

## Harmony in the Laboratory

by Jocelyne Morin-Nurse

Is it better to start learning to play the piano with written music or by ear? How does sight-reading develop? What is the best teaching method? These mysteries and many other questions about piano pedagogy are being investigated by a University of Ottawa team composed of musicians, psychologists and engineers. This slightly unusual but extremely fruitful alliance is led by Gilles Comeau, associate professor at the Department of Music. Operating in a high-tech music laboratory, this multidisciplinary team is attempting to quantify something—music teaching—that typically is assessed mostly by intuition.



Credit: Mélanie Provencher

*Professor Gilles Comeau is using Robert Lemieux to test new ways to teach piano.*

The Piano Pedagogy Research Laboratory is interested in all aspects of piano instruction, teacher training and student learning. According to Professor Comeau, "The aim is not to develop a new way of teaching, but to critically examine current trends, practices and methods in order to shed some new light on these activities and to understand them better through scientific measurement." Some of these teaching methods were developed more than 50 years ago and are still in use today, more out of habit than by inherent merit.

The key to the research carried out by Comeau and his team at the Laboratory is cutting-edge technology. Using special equipment, such as small computers hooked up to pianos, teachers can now precisely measure a student's performance. A graphic representation of the performance is produced and may be superimposed on another to quantify the differences between the two performances. What's more, when coupled with video cameras, the computers make piano teaching by distance learning possible. When the teacher demonstrates something on the piano, the information is transmitted by fibre optic cables to a similar

computer attached to the student's piano, which then reproduces exactly what the teacher played, including the precise touch on the keys and pedals. Because of the fibre optic cables and not by telephone, there is no sound distortion; instead, the student hears the result directly from his or her own piano.

For two years now, Erin Parkes, a master's student in music, has been using this system to teach piano to a group of Inuit children, aged six to seven years. She also teaches, in person, several groups in Ottawa. By comparing statistics on the two groups, she can see that both are progressing at the same pace, and that distance does not affect the quality of instruction.

In addition, this research helps to promote better posture and technique. Musicians are constantly busy with rehearsals and performances, often maintaining unnatural physical positions under stressful conditions. The result is that many suffer from repetitive strain injuries, the same type of condition caused by long and frequent use of a computer keyboard.

"Many musical careers are ended because of limb and joint pain," points out Professor Comeau. "Musicians can develop tendinitis, back problems and excruciating pain in fingers and hands, limiting their ability to work. These problems often start with students and are not restricted to professionals. We believe that we need an approach to this type of problem, and that's why pedagogy is focusing on better posture and trying to promote better use of the body in general."

The multidisciplinary research carried out at the Piano Pedagogy Research Laboratory gives hope to musicians suffering from physical problems and opens up previously unheard-of possibilities. "I believe it's unique to have such a detailed insight into piano pedagogy," says Comeau. "The work we are doing here at the University of Ottawa forces us to look deeper, to reassess our teaching methods, and to examine the reasons underlying our ways of doing things. The members of the psychology and engineering teams have demonstrated great openness in joining their research to ours, and our collaboration has given rise to projects that I would never have dreamed of."

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*Jocelyne Morin-Nurse is an Ottawa-based writer.*