

Researchers explain the link between language and emotions

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A team of researchers headed by the Erfurt-based psychologist Prof. Ralf Rummer and the Cologne-based phoneticist Prof. Martine Grice has carried out some ground-breaking experiments to uncover the links between language and emotions. They were able to demonstrate that the articulation of vowels systematically influences our feelings and vice versa.

The research project looked at the question of whether and to what extent the meaning of [words](#) is linked to their sound. The specific focus of the project was on two special cases; the sound of the long 'i' vowel (/i:/) and that of the long, closed 'o' vowel (/o:/). Rummer and Grice were particularly interested in finding out whether these [vowels](#) tend to occur in words that are positively or negatively charged in terms of emotional impact. For this purpose, they carried out two fundamental experiments, the results of which have now been published in *Emotion*, the journal of the American Psychological Association.

In the first experiment, the researchers exposed [test subjects](#) to film clips designed to put them in a

positive or a negative mood and then asked them to make up ten artificial words themselves and to speak these out loud. They found that the artificial words contained significantly more 'i:/s than 'o:/s when the test subjects were in a positive mood. When in a [negative mood](#), however, the test subjects formulated more 'words' with 'o:/s.

The second experiment was used to determine whether the different emotional quality of the two vowels can be traced back to the movements of the [facial muscles](#) associated with their articulation. Rummer and Grice were inspired by an experimental configuration developed in the 1980s by a team headed by psychologist Fritz Strack. These researchers instructed their test subjects to view cartoons while holding a pen in their mouth in such a way that either the zygomaticus major muscle (which is used when laughing and smiling) or its antagonist, the orbicularis oris muscle, was contracted. In the first case, the test subjects were required to place the pen between their teeth and in the second case between their lips. While their zygomaticus major muscle was contracted, the test subjects found the cartoons significantly more amusing. Instead of this 'pen-in-mouth test', the team headed by Rummer and Grice now conducted an experiment in which they required their test subjects to articulate an 'i' sound (contraction of the zygomaticus major muscle) or an 'o' sound (contraction of the orbicularis oris muscle) every second while viewing cartoons. The test subjects producing the 'i' sounds found the same cartoons significantly more amusing than those producing the 'o' sounds instead.

In view of this outcome, the authors concluded that it would seem that language users learn that the articulation of 'i' sounds is associated with positive feelings and thus make use of corresponding words to describe positive circumstances. The opposite applies to the use of 'o' sounds. And thanks to the results of their two experiments, Rummer and Grice now have an explanation for a much-discussed

phenomenon. The tendency for 'i' sounds to occur in positively charged words (such as 'like') and for 'o' sounds to occur in negatively charged words (such as 'alone') in many languages appears to be linked to the corresponding use of facial muscles in the articulation of vowels on the one hand and the expression of emotion on the other.

Provided by University of Cologne

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