

Study suggests link between sound, emotion may be key to understanding how language is used, learned and has evolved

Children as young as 5 shown to recognize emotional sound symbolism

By Kimberlee D'Ardenne, ASU News
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"Tick-tock." "Hiss." "Screech." These words are examples of onomatopoeia because they imitate the sounds they represent: the rhythmic ticking of a clock; an angry cat, or a slowly deflating bike tire; a high-pitched scream. Onomatopoeia is a type of sound symbolism.

The sounds of other words, even when they're not strict examples of onomatopoeia, also hint at their meaning — such as "bubble," which suggests a soft, round shape, or "slime," which suggests something slippery. But the sounds, or phonemes, that make up words can represent anything. And, sometimes, phonemes represent emotions.

A new research study from the Arizona State University [Department of Psychology](#) has shown for the first time that children as young as 5 years old can recognize emotional sound symbolism.

"The fact that some words across many languages around the world sound like what they mean tells us that a non-arbitrary sound-meaning correspondence might be important for how language is used, learned and, perhaps, how it has evolved," said [Viridiana Benitez](#), assistant professor of psychology and senior author on [the study](#), which was published in Cognitive Science.

Phonetic feelings

The researchers set out to examine whether children, ages 5 to 7 years, and adults could recognize emotional sound symbolism. To do so, they relied on the “gleam-glum” effect from psychology and linguistics, where the “ee” sound in gleam suggests positive emotions and the “uh” sound in glum suggests negative emotions, and created a group of made-up words with the same sounds, such as “zeem” and “zum” or “preep” and “prup.”

Study participants were then shown two images, one of a happy animal and one of a sad animal, and asked to pair the made-up words with the images. Overwhelmingly, study participants paired the made-up words with “ee” sounds with the pictures showing happy animals, and the made-up words with “uh” sounds with the pictures showing unhappy animals.

“This is the first demonstration of emotional sound symbolism in young children,” Benitez said.

The adult participants also showed the gleam-glum effect, pairing “ee” words with happy pictures and “uh” words with sad pictures.

“The adult participants had a stronger gleam-glum effect than the children, suggesting that the sound-emotion link becomes stronger with more experience,” said Ye Li, an alumna of the [cognitive science psychology doctorate program](#) and first author on the study.

The gleam-glum effect is not the only example of emotional sound symbolism in English. The research team is currently testing another sound pairing that conveys excitement or calmness.

Emotional sound symbolism has also been demonstrated in other languages besides English, including German, Spanish, Dutch and Polish, but whether it is a universal feature of language remains unknown. Li is currently assessing Mandarin-speaking preschoolers for emotional sound symbolism.

This study was a collaboration between the [Learning & Development Lab](#), led by Benitez, and the [Perception, Ecological Action, Robotics, and Learning Lab](#), led by [Michael McBeath](#), professor of psychology. Christine Yu, alumna of the cognitive science doctorate program, also contributed to the study.

This story originally appeared on [ASU News](#).

Main image



From left: Ye Li, a recent psychology graduate alumna, and Viridiana Benitez, assistant professor of psychology at Arizona State University, recently published a study showing that children recognize emotional symbolism in the sounds that make up spoken words. Photo courtesy of the ASU Faculty Women's Association

Gallery



A snake happily roasting a marshmallow over a fire was associated with words containing "ee" sounds.



A snake unsuccessfully trying to roast a marshmallow was associated with words containing "uh" sounds and sadness.



A dancing flamingo was associated with words containing "ee" sounds and happiness.



A flamingo with an injured leg, who is unable to dance, was associated with words continuing "uh" sounds and sadness.