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Peggy Curran

News

Why is it better to face the music?

PEGGY CURRAN

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Does the music sound better when Avril Lavigne tosses her hair or Yo-Yo Ma furrows his brow? Better ask a doctor.

Bradley Vines has just completed his PhD in psychology at McGill University, where his research focused on the visual impact of a musical performance. Scientist and musician - he has played the saxophone since he was 10 and moonlights in a Latino jazz band - Vines has long been curious to know whether going to a concert or watching MTV heightens or detracts from the music experience.

Vines, 27, has been awarded a \$40,000 U.S. grant from the Grammy Foundation to conduct post-doctoral research at Harvard University, where he'll use functional magnetic resonance imaging (fMRI) to track what goes on inside the listener's brain when Shania warbles and swings her hips.

"I've always been intrigued by the scientific aspect of musical performance - the perception of emotion, movement and the interpersonal relationship between musician and the audience," Vines said.

"Why do we spend so much to go to a live concert?" asked **Daniel Levitin**, Vines's doctoral supervisor at McGill and a leading expert in music psychology.

"For \$15, I can buy a recording that I could listen to for the rest of my life, as often as I want. The sound may even be better.

"At a concert, there's the coughing and sneezing and trying to see between other people's heads - not every seat is a good one. A concert happens when they decide to have it, not when you feel like it. So what is it that makes us willing to spend \$60 to go to the opera instead of listening to a recording?"

To find out, Vines used questionnaires and sliding scales to measure how study subjects reacted while watching a solo musician perform a work by Igor Stravinsky, an early 20th-century composer noted for his irregular melodies.

"We didn't want music that had toe-tapping beat, in case that caused a rhythmic pattern of movement that made it too stylized, predetermined," Levitin said. "We were looking for visual elements that reflected emotional expression, not time-keeping.

"When you see Ray Charles bopping back and forth at the piano, that's really time-keeping. What (Vines) wanted to gauge was the impact of more personalized elements of a performance, the effect of Liberace reaching across the piano keys or Elvis gyrating, or Billy Idol snarling at the audience."

Seeing a musician strain over a difficult passage can be fun, but Vines found that watching music performed doesn't automatically mean you'll enjoy it more. "Some flamboyant behaviour can detract from pleasure in the music," he said.

Using an fMRI, Vines hopes to map how different parts of the brain respond to visual, aural and emotional stimuli, beginning with very simple keyboard and drum beats that strike a universal chord. "Music is a window into brain function and cognitive skill," he said.

Such research may sound arcane, but Levitin sees practical applications. He's not alone. This year, the Grammy Foundation awarded 19 grants for academic projects and music preservation.

"This research will lead us farther down the road of defining the importance of music in education and its ability to enhance various therapies, as well as to manage the occupational challenges of music professionals," foundation president Neil Portnow said.

McGill now boasts the largest team of researchers in the world devoted to the science of music, with 20 professors in engineering, music, neuroscience, medicine, science and psychology attached to its \$50-million Centre for Interdisciplinary Research in Music Media and Technology.

In the long run, Levitin said, expanding our grasp of how vision and hearing interact inside our heads will help doctors understand the brain and treat patients who have suffered strokes, tumours or Alzheimer's disease. A McGill team is already working on a \$2-million project trying to develop a broadband Internet hookup that strikes the right balance between audio and visual components.

"So you have public health and the quest for a better home entertainment product," Levitin said.

Vines said his research has changed the way he feels when he faces an audience.

"What is it about actually seeing a performance that adds to the experience?" he said. "Music is unique in its ability to elicit rich emotional expressions and it is fundamentally revealing about human nature and the brain."

pcurran@thegazette.canwest.com

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