

Brain study shows that the opinions of others matters

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Simon Cowell may appear to relish arguing with his fellow judges when they disagree with him, but new research out today suggests that - at least at a neuronal level - he would find their agreement much more satisfying.

Researchers at the Wellcome Trust Centre for [Neuroimaging](#) at UCL (University College London) in collaboration with Aarhus University in Denmark have found that the 'reward' area of the [brain](#) is activated when people agree with our opinions. The study, published today in the journal [Current Biology](#), suggests that scientists may be able to predict how much people can be influenced by the opinions of others on the basis of the level of activity in the reward area.

In a study of 28 volunteers in the UK, Professor Chris Frith and colleagues examined the effect that having experts agree with a person's opinions has on activity in their ventral striatum, the area of the brain associated with receiving rewards. Expert opinions about a piece of music produced more activity in this brain area when the subject shared the opinion. Expert opinions could also alter the amount of ventral striatum reward activity that receiving the music could produce - depending on how likely the person was to change his or her mind on the basis of those opinions.

Before the task, each volunteer was asked to provide a list of twenty songs that they liked, but did not currently own. They were asked to rate the songs on a scale of one to ten depending on how much they wanted the song (a score of ten indicating that they wanted the song very much).

The subjects were then placed in a [functional magnetic resonance imaging](#) (fMRI) scanner, which records brain activity by measuring related changes in [blood flow](#). They were shown, one of the songs they had requested and one from a set of the previously unknown songs by Canadian and Scandinavian artists and were asked to indicate a preference between the two. The researchers then revealed to the volunteer which of the two songs the two 'experts' preferred.

When the reviewers agreed with the subject's own choice, the team found that the subject's ventral striatum, the area of the brain associated with rewards, became active. Activity in this area tended to be strongest when both reviewers agreed with the subject.

The researchers confirmed the role of the ventral striatum by randomly assigning tokens to the songs and measuring its effect on brain activity; the ventral striatum was most active when a token was awarded to a song chosen by the subject. (At the end of the task, the subject knew that they would receive the ten songs with the most tokens.)

"We all like getting rewards and this is reflected in [brain activity](#) in the ventral striatum," says first author Dr Daniel Campbell-Meiklejohn from the Centre of Functionally Integrative Neuroscience, Aarhus University, Denmark. "Our study shows that our brains respond in a similar way when others agree with us. One interpretation is that agreement with others can be as satisfying as other, more basic, rewards."

Once out of the [fMRI](#) scanner, the subjects were

asked to rate their choices of songs again. The researchers found that the majority of people had changed their opinions dependent on the experts' views.

Seven people changed their opinions opposite to the reviewers - in other words, if the reviewers agreed with their choice, they tended to rate the song lower and vice versa.

However, most subjects appeared to be positively influenced - they were more likely to increase the rating of one of their songs if the reviewers also liked it and decrease the rating if the reviewers disliked it. In these subjects, the researchers found a link between activity in their ventral striatum when receiving the song as a reward and the opinions of reviewers: the more positively the song was reviewed, the greater the activity when receiving the song.

"It seems that not only are some people more influenced by the opinions of others, but by looking at activity in the brain, we can tell who those people are," says Professor Frith.

More information: Campbell-Meiklejohn, DK et al. How the Opinion of Others Affects our Valuation of Objects. *Current Biology*; 17 Jun 2010

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