

Children prioritize what they hear over what they see when gauging emotional aspects of their experience

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Image from the BEAST whole body expressions dataset, which was used in the study by Dr Ross and his colleagues. A man expressing fear. Credit: de Gelder and Jan Van der Stock ([frontiersin.org/articles/10.3389/fpsyg.2011.00181/full](https://www.frontiersin.org/articles/10.3389/fpsyg.2011.00181/full)).

The Colavita visual dominance effect is a psychological observation named after Francis B. Colavita, the psychologist who first gathered evidence of its existence in 1974. Colavita observed that when human adults are presented with visual stimuli and other sensory stimuli (e.g., tactile or auditory) at the same time, they respond more to the visual stimuli and often fail to respond to the other sensory stimuli entirely.

The findings gathered by Colavita suggest that vision is the most dominant sense for most humans who are not visually impaired. While some studies suggest that in certain cases (e.g., when they are facing potential threats), some animals and humans can become more reliant on auditory [stimuli](#), the occurrence of the Colavita effect in situations that are non-threatening and "emotionally neutral" is now well-documented.

More recently, some psychologists have found that while adults tend to respond more to visual stimuli, the Colavita effect might not apply to [children](#). Contrarily to adults, in fact, children appear to be more reliant on auditory stimuli when experiencing the world around them.

Researchers at Durham University in the U.K. have recently carried out a study investigating this effect, known as the reverse Colavita effect, in children of different ages. Their paper, published in Elsevier's *Journal of Experimental Child Psychology*, reported interesting new findings, suggesting that when they are trying to grasp emotional aspects of their experience, children tend to focus more on auditory stimuli than on [visual stimuli](#).



held for some more complex semantic stimuli (pictures of animals, noises, etc.) but we wanted to know if it would still hold when using emotional information."

In their experiments, Dr. Ross and his colleagues used two datasets compiled by other teams of researchers and widely used in [psychological research](#): the emotional body stimuli (BEAST) dataset and the emotional non-verbal vocalizations (MAV) dataset. They recruited 139 participants and divided them into three groups based on their age: one group of children up to seven years old, one group of older children (eight to 11 years old) and one group of adults (18 or above).

The researchers presented all participants with pairs of audio recordings and images of body postures conveying four primary emotions (i.e., joy, sadness, anger and fear) and asked them to describe what emotion they perceived from the stimuli. In some cases, an audio recording matching the emotion presented in the image was presented at the same time. In other cases, however, the two stimuli were incongruent (e.g., an image of a happy person was paired with the recording of a sad non-verbal vocalization).

Image from the BEAST whole body expressions dataset, which was used in the study by Dr Ross and his colleagues. A man expressing anger. Credit: de Gelder and Jan Van der Stock ([frontiersin.org/articles/10.3389/fpsyg.2011.00181/full](https://www.frontiersin.org/articles/10.3389/fpsyg.2011.00181/full)).

"In the '70s, scientists found that when presented with simultaneous flashes of light and auditory tones, adults showed a visual dominance and reported the visual flashes, which is now known as the Colavita effect," Dr. Paddy Ross, one of the researchers who carried out the study, told Medical Xpress. "In children, the opposite was true—they showed an auditory dominance and reported the tones (known as the reverse Colavita effect). This



Image from the BEAST whole body expressions dataset, which was used in the study by Dr Ross and his colleagues. A woman expressing joy. Credit: de Gelder and Jan Van der Stock (frontiersin.org/articles/10.3389/fpsyg.2011.00181/full).

When a pair of stimuli was incongruent, participants were asked to either ignore the image and base their response on the [audio recording](#), or vice versa. Moreover, all participants were presented with exactly the same pairs of stimuli to improve the experiment's validity and prevent individual stimuli from influencing the results.

"We found that all age groups (under 8, 8-11, 18+) could easily ignore the image and focus on the voice," Dr. Ross explained. "However, children found ignoring the voice extremely challenging. They performed below chance several times, so

they weren't simply guessing; the emotion of the voice was influencing their perception of the emotional body posture."

Dr. Ross and his colleagues were the first to report evidence of auditory dominance in children in the context of emotional expression. Their findings could soon inspire new studies examining the extent of this effect further (i.e., how much [auditory stimuli](#) affect how a child understands what is happening in his/her surroundings).



Image from the BEAST whole body expressions dataset, which was used in the study by Dr Ross and his colleagues. A woman expressing sadness. Credit: de Gelder and Jan Van der Stock (frontiersin.org/articles/10.3389/fpsyg.2011.00181/full).

"Our study has several important implications, as it suggests that when a parent is communicating with a child and trying to hide anger or frustration with a smile, it might not matter," Dr. Ross said. "In other words, 'putting on a happy face' when one is sad, for example, is unlikely to convince a child unless your voice sounds happy, too."

According to Dr. Ross, these new findings could also have implications for teaching and education. In fact, due to the COVID-19 pandemic, many children are currently studying from home, where they might be more exposed to auditory distractions. The observations reported in the study hint to the possibility that emotion-related stimuli in a child's home (e.g., programs about COVID-19 on TV, family members arguing, etc.) could influence how a child engages with or perceives his/her schoolwork.

"We have several studies lined up to see how far we can push the effect we observed," Dr. Ross added. "For example, we will be adding emotional faces into the mix and running another version of the experiment using emotional music instead of vocalizations. It could be the case that any emotional stimuli could be sufficient to influence a child's visual perception, it might not even need to be human."

More information: Paddy Ross et al. Children cannot ignore what they hear: Incongruent emotional information leads to an auditory dominance in children, *Journal of Experimental Child Psychology* (2021). [DOI: 10.1016/j.jecp.2020.105068](https://doi.org/10.1016/j.jecp.2020.105068)

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