

report

Sibelius-Academy
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The videoconference mediated master class for conductors by Jorma Panula

The Pohjois-Savo Polytechnic, School of Music and Dance, produced Jorma Panula's master class 15.-21.8.2002. It was held in the chamber music hall of the Music Centre of Kuopio and its closing concert was in the Town Hall. The course was organized by conductor Rauno Tikkanen. With him Matti Ruippo made earlier an agreement about videoconference tests. The idea was to repeat distance master classes that was kept between Canada and Finland in June. At the time Jorma Panula's and Pinchas Zukerman's master classes were sent to Sibelius Academy. Jorma Panula agreed willingly these new tests.

The aim of this trial was to test microphone and camera arrangements, on-demand video capturing and session directing. In addition there were observers who made comments from technical and pedagogical points of view. The principle of the test was not to interfere with the course.

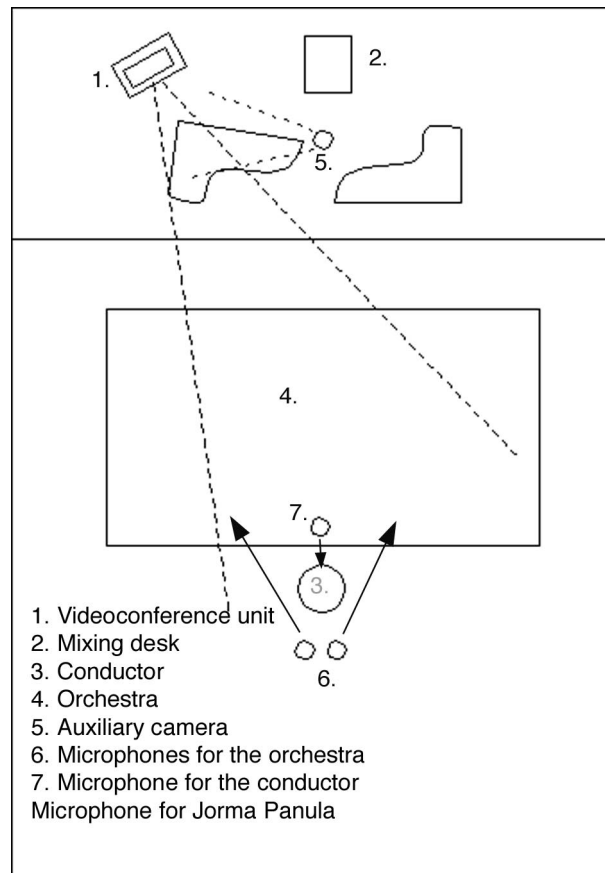
The trial was made during three course days: 15.-16. and 20.8.. The two days in the beginning contained connections between Kuopio and the International Centre of Chamber Music Kuhmo. On the third day there were connections to Kuhmo, to Sibelius Academy in Helsinki and to Indiana University Purdue University Indianapolis.

In Kuopio senior planning officer Matti Ruippo organized the technical framework, in Kuhmo researcher Philip Donner organized videoconferencing, video streaming and capturing. In Helsinki videoconference was set up by IT manager Keijo Lahtinen and in Indianapolis by Dr. Fred Rees. All the arrangements were made using the equipments that already existed, no devices nor services were especially provided.

There were also two other observers in addition to the previous: conductor Jukka-Pekka Kuusela in Kuhmo and conductor Eva Ollikainen in Helsinki. They had received beforehand information about the rehearsals and they had appropriate scores with them.

Technical arrangements

The room.



The course was held in the chamber music hall of the Music Centre of Kuopio. On the platform there were two grand pianos for Panula and the students. There were also several video cameras, which students used to tape their conducting. On the floor there was the E5-Orchestra, back toward the platform, conductor was face to platform. By these arrangements Panula and the students could follow conducting.

The equipment

The videoconferencing unit was on the platform. It was connected to FUNET via 10 Mbps ethernet. The unit itself was Sibelius Academy's Tandberg 800. The monitor was 32" Barco. It was on the

carriage and Tandberg was on the monitor. The carriage was back left to Panula's grand piano so that it was possible to follow conducting from the same angle than Panula and the students did.

Cameras

The videoconferencing unit itself had a motorised camera. To its presets there were saved two positions: a close-up of a conductor and an overall view. The latter one was used for following Panula. It was possible to call these presets from both local and farend site's controllers. Of course it was possible to pan, tilt and zoom the camera. Jukka-Pekka Kuusela suggested on the first day to take an extra camera to follow Jorma Panula at the grand piano from front view. A Panasonic DV camera was connected via S-VHS cable to Tandberg's aux port.

Microphones

Tandberg has two microphone inputs. To the other port was connected unit's own Audio-Technica mic. There were six microphones used for capturing the audio elements of the course. These mics were hooked to a Soundcraft Spirit mixing unit. According to preceding plans it was made

possible to observers to select from farend different microphone mixings, but during the sessions it turned out that selection was done best by the local engineer. The microphones and also one output from the video conference was connected to the mixer. This made possible for the engineer to follow the comments with headphones from the farend site.

On the floor there was a stand in front of the orchestra. There were two xy-paired condenser microphones (Sennheiser MKH 40) and one omni-directional microphone (MicroTech UM70 S). The stereo pair was to switch in to monaural in the mixer, because videoconference transmits only monophonic audio. The idea of two orchestra microphone setups was to compare the sound quality of each.

On the floor there was also one hypercardioid microphone (Sennheiser) for the conductor. Jorma Panula had a lavalier microphone (AKG CK97 C). With these mics it was possible to follow conductor's comments to the orchestra and the discussion between the conductor and Jorma Panula. The audio engineer used condenser microphone (Shure SM 87 Beta) for communication to the farend site.

Findings from the technical realization

These findings are brought out from the comments of the observing group (Donner, Kuusela, Lahtinen, Ollikainen, Rees, Ruippo).

Connections

There were practically no problems when the connecting between two places. There were problems, though, with the connections. First thing that fixes one's eyes on is the synchrony between video and audio. Conducting an orchestra is a critical test to this synchrony. The connection to Kuhmo suffered from the asynchrony. Especially when there were changes on the whole screen, the synchrony was lost. This was obvious because Kuhmo's unit was connected to a 512 kbps ADSL net. Philip Donner thought later that also the asynchronous mode of ADSL itself caused some problems to the videoconference unit.

The connection to Helsinki was first opened at full speed (768 kbps), but because of the problems, the speed was halved. There were occasionally still some problems with the video, the movement of the baton froze occasionally.

The connection (768 kbps) worked best to United States. Fred Rees was very surprised:

"I was impressed by the lack of delay between sound and video. This may have been an illusion on my part, as I could not see the student conductors' or Panula's mouth moving. However, I could track bow movement among the strings, and could not clock any significant delay. I understand that every Internet2-type connection varies in the

quality of service (QOS), so the same session tomorrow might reveal different results from today.”

One has to mention that the connection was opened at 3.45 AM there, so the load of the net was minimal.

Lighting

The lighting of the hall was modest. It was difficult to follow the mimics of the conductor. Some extra lamps were brought to the hall but they helped only the players. On the platform there was light enough and the picture from the auxiliary camera was excellent. The observers found that the modest lighting was not a problem. ”The ambient light for video was good enough for the transmission.” (Rees)

The setup of the equipment

The position of the videoconferencing unit was appropriate. It was possible to follow students and maestro on the platform as well as conductor and the orchestra on the floor. The engineer sat aside so that he could change camera angles with the remote controller and follow the audio signal with Tandberg's level meters. The video was normally in selfview mode so that the outgoing video was the large one and incoming video the small one. By this arrangement it was easier to monitor the cameras.

Cameras and camera angles. Cameras were directed locally but Jukka-Pekka Kuusela also used the possibility to control the camera from the farend site. He could, thus, choose the target according his own interest. The way of the Jorma Panula's instructing varied. In the beginning of the course he sat at the grand piano on the platform, so the Kuusela's method was viable. Towards the end of the course Panula walked on the floor and then it was – to the purpose – better that cameras were directed locally.

”Matti, I thought about moving your camera around to look at things about which I was interested, but preferred your camera movements because you captured Maestro Panula’s background gestures to the students’ efforts. This was quite important – thank you.” (Rees)

If Jorma Panula was near to conductor then both of them were in the camera, otherwise either of them was captured, mainly the conductor. An overall view was used during the changes of the conductors.

The observers asked for more camera views. This would have been more versatile for the observers but the drawback is the more complex setup.

”One interesting view to conductor is from the side, both from violin and cello side. It would be also fantastic if one camera could follow Panula all the time and that video could be pasted as a small screen to the video. Even his growling and arm movements are very instructive...” (Ollikainen)

The sound

The sound quality should have been better. It was good enough for following the course, but the timbre of the orchestra was thin. The bass was absent and details were missing. The monophonic sound was felt flat. Besides there were many breaks in the Helsinki connection.

Philip Donner reminded the concept of HiFi-conference from the previous spring. (More info from [<http://ilmari.siba.fi/users/pdonner/VCGamba/>].) Then the audio was mediated with ISDN-based radio-technology. He also emphasized that a professional audio and video production team would benefit these projects. Now all the camera and audio settings were made by one person (Matti Ruippo).

Levelling the audio. It was quite awkward to adjust audio levels. There were also some bad luck because in the first session the headphone control of the mixer (Allen&Heath) was broken. First, one had to decrease the input gain of Tandberg. The microphone gain controlling was tricky and it had to be done by very unusual method. Normally one listens to the monitor speakers. Now these speakers were hundreds of kilometers away in the far end site. Also it was impossible to do any preceding sound check with the orchestra, one could not ask from the orchestra "please play some forte part for my testing" because our starting point was to be invisible and not on the way of the course. The adjustments had to be done by asking from observers, adjusting with mixer sliders and then levelling from Tandberg's audio meter. While the mixer was in the same room with the orchestra, the fine tuning was impossible. A decent monitoring of the audio chain would have reduced a lot of the problems. Of course a professional audio engineer could have produced a quite good sound instinctively.

Microphones. The microphone plan was reasonable successful, but there were some points of improvement. The stereo pair for overall microphone was better than one omni-directional. The latter one functioned well in a medium sized room with cellos but in this test it picked up too much room echoes. Some extra mics for the orchestra would have increased the quality. Again we have to think the proper relationship between the number of technical equipment, staff members, etc. and the resources in use.

The microphones of conductor and Jorma Panula worked well. The handheld condenser microphone of the audio engineer was a wrong choice, a plain dynamic would be better.

The mixing. The channels of the mixing desk were opened according to the situation. The stereo pair were usually open all the time. Very often also Panula's mic was open, because he made comments during the orchestra's play. The conductor's microphone was open during his instructions to the orchestra. Often were all the four channels open, since it was reasonable. Panula or conductor might say something quite suddenly.

"The microphones of Panula and conductor should be open all the time because their practice is to instruct during the play. I caught all the Panula's comments, but it is probably because I have learned them by heart. The comments of the conductors sometimes shrouded, it might be due to their unclear expression." (Ollikainen)

During the communication between audio engineer and observer only the handheld microphone was open. Incoming audio was all the time open to headphones so that the observer could always make proposals.

Pedagogical point of view

Panula and the students

Jorma Panula and his students were apparently interested in the trial. Panula asked several times what should he do. The only guidance was a bashful comment "do what you normally do". In the future a preceding negotiation should be done and thus benefit his obvious motivation.

Fred Rees made the next comment after the session:

"Obviously, Panula's knowledge and talent, with a wonderful ability to convey musical information with his whole body, (although translated mostly through his stance and his arms, as opposed to American conductors) was evident. This is neither a matter of attaining physical agility in conveying a musical signal to the players, nor a contrived gesture to accomplish the same, but a genuine or authentic movement that follows the music and is recognized by the experienced performer immediately. The conductor, as renderer or interpreter of the music has to undergo such a long period of training, education, reflection and interaction with performers that the wisdom of what to say with one's hand and with a minimum of talking, can only be achieved through the kind of intelligence, musicianship, and talent that Maestro Panula possesses. He may be "retired", but he has so much to share. I hope that we are wise to recognize his knowledge when it is presented to us."

An agreement was made with the students. They will get this report, also a permission to use the videoclip will be asked. Philip Donner made a RealMedia video from the last session 20.8., it is found from URL [<http://ilmari.siba.fi/users/pdonner/panula>].

Some comments and future plans for pedagogical use

Observers wrote down following comments:

- Is it possible to arrange a course, where a class somewhere in the world with their teacher is following scores at hand? During the breaks they could interview Panula (or whoever the maestro is).
- Excellent opportunity to study repertoire and receive new artistic impulses.

- It is not always possible to study pieces so well that one can conduct them. Now it is possible to learn by listening and watching what are the difficult places, what is difficult there, how to rehearse them. Those things can't study from the records.

- It is of course not possible to learn only by watching but at master level it is very instructive to follow other's faults – nearly the same than conducting oneself.

Eva Ollikainen listed possibilities for master classes and videoconference: At Sibelius Academy there is probably next spring a master class by Esa-Pekka Salonen, in Lithuania there is a famous Erasmus Conducting master class and naturally master classes in Tanglewood and Aspen are interesting, maybe the rehearsals of famous orchestras, opera products, etc.

Already there have been negotiations between Philip Donner, Fred Rees and Matti Ruippo to continue the HiFi-conference evaluation and to test MPEG-encoders.

”It would be very interesting if we could use the VBrick technology (employing the Mpeg standard) to conduct another session of this kind. I think that you would be impressed with the results.” (Rees)

There have also been negotiations between Matti Ruippo and the intendent of the Kuopio Symphony Orchestra to continue test during this season. Rauno Tikkanen is making plans to include conducting to the plan of studies at Pohjois-Savo Polytechnic. And of course there are plans to include videoconference to Jorma Panula's following classes.

Conclusions

The videoconference connections over the Internet were solid but some transmission problems occurred. The connection time itself does not make extra costs which naturally makes the use more tempting. The level of audio and video quality will increase in the future due to better bandwidth and equipment.

The conductor master class is suitable for videoconference. The audio quality was decent enough for following the course although there is a place for enhancements. The comments of the instructor and the observation of student's work had the first preference, the timbre of the orchestra came after them.

One statement for distance studies is that these kind of master classes are very rare, therefore there is an extra need for them. Similar arrangements suit well also for choir leaders. Of course videos – normal or netcasted – increase the usability.

The international collaboration is also an opportunity for cultural exchange. Students from distant places have a chance to become acquainted with – in this case – Finnish music and style supervised by a Finnish instructor.