

Brain 'talks over' boring speech quotes

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(Medical Xpress) -- Storytelling is a skill not everyone can master, but even the most crashing bore gets help from their audience's brain which 'talks over' their monotonous quotes, according to scientists.

Researchers from the University of Glasgow's Institute of Neuroscience and Psychology investigated the 'voice-selective' areas of the [brain](#) and revealed that when listening to someone monotonously repeating direct [speech](#) quotations, the brain will 'talk over' the speaker to make the quotes more vivid.

Previously, the researchers had shown the brain 'talks' when silently reading direct quotations.

Dr Bo Yao, the principal investigator of the study, said: "You may think the brain need not produce its own speech while listening to one that is already available.

"But, apparently, the brain is very picky on the speech it hears. When the brain hears monotonously-spoken direct speech quotations which it expects to be more vivid, the brain simply 'talks over' the speech it hears with more vivid speech utterances of its own."

Dr Bo Yao explains why the brain 'talks over' boring speech:

The research was conducted by Dr Yao and colleagues Professor Pascal Belin and Professor Christoph Scheepers within the Institute's Centre for Cognitive Neuroimaging.

The team enlisted 18 participants in the study and scanned their brains using functional magnetic resonance imaging (fMRI) while they listened to audio clips of short stories containing direct or indirect speech quotations. The direct speech quotations -- e.g., Mary said excitedly: “The latest Sherlock Holmes film is fantastic!” – were either spoken ‘vividly’ or ‘monotonously’ (i.e., with or without much variation in speech melody).

The results showed that listening to monotonously spoken direct speech quotations increased brain activity in the ‘voice-selective areas’ of the brain. These voice-selective areas – originally discovered by Prof Belin – are certain areas of the auditory cortex which are particularly interested in human voices when stimulated by actual speech sounds perceived by the ears.

However, the present and previous studies also reveal that these areas can be activated by different linguistic reporting styles – such as direct versus indirect speech.

Prof Scheepers said: “Direct speech quotations are generally assumed to be more vivid and perceptually engaging than indirect speech quotations as they are more frequently associated with depictions of voices, facial expressions and co-speech gestures.

“When the brain does not receive actual stimulation of auditory speech during silent reading, it tends to produce its own to enliven written direct speech quotations – a phenomenon commonly referred to as the ‘inner voice’ during silent reading. Now it appears the brain does the same even when listening to monotonously-spoken direct speech quotations.”

Dr Yao added: “This research demonstrates that human speech processing is an active process in which the brain generates models for the incoming speech utterances in order to predict actual auditory input.

“By doing so, the brain attempts to optimise the processing of the incoming speech, ensuring more speedy and accurate responses.

“These predictions are probably grounded in our past experiences in which direct speech is frequently associated with vivid depictions of the reported speaker’s voice whereas indirect speech is usually stated in a more flat and steady tone.

“The brain’s ‘talking over’ monotonously spoken direct quotes seems to reflect that it tries to bridge the incongruence between the expected speech utterances (vivid) and the actually perceived speech (monotonous) by simulating or imagining the expected vivid vocal depictions.

“We believe that such a simulation mechanism is an integral part of language comprehension -- we naturally recruit our sensory and motor systems to interpret the language input. Language processing, in this sense, is embodied.”

The research paper ‘Brain “talks over” boring quotes: Top-down activation of voice-selective areas while listening to monotonous direct speech quotations’ is published in *NeuroImage*.

Provided by University of Glasgow

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