

Fingernails on a Chalkboard Garner Psychologist Ig Nobel Prize

8 October 2006

Giving a closer listen to a sound most of us try to avoid – fingernails scraping on a chalkboard – has won Vanderbilt psychologist Randolph Blake an unusual and coveted award, the Ig Nobel Prize.

The prizes, awarded annually by the Society for Improbable Research since 1991, are given to research that “makes people laugh and then makes them think.” The society receives thousands of nominations each year for the awards, which are covered by press around the globe.

“It came absolutely out of the blue,” Blake said of learning he was a 2006 winner. “I was flabbergasted that it got nominated and was awarded this prize.”

The award ceremony – which was attended by over 1,200 people and included someone scraping their fingernails on a chalkboard on the stage - took place Oct. 5 at Harvard University. Actual Nobel Laureates were on hand to distribute the prizes.

Blake’s award was given for research he published with colleagues D. Lynn Halpern and James Hillenbrand in the journal *Perception & Psychophysics* in 1986. The study examined why nearly everyone cringes at the sound or even thought of fingernails scraping on a chalkboard.

“We asked the very simple question, what is the nature of the acoustic signal associated with scraping your fingernails over a chalkboard, which is almost universally aversive?” he said.

Blake and his colleagues recorded the sound of a three-pronged garden tool scraping over a chalkboard and then analyzed the various frequencies present in the sound. Going on the theory that the high-pitched components of the sound produced the chilling quality, they produced various versions of the sound that were missing

the high, middle and low frequencies. They then played these sounds for volunteers who rated them on how much they disliked each.

“To our surprise, the removal of the high frequencies didn’t reduce the aversive qualities of the sound, but removing the middle frequencies of the sound did,” he said.

Intrigued by this finding, Blake set about examining the sound waves associated with other vocalizations, including primate distress calls.

“It turns out the sound waves associated with primate warning cries, particularly chimpanzee warning cries, are remarkably similar in appearance to the aversive, middle frequency sound waves produced by fingernails on a chalkboard,” he said. “When you hear those cries, they are eerily similar to fingernails on a chalkboard.

“Our speculation was that the reason the sound of fingernails on a chalkboard have an almost universal aversive quality is that it triggers in us an unconscious, automatic reflex that we’re hearing a warning cry.”

Blake is Centennial Professor of Psychology and an investigator in the Vanderbilt Kennedy Center for Research on Human Development. He is also a member of the Vanderbilt Center for Integrative and Cognitive Neuroscience and is a founding member of the Vanderbilt Vision Research Center. Blake was inducted into the American Academy of Arts and Sciences on Oct. 7.

Links:

[Listen to Randolph Blake describe the research that won the Ig Nobel Prize](#)
[Listen to the sound of fingernails on a chalkboard](#)
[Listen to chimpanzee warning cry](#)

Source: Vanderbilt University

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