



Teaching and Coaching via Internet2 Manhattan School of Music has a worldwide reach

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When the Teacher's on Tour

ON A WINTER DAY at the Manhattan School of Music, Jesus Reina, 23, has just played the Paganini Caprice No. 24 for his teacher, Pinchas Zukerman. "Why don't you start like a real Mensch?" Zukerman says. He lifts his violin and demonstrates the opening passage. Suddenly the piece comes alive with a full, rich vibrato. Reina takes a deep breath and repeats the phrase, imitating what he has just heard. Zukerman listens, contemplating, and then responds: "You are squeezing too hard," he says, explaining that it will affect the intonation. "Let's talk about how you're going to practice this." He advises Reina to play the passage in different rhythms, and repeat each exercise twenty times.

But Zukerman is not sitting in the same room. He is in Ottawa, watching his student in high definition and listening in real-time from a sound system at Canada's National Arts Centre. Back in New York, a pair of large television screens shows Zukerman on one monitor and Reina on the other. Zukerman's assistant, violinist-violist Patinka Kopec, sits at Reina's side and Tatiana Goncharova accompanies him on the piano.

The lesson is made possible by

videoconference technology that the Manhattan School has been pioneering since 1996. Zukerman first brought the idea to then-president Marta Istomin so that he could teach despite his hectic, international touring schedule. In the years since its introduction at the school, distance learning is playing an ever-increasing role in the advancement of music instruction and performance.

The Manhattan School, under the direction of the current president, Robert Sirota, continues to be at the forefront of this developing technology, using video conferencing for auditions, masterclasses, concerts, and outreach, both in classical and in the school's extensive jazz program.

Live video conferencing is carried over Internet2, an ultra high-speed fiberoptic broadband network that



originated for educational purposes in the mid-1990s as an alternative to the slower, household and commercial Internet. When connecting within the U.S., the broadband has a speed 100,000 times the capacity of a cable modem, making the transmission of audio and video images almost instantaneous.

The Manhattan School's Dean of Distance Learning, Christianne Orto, has been an important partner

in the development of this technology, having worked directly with the software provider Polycom to help develop a system capable of carrying the nuances and breadth of sound needed for instruction. The network has steadily expanded, and now links 212 American universities and more than 50 international partners. The quality of transmission has become so good that Zukerman says he can sit back and enjoy his students' playing. "We've literally come from the walkie-talkie to the real thing," he says. He adds that the audio system allows him to pick up on details he would not necessarily hear in the same room. "The microphone is so sensitive to small differences in sound that we can discuss many ways of perfecting the students' playing," he adds.

From the student's perspective, distance learning allows for regular contact with Zukerman, but it may also add another level of pressure. "I find it easier to play on stage for a thousand people than in that little room with a camera, two or three other people, and Zukerman on the screen," Reina says. Anne Margerethe Nilsen, 22, who has been in the program for the past year, finds that videoconference sessions make her work harder, because Zukerman will "drop in" so often. "You don't get many chances to play in front of important people like him," she says.

Students can continue to study from their dorm on DVDs that document every distance session. Nilsen says that the school's archive of recorded lessons has, in a sense, let her have more lessons with Zukerman. "You can watch tracks of each lesson over and

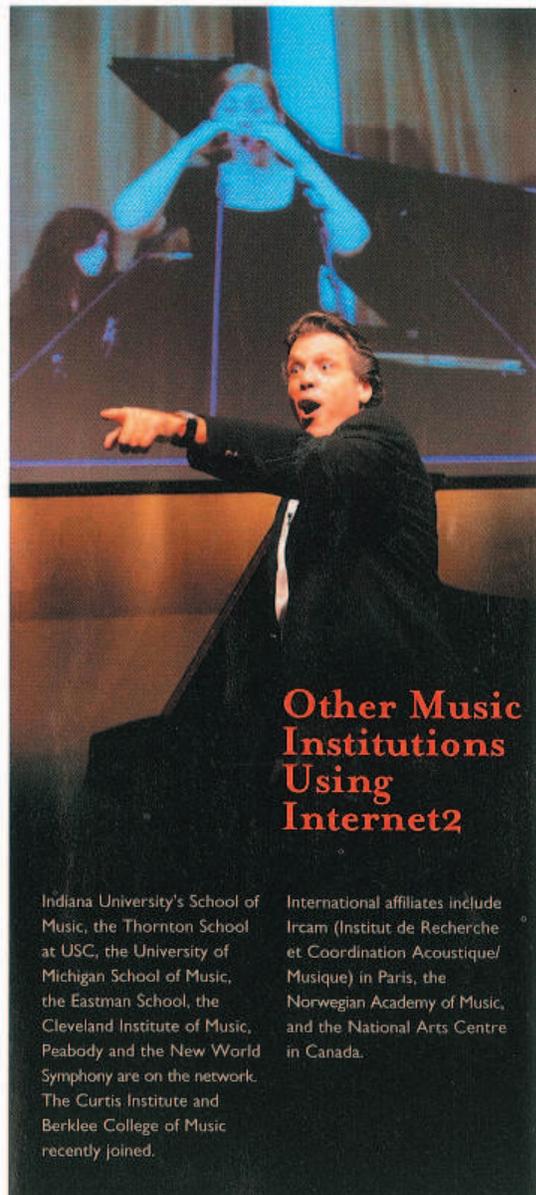
over again and study lessons from years back to see how you have improved," she says. "You can also learn from watching other students' sessions." She adds that it is good practice to play in front of a camera and be recorded. Despite his nervousness in playing on camera, Reina says the ability to observe videos of himself side by side with Zukerman is invaluable. He also mentions that they have captured close-ups of Zukerman's fingerings and bowings that offer a perspective one couldn't have in person. Zukerman believes that the video recordings can augment the learning process as much as tenfold, but adds that they are there only to help students correct their mistakes next time they pick up an instrument. "It still takes time to practice and make it part of your DNA," he says. "You learn from repeating and repeating and practicing; The brain cannot change fast. But the technology can show you where you came from, and that's tremendous."

While no one in higher education thinks that real-time instruction will replace one-on-one contact; it does allow a world-traveling performer like Zukerman to be a conscientious teacher. He returns to the Manhattan School as often as he can throughout the semester and reaches the students several times a month by videoconference. Students maintain their skills in weekly lessons with Kopec, who has studied with Zukerman since high school. Nilsen says that after working through a piece in its early stages with Kopec, she can

play it for Zukerman as if it were a performance. She adds that the presence of other people in the room sometimes creates more of a master-class atmosphere. Reina says that after working on "a good first draft" with Kopec, he can take the music to another dimension with Zukerman during distance sessions. "It's good to have a combination of live lessons and videoconferencing," he says.

Distance learning can be a challenge if the participants do not know each other beforehand,

BARITONE THOMAS HAMPSON GIVES A MASTERCLASS FROM MSM TO STUDENTS AT CURTIS



Other Music Institutions Using Internet2

Indiana University's School of Music, the Thornton School at USC, the University of Michigan School of Music, the Eastman School, the Cleveland Institute of Music, Peabody and the New World Symphony are on the network. The Curtis Institute and Berklee College of Music recently joined.

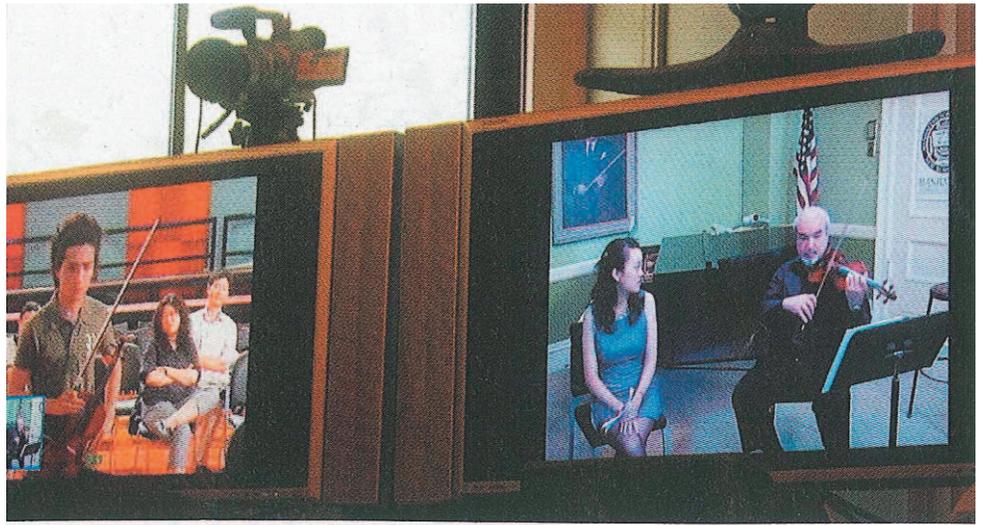
International affiliates include Ircam (Institut de Recherche et Coordination Acoustique/Musique) in Paris, the Norwegian Academy of Music, and the National Arts Centre in Canada.

however. In 2007, as a professor of composition, Sirota had the opportunity to teach a masterclass to students in Shanghai. In order to transcend the cultural construct in Asia, that doesn't encourage students to speak freely unless the teacher explicitly asks them to, Sirota began a roundtable discussion to see who was the least shy. He then picked that student first to demonstrate a composition. Once the session got into full swing, Sirota says, it was just like being in the room with the other participants.

"The technology tends to recede," he says. "You're not so aware of it because the quality of transmission is so good."

Kopec agrees that once you become comfortable with the camera, it is possible to talk and respond as naturally as one would in any teaching situation. She says that while people tend to feel like they're on TV at first, most are able to overcome this impression. Sirota likens distance technology to the telephone. While people used to scream into the receiver to compensate for the great distance and the poor sound quality, a transcontinental phone call is no longer a big deal because we can hear one another clearly under almost any circumstances.

Although slight delays may occur with increased distance and the number of parties involved, the network is constantly improving. Its members are involved in the process of perfecting the technology according to their specific needs. Internet2's senior program manager for arts and humanities initiatives, Ann Doyle, mentions a breakthrough in early March this



MSM's GLENN DICTEROW, CONCERTMASTER OF THE NEW YORK PHILHARMONIC, TEACHING STUDENTS IN SHANGHAI

year, when the conservatory of Trieste in Italy succeeded at having two pianists play a Bach duet across 110 kilometers (68 miles).

"We may simply be too far to play simultaneously from Trieste all the way to L.A.," she says, "but we're closer and closer to being able to do it from New York to Boston, New York to Cleveland, or Denver to L.A." As Internet2 expands internationally, the next challenge will be to connect all its affiliates with the same level of accuracy.

Orto says that while the technology used to be limited to a few privileged institutions, it has become more standards-based and affordable. She has helped implement real-time learning programs around the world. Most recently, the Aldeburgh Music Festival approached her to launch a videoconferencing system to coach a world youth orchestra for the 2016 Olympics in the UK. She has worked with the Kronberg Academy in Germany, the Spokane Symphony Orchestra, and is in close contact with Lawrence Dutto of the Emerson String

Quartet to start a program at Stony Brook University. While an entry-level videoconferencing system costs between five and ten thousand dollars, she said that, for such institutions, a set-up would cost up to \$50,000.

The Manhattan School recently teamed up with Australian National University in Canberra, where Orto also helped install facilities for the music school. Australia's large research cohort will combine with MSM's expertise in performance to determine the most efficient methodologies for distance learning. "The ramifications of the technology have not been completely absorbed by this school or anywhere else," says Sirota. The school is just beginning to scratch the surface of ways distance technology might be used. In a survey two years ago, 75 percent of the school's faculty and students said they would prefer auditions by videoconference to sending in a DVD because of the opportunity to interact. Orto mentions travel costs and concerns about security as further incentives to turn to real-time interaction.

With a student body that is 40 percent international, the school uses videoconferencing to forge closer bonds with the young artists' home countries. The school's friends and family weekend features a student showcase concert that is streamed live to Seoul, Korea. Sirota says that events like this have made the Manhattan School more visible worldwide. He considers it a priority to foster the development of the Global Conservatory, an online platform for distance learning at the school that features a video-conference program series and an archive of masterclasses and concerts. Sirota hopes that faculty and students will have more and more opportunities to influence musical life around the world as teachers and performers. So far, the school has reached thirty states and fifteen countries through distance technology-including New Zealand, where the school has given classical guitar lessons.

The Manhattan School is currently devising a viable business model for its applications, live streams, and library of recorded lessons. Sirota explains that the issue has not been resolved any more in conservatories than in the recording industry. Since musicians can no longer make a living solely from concerts and cutting records, the challenge for both educators and professional musicians will be how to store, disseminate and make content available in a fair and profitable way, he says. Another challenge will be to retool music schools over the next twenty years so that students leave with a multimedia document. "I'm very careful what I call it because I don't think it's going to be called a DVD in twelve minutes," he says. "It will

probably be something the size of a head of a pin, or just a place where you punch in a number."

He adds that students must become very sophisticated in learning how to reproduce and market their product.

Although rapid technological developments are keeping faculty and young artists on their toes, distance learning may be able to carry Classical music and jazz through the digital revolution.

Videoconferencing can reach any corner of the world, but it also preserves a tightly knit community through its intimacy. Zukerman considers real-time communication fundamental if serious music is to remain intact as an art form. "We can't go back to salon concerts," he says, "but we can certainly go to small venues through technology, which is kind of what we're doing with the lessons."

Rebecca Schmid graduated from Brown University with a B.A. in music and comparative literature. She recently received her master's degree from the Goldring Arts Journalism Program, S.f Newhouse School of Public Communications, Syracuse University, and is now continuing her journalism studies at the Freie Universitat Berlin.