

# Dr. Rock 'n' Roll

Daniel Levitin has always had music on his mind, writes **ANNE McILROY**. In his first career, he produced hit records. Now a scientist, he studies how the brain is hardwired for music

MONTREAL

**W**hen McGill University researcher Daniel Levitin was studying for his doctoral exams in psychology, Stevie Wonder phoned his dorm to ask for help on his latest album.

Rock stars don't normally phone budding scientists for advice, but Levitin was — and still is — an unusual combination of egghead and hipster, with one foot in the dingy hallways of academia, the other in the glamour world of pop music. After 10 years as a record producer in California, he turned to science and last year joined McGill to do experiments on music and the human mind.

In conversation, he is part Discovery Channel, part *Entertainment Tonight*. He starts out very much the professor, talking clinically about his many research interests, including a genetic syndrome that leaves children intellectually incapacitated but with their musical abilities intact. Dr. Rock 'n' Roll soon takes over, pulls out his Stratocaster for an impromptu solo, and rhapsodizes about the time Carlos Santana let him play his electric guitar.

He's got gold and platinum records and publications in prominent science journals to his name. He has interviewed both the tone deaf and k. d. lang. He made his reputation as a record producer working for the Carpenters, Steely Dan and Santana, but established his scientific credentials with unknown vocalists, testing the memories of university students by asking them to sing rock songs.

"I had always thought of myself as a scientist," insists the 43-year-old Levitin.

But that is not what he told his parents when he dropped out of university because he was drawn to the music business. At 23, he managed to break in as a producer, making demo tapes that got air play and the attention of well-known musicians, who started asking him to help produce their albums. He liked the challenge of making artists sound their best and the thrill of hanging out with Santana and Tori Amos and meeting music greats like Oscar Peterson, whose hands, he says, are enormous. But he hadn't entirely turned his back on academia, and started attending



ANDRÉ PICHETTE/THE GLOBE AND MAIL

## Daniel Levitin's brushes with greatness



**Neil Young**  
Said there were thousands of unknown musicians more talented than himself.



**k.d. lang**  
Made out with her girlfriend during an interview with Levitin.



**Joni Mitchell**  
Compared herself to the Almighty.



**Carlos Santana**  
Let Levitin play one of his treasured guitars.



**Paul Simon**  
Walked round the room composing music in his head.



**Richard Carpenter**  
Talked like the movie character Austin Powers.

neuropsychology lectures in his spare time.

Maybe it was the nagging feeling that the music business might not be for him after all. Top-ranked record producers can spend two days positioning a microphone on a drum. He knew it would take years to be among the best and by the time he decided to go back to school he had already been climbing the ranks for almost a decade.

He was also growing frustrated with the unfairness of the music world. Some of the most talented artists he worked with had to wait tables for a living, while others with far less ability became superstars. When he returned to university to finish his BA in psychology and pursue graduate degrees about 10

years ago, he began a quest to find out why.

He interviewed Neil Young, Paul Simon, k. d. lang and Joni Mitchell. "With the exception of Joni, they all believed their success was accidental."

While Mitchell compared herself to Jesus, Moses and God, the rest said they were famous because they were lucky.

He interviewed Simon in his Manhattan studio while he was writing *The Capeman* musical. They sat on the floor in front of loudspeakers, surrounded by African tapestries and art, and Simon started playing some of the background tracks for his music.

"As I sat there, at some point he stood up and started walking

around the room, humming, crafting the melody right there in front of me. I actually heard him trying out different melodic ideas over the tracks, and saw him composing."

Lang turned out to be the most difficult interview: She wore skimpy clothes, flirted with him, and then made out with her girlfriend for half an hour while Levitin watched. He was so unnerved he forgot to turn on his tape recorder. Later, he had to phone back and redo the entire interview.

Neil Young was the most straightforward about his success, and "not the stoned out space-head some people might think," says Levitin. Young said there are thousands of guys as gifted as he is, or more talented, but nobody knows

about them because they don't have record deals.

Levitin wasn't surprised that the musicians confirmed his ideas about fame and talent: "There is this artificial sieve, and nobody can figure out how it works. It is a turnstile, and some people get to go through and become rock stars, but it isn't because of their talent."

The interviews were just the beginning of his academic exploration of music.

Today, Levitin is attempting to objectively measure and study musical ability in the laboratory. What sets genius apart from merely successful musicians? Do their minds and memories work differently?

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# Levitin wants to know how our brains are wired for music

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He is chatty and fun when he talks about his punk rock days or the famous musicians he's met, but becomes very clinical, very serious, when he talks about his research interests. He plays around with his electric guitar in one instant, putting on a spontaneous performance.

A few seconds later, he is describing parts of the human brain, or explaining how his computerized piano can measure the physical differences between the performances of a professional and an accomplished amateur.

The classes he teaches are also a mix. Bernie Taupin, lyricist for Elton John, and Robert Lamm, founder of the band Chicago, once came to a class he was teaching at

California's Stanford University to talk about their role in rock history.

"They came on their own whim, at their own expense, just because they thought it would be cool. These are guys who play in front of 50,000 people and have sold more records than almost anyone else."

But he didn't turn to famous names when he got serious about establishing his academic credentials. As part of his first important experiment on memory, he had asked dozens of university students to sing a song from a list of about 600 tunes.

Levitin's experiment showed the students accurately remembered the pitch and tempo of the songs they chose to sing. Their near-perfect renditions of music by the Police, Prince and Madonna changed the way scientists view the accuracy

of human perceptions and the brain's ability to retain information. It was the first time somebody thought of using pop music to test memory. He says he was embarrassed when he first heard other researchers referring to the "Levitin effect."

His latest research asks whether amusia (tone-deafness) is innate, like colour-blindness, or learned?

Levitin also wants to know how our brains are hardwired for music. As part of that investigation, he is working with children and young adults with William's Syndrome, a genetic disorder that leaves those who are born with it with diminished intellectual capacity but still able to understand and perform music at roughly the same level as their peers. "They can lose their ability to do things like tie their

shoes or tell time, but their musical ability appears to be pretty much intact."

Geneticists appear to have figured out the roots of the problem. Healthy people have two copies of every gene — one from their mother and one from their father. Children with William's Syndrome are missing one copy of the gene that makes elastin. Elastin is what gives elasticity to our tissues and organs, and is found in the walls of our arteries, lungs, intestines and skin. It makes our skin look young, but we stop producing it at puberty. It also plays a role in brain development.

Studying exactly how the brains of people with William's Syndrome process music could provide fascinating insight into how all of our brains work, and how genes influ-

ence behaviour.

His work on William's Syndrome, tone deafness and attempting to measure genius with an electronic piano are paid for by The Canadian Foundation for Innovation, Natural Sciences and Engineering Research Council and the Quebec government. His grants add up to a total of \$900,000.

Quebec is paying his salary for five years because his research is seen to benefit the strategic interests of the province.

"In my particular case, it was based on an assessment that my work is very relevant to applications in the high-tech industry, particularly to speech-recognition systems, speech-production systems, artificial intelligence, hi-fi and audio-component design, and expert systems."

The strategic interests of Quebec seems a long way from the recording studios of California. Those were the days when Richard Carpenter, who talks like the film character Austin Powers, would insist on changing a single note in an old recording before putting it in a greatest-hits package, and Stevie Wonder would phone to chat in a phony jive accent.

Today, he is far more firmly rooted in the dingy McGill biology building than in the glamour world of rock 'n' roll, and says he has no regrets.

He insists he is no more hip than his fellow professors. Hipness, by his definition these days, means being completely absorbed by your field of scientific interest. "I couldn't be happier about where I am working."