Outgrowing emotional egocentricity

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When I'm happy about something, others must be, too: children don't learn that this assumption is frequently wrong until a relevant region in their brain is fully developed. Credit: Sven Döring

Children are more egocentric than adults. Scientists from the Max Planck Institute for Human Cognitive and Brain Sciences in Leipzig have demonstrated for the first time that children are also worse at putting themselves in other people's emotional shoes. According to the researchers, the supramarginal gyrus region of the brain must be sufficiently developed in children for them to be able to overcome their

egocentric take on the world.

When little Philip rejoices at winning the prize in a game, it is almost impossible for him to understand that his best friend Tom, who has just lost, is not as jubilant. The opposite also applies. "Children are simply more egocentric," says Nikolaus Steinbeis, a researcher at the Leipzig-based Max Planck Institute, summing up the general hypothesis.

Egocentrism refers to the inability to differentiate between one's own point of view and that of other people. Egocentric people consider themselves to be the centre of all activity and assess all events and circumstances from this perspective. They project their own ideas, fears and desires onto the environment and others.

Up to now, all that the research in this area had to offer was a few theoretical ideas and studies on the development of cognitive perspective-taking. The question concerning egocentrism in connection with people's emotional states and the development of this phenomenon over the course of childhood had been largely ignored. "We currently know very little about how emotional egocentrism is expressed in childhood and about the neuronal and cognitive processes on which this is based," explains Steinbeis.

In order to compare the emotional states of different age groups, Steinbeis used an innovative game involving monetary rewards and punishments. "Earlier studies have shown that similarly strong emotional states can be triggered in both children and adults using such rewards and punishments. Children take as much delight as adults in monetary rewards and they are just as frustrated by losses," he says.

During the game, two people competed against each other without, however, being able to see each other. Equipped with a computer screen and keyboard, the test subjects were asked to demonstrate their reaction

speed. The participants were informed by the screen as to whether they or their opponents could rejoice in victory or despair in defeat. They were then asked to estimate the emotions experienced by their opponents. Of principal interest was how strongly the players' own results influenced their assessments of their opponents' emotional state. For example, if, due to their own status as a winner, a participant assessed their counterpart as being happy, despite the fact that the latter had just lost the game, this indicated that the winner was egocentrically projecting their own state onto the opponent.

The results of the study reveal that adults found it easy to overcome this tendency, whereas children between the ages of 6 and 13 tended to be guided by their own emotions when assessing those of others. The ability to assess the emotions of our counterparts independently of our own emotional state improves with age. "In general, the older a child is, the better he or she will be able to put itself in the emotional position of another person," says Steinbeis, explaining the study findings.

In addition, the scientists measured the activity of different regions of the brain in MRI scanners and discovered a region that plays a crucial role in our ability to overcome our own feelings. The right supramarginal gyrus is a region of the temporoparietal junction, which is generally necessary for overcoming one's own point of view. It is strongly linked with other brain regions like the anterior insula, which is exclusively responsible for enabling us to identify with other people's emotional states. "This means that, with the right supramarginal gyrus, we have located a region which mainly functions in enabling us to overcome our own feelings," says Steinbeis. Moreover, the scientists established that, with increasing age, the cortical thickness of the nerve fibres in this area declines. This suggests that the nerve fibres are more active as we get older.

Emotional egocentrism plays a major role in many conflicts, as the

inability to overcome egocentric thinking leads to inappropriate social behaviour. People affected by this condition experience rejection, which has been shown to have a negative impact on health and development. Scientists would therefore like to understand the reasons for socially detrimental behaviour and develop options for targeted intervention.

More information: Nikolaus Steinbeis, Boris C. Bernhardt, Tania Singer, Age-related Differences in Function and Structure of rSMG and Reduced Functional Connectivity with DLPFC Explains Heightened Emotional Egocentricity Bias in Childhood, *Social Cognitive And Affective Neuroscience*, 21 May 2014

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