared to the near future. By contrast, in an egotistical person, there is no increase in activity between a consequence in the near future

and one in the distant future," says Brosch.

This particular region of the brain is mainly used for projecting oneself into the distant future. The absence of heightened activity in a self-centred person indicates the absence of projection and the fact that the individual does not feel concerned by what will happen after his or her death. Why, then, should such people adopt sustainable forms of behaviour?

These outcomes, which can be applied to areas other than climate change, demonstrate the importance of being able to think about the distant future in order to adapt individual behaviour to the future constraints of the world. "We could imagine a psychological training that would work on this brain area using projection exercises," suggests Brosch. "In particular, we could use virtual reality, which would make the tomorrow's world visible to everyone, bringing human beings closer to the consequences of their actions."

More information: Tobias Brosch et al, Not my future? Core values and the neural representation of future events, *Cognitive, Affective, & Behavioral Neuroscience* (2018). DOI: 10.3758/s13415-018-0581-9

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