

# Brain 'hears' voices when reading direct speech

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(Medical Xpress) -- When reading direct quotations, the brain 'hears' the voice of the speaker, say scientists.

It is a finding long accepted as evident but never scientifically investigated, according to researcher Dr. Christoph Scheepers from the University of Glasgow.

Now a team from the University's Center for Cognitive Neuroimaging (CCNi) has established that reading direct speech activates 'voice-selective areas' of the [brain](#).

Dr. Scheepers said: "Although many of us share the intuition of an 'inner voice', particularly during silent reading of direct speech statements in text, there has been little direct empirical confirmation of this experience so far.

"Few researchers have addressed the question of how the two reporting styles are represented in language comprehension, though direct speech demonstration is generally assumed to be more vivid and perceptually engaging than an indirect speech description."

Dr. Scheepers and his team enlisted 16 participants in the study and scanned their brains using Functional Magnetic Resonance Imaging (fMRI) while they read different short stories. The results show that direct quotes activated voice-selective areas of the auditory cortex.

Dr. Scheepers added: "This reveals that readers are more likely to engage in perceptual simulations, or spontaneous imagery, of the reported speaker's voice when reading direct speech.

"Several recent theories have proposed that people mentally simulate linguistically-described situations based on generalized experiences they have had in the past.

"Crucially, aspects of the reported speaker's voice are very likely to be part of this perceptual stimulation process."

Scientists have already shown that some areas of the auditory cortex are selectively sensitive to human voices when stimulated 'bottom-up' - that is to say, by an actual sound perceived by the ears.

However, other experiments have shown that the same areas can be stimulated by non-auditory stimuli - such as lip-reading. Now silent reading has been shown to do the same thing.

The research paper 'Silent reading of direct vs. indirect speech activates voice-selective areas in the auditory cortex' is published in the latest edition of the journal *Cognitive Neuroscience*.

Provided by University of Glasgow

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