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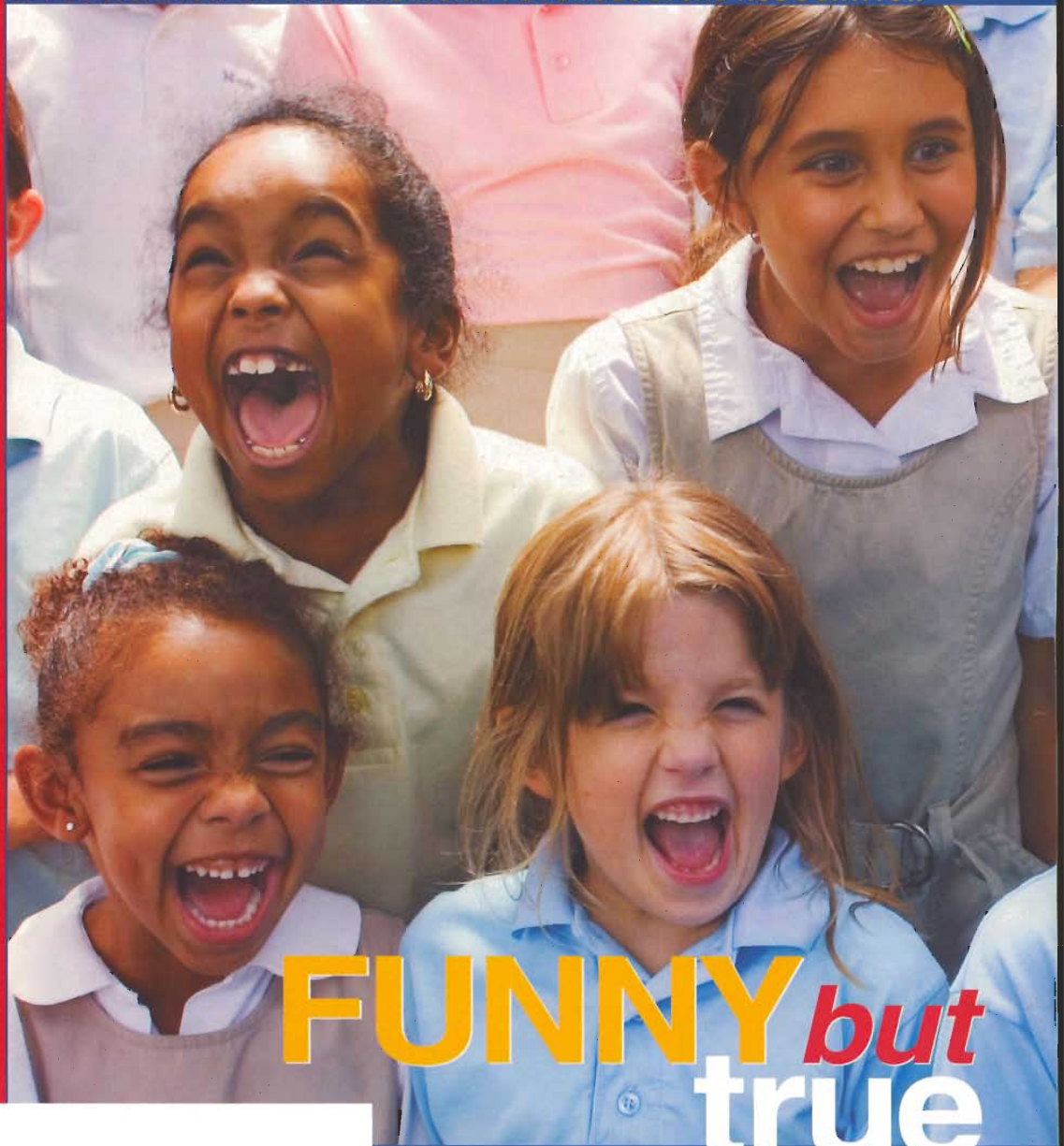
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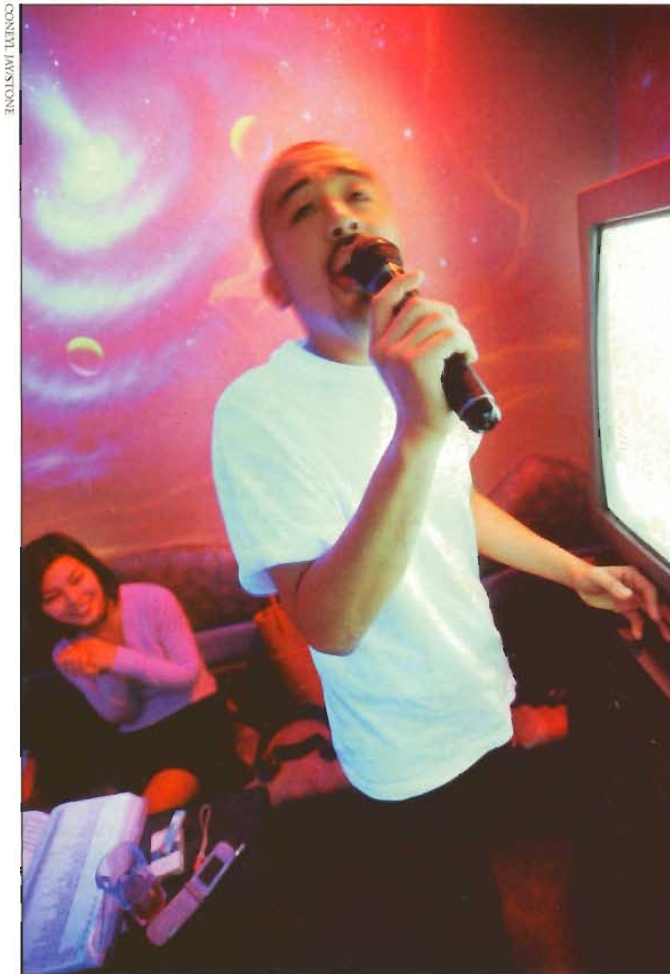


FUNNY *but*
true

Humor reveals the unspoken
and excites the mind

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Name that tune



Findings on how people identify familiar songs may lend insight into the workings of musical memory.

It only takes about two to three seconds of music before most listeners can recognize and sing along with a song.

BY SADIE F. DINGFELDER
Monitor staff

Psychologist Matthew Schulkind, PhD, has no formal music training, and, by his own assessment, is “among the worst singers in the world.” However, Schulkind—a professor at Amherst College—loves music, and will happily sing along with the radio if no one is around.

“Like many untrained people, I have relatively sophisticated musical skills,” he says. “There are thousands of

melodies we know and sing and can recognize easily.”

New research by Schulkind and others suggests that people perform this impressive memory feat by paying particular attention to musical phrases—a group of about six to 11 notes that encapsulates a single musical idea. In fact, both musicians and nonmusicians need to hear the entire first phrase of a song before they can identify it, according to Schulkind’s research.

These findings add evidence to the theory that we think about music most

naturally as phrases, while whole songs are remembered by linking those phrases together, says Zehra Peynircioglu, PhD, a psychology professor at American University who studies music memory. Furthermore, they suggest that musicians and nonmusicians process music in much the same way, which counters past theories suggesting musicians store musical information in chunks as small intervals.

“Phrases are where music tends to naturally come to a gut-level stop,” says Peynircioglu. “They are short enough to

stay in short-term memory and they are also complete and self-contained, just like phrases in language.”

Phrase power

Phrases in language and phrases in music often go together, Schulkind says. In the song “Frosy the Snowman,” for instance, the first musical phrase matches up with the noun clause of the lyrics: “Frosy the Snowman.” The predicate of the sentence—“was a jolly happy soul”—synchronizes with the second musical phrase of the song.

In a study published in a 2003 issue of *Music Perception* (Vol. 21, No. 2, pages 217–249), Schulkind and his co-authors played “Frosy the Snowman” and other common songs to a group of nonmusicians—sounding the first two notes, then the first three, and so on. After every set of notes, the participants recorded whether they thought they recognized the song. When they felt confident enough, they guessed at its title. On average, it took about six notes for the participants to name the song.

The researchers analyzed each note in the piece of music to determine which of its properties—in relationship to the rest of the piece—might be helping the participants identify the tune. They found that about 30 percent of the time, the last note participants needed to hear fell on a phrase boundary, and about 20 percent of the time it was just one note off. They also found that participants tended to experience the flash of recognition when they heard longer notes and notes that fell on stressed beats within the piece.

Interestingly, long notes that begin on stressed beats tend also to occur at phrase breaks—especially among the common, catchy songs that were used in Schulkind’s study, notes Mari Riess Jones, PhD, a psychology professor who studies music memory at Ohio State University. These redundant cues may tell us when to pay attention, and when we can take a mental breath, she says.

“We use the temporal structure to keep on track as we are listening,” says Jones. “Your way to do that is to

synchronize your attention with the unfolding melody and the timing of the melody.”

Musicians vs. nonmusicians

In an as-yet-unpublished study, Schulkind repeated the experiment with musicians. On average, they took the same amount of notes to name a song as the nonmusicians. However, the musicians reported feeling a dawning recognition a few notes earlier than the untrained participants.

“We use the temporal structure to keep on track as we are listening. Your way to do that is to synchronize your attention with the unfolding melody and the timing of the melody.”

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Ohio State University

The results suggest that both musicians and nonmusicians remember music in terms of phrases, but that musicians can make finer-grained distinctions within those phrases, Schulkind says. They may be paying attention to the relationships between pairs of notes or how a note fits into the piece’s key—though that expertise doesn’t seem to help them identify songs, he says.

“Relatively trained musicians are more likely to make an incorrect guess, and nonmusicians are more likely to say, ‘I don’t know,’” says Schulkind.

Musicians, however, may be hampered in their recognition of songs because they know too many, says Simone Dalla Bella, PhD, a psychology professor at the University of Finance and Management in Warsaw, Poland. In fact, a study by Dalla Bella and his colleagues, published in a 2003 issue of *Perception and Psychophysics* (Vol. 67, No. 7, pages 1,019–1,028), suggests

that musicians begin to feel they are familiar with a song more quickly than untrained participants, but they take a fraction of a note longer to identify the tune.

“When the first few notes of a well-known melody are presented, more melodies in musicians’ memory—which are similar to the presented tune—are likely to be activated than in nonmusicians’ memory,” says Dalla Bella. “This would lead to the emergence of a feeling of familiarity sooner than in nonmusicians.”

But overall, musicians and nonmusicians seem to recall music in the same way—in phrases, says Dalla Bella. Like Schulkind, Dalla Bella found that both groups tended to recognize a melody and sing along as soon as they had heard one complete phrase.

Taken together, the results suggest that the songs that stick in people’s heads are the ones with clear phrase endings and simple melodic lines, says Jones. However, music that is too predictable quickly becomes boring or annoying, she notes.

“The really great tune crafters are people who can get the structure of a musical piece to work out on both a simple, elegant level and a sophisticated one,” she says. “This is why Mozart has lasted so long.”

FURTHER READING

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