

Popping into the mind

Our ability to hold a hit tune could bring a better understanding of memory

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Even Sting's vocal inflections are copied when people are asked to sing his songs.

Madonna's voice or in Sting's voice were all there," he said.

He hopes that his discovery will help unravel some of the mystery shrouding how our brains store the millions of moments we experience every day. That, in turn, could help the scientific community help those who have had brain trauma, figure out how people could access memories they normally can't and even build computers that are easier to use.

What Levitin and other researchers are putting forward is not exactly new. In a sense, they are reviving a theory of memory put forward a century ago by the Gestalt psychologists - that everything we experience is somehow encoded in the brain and there for the taking, if we can only find it, Levitin said.

The idea fell out of favour and was resurrected by McGill's Dr. Wilder Pen-

field in the 1950s after he was able to trigger vivid stories from the past from patients by electrically stimulating parts of their brains while they were awake.

But Penfield's work later went into disfavour, his detractors arguing that there was no way of knowing if his patients' stories were real or just conscious dreams.

That the mind can recall music so clearly and accurately, in contrast with experiments that show that we may forget or invent details when remembering stories or events, shows that Penfield and the Gestalt scientists may not have been completely wrong, Levitin argued.

"It's really a window into the way the mind works and some evidence that the mind keeps track of a lot of details that we thought were lost," he said.

Perhaps part of the reason music sticks with us so well is because it taps into primitive emotional centres in our brains. Work Levitin has done with neuro-imaging has shown that parts of the brain that evolved very early on are active when people listen to music.

"We remember things best if they are emotional," he said. "You remember when your grandparents died or when your dog got run over better than you remember brushing your teeth on Thursday, Nov. 23."

And because, in our wired modern era, music has become a sort of audio wallpaper, it may act as a neural mark-

er for many of our memories.

"Music certainly acts as a trigger. It's sort of the soundtrack of our lives," Levitin said.

But the reasons certain songs appeal to some people and make others want to gouge out their eardrums with a sharp, pointy object are complicated and can go beyond base feelings.

We tend to like music that is somewhat familiar but, if it's too familiar, we realize that the musician is tricking us with a cheap copy and we don't like that, Levitin said. However, some of us are more musically sophisticated than others.

"After I've heard one Ricky Martin song, I don't need to hear any more, but to his fans they all have subtle differences," he said.

In the end, Levitin hopes that finding out more about how our minds digest music will have practical purposes.

Understanding more about how the brain works can be used to create computer software and other tools that are designed in a way that won't frustrate people. It could help people who have had strokes or who have hearing impairments recover. And perhaps, one day, it will allow us to find sensual triggers to access memories locked away in dusty corners of our minds.

"In the last couple of decades, things go so fast and we meet so many people, evolutionarily speaking, we're not ready for this," he said. "I don't think it's narcissistic to want to keep track of it all."

Ask a group of well-wishers to belt out Happy Birthday at a party and usually you'll get a version sung in about eight keys simultaneously.

But ask someone to do an a cappella version of their favourite pop song and, allowing for vocal talent, you'll get an amazingly accurate version of Sexx Laws or Shake Your Bon Bon.

That simple phenomenon is helping scientists like McGill musician-psychologist Daniel Levitin figure out how our brains work, especially the morass of our memories.

"Rock'n'roll songs are kind of an experimenter's dream because they exist in the world in one version and people have heard that same version a hundred times or a thousand times," said Levitin, who recently joined McGill's psychology department.

"It's interesting because for a lot of the songs we sing, like Happy Birthday, there isn't really a standard version of it out there."

So, as part of his research into how aural memory works, Levitin simply asked his subjects to sing him hits they knew well. When he compared recordings of their versions to the real thing, he found that they remembered them almost perfectly.

"They were singing at the right pace and the right notes and a lot of the little inflections that you might hear in