

Pure Research Report - December 2006: ***Sound Manipulation***

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The *Pure Research* project of Cathy Nosaty, Laurel MacDonald and Philip Strong was to experiment with Ableton Live, a multi-track audio recording software which offers several possibilities for immediate manipulation and playback, ie. looping, pitch change, audio effects and filtering. We determined to conduct this research with the assistance of several senior artists from different artistic disciplines.

We began with the following questions: How could Ableton Live software be used in a theatrical performance to 'collect' voices and sounds from the audience and use them in the performance? How might one collect sounds from an audience in a theatrical way with a minimum of instruction? How might artists from various disciplines use Ableton Live in different ways than might occur to a musician? Can the physical steps required to use the software be extended to physical movement, sound creation and storytelling on stage?

Day 1 A.M - LAUREL, PHILIP, CATHY, JESSICA and BRIAN

The goal of this morning was to set up and test the software and audio equipment. We set up 2 microphones, each with a pedal to trigger the software to go in or out of record mode. We also set up a remote keyboard next to one of the mic 'stations': the keys were programmed to play back recorded audio, and the controls on the keyboard were programmed to manipulate pitch and audio filters.

Along with Brian Quirt and our University of Toronto graduate theatre student assistant Jessica Glanfield, we used the software for three vocal improvisations during which Philip manipulated the audio. We observed that if there were more than three audio events being recorded and played back simultaneously, it was difficult to hear and make sense of the audio information, as it became cacophonous. It seemed that 'simpler was better' when it came to choosing the number of audio events to be recorded, manipulated and played back – with fewer audio tracks playing simultaneously, it was more satisfying to listen and 'follow' how the audio events were progressing.

DAY 1 P.M. - with dancer/choreographer YVONNE NG

After a fairly detailed explanation of the equipment, Yvonne did a solo improvisation manipulating her own audio and then suggested we do a group improvisation that would be recorded and manipulated by Philip. Yvonne next suggested that as we listen back to our recorded improvisation, each person draw a 'map' interpreting what they heard. Using the maps as a score, we collectively did another vocal

improvisation. Our final two improvisations of the afternoon were a duet with Yvonne and Laurel, and finally a solo vocal/physical improvisation with Yvonne wearing a wired mic and indicating to Philip when she wished to stop and start recording.

Our observations of the work in the afternoon were that we found that it was much more interesting to hear audio loops and manipulations with one or two participants at most – when more than two people participated in an improvisation, often the audio became very dense. It was very satisfying to observe the vocal and movement improvisations between Yvonne and Laurel, how the choices of each person influences the other.

After Yvonne's final solo improvisation, we all enjoyed the clarity of observing the connection between Yvonne's movement and her vocal sounds, and Philip noted that during the improvisation, he was often surprised by Yvonne's movement. We observed that Philip's sensitive manipulation of the recorded sound during the days' improvisations had a lot to do with the effective use of the software – otherwise it could be very easy for sounds to 'build up' and become repetitive, disinteresting and indistinguishable from one another.

Yvonne expressed interest in Ableton, saying that she would enjoy exploring ways in which it could provide an opportunity to have the audience influence a live dance performance

We also discussed the desirability of a trigger that would give a performer the ability to start and stop recording without hampering their creative flow. We decided to add a wireless mic to our equipment setup for Day 2.

DAY 2 A.M. - with choreographer CHRISTOPHER HOUSE

We gave Christopher a brief instruction about triggering record and playback using the mic and pedals – he decided not to use the keyboard in his improvisations, and occasionally he chose to use the wireless headset.

We did 7 experiments with Christopher: some solo, and some with Laurel and/or Philip. As the improvisations progressed, we made some alterations to the equipment configuration so that only the last two recorded loops were audible. With this new configuration, it became very interesting and game-like to observe when someone would begin a new loop, thereby 'knocking out' the second-to-last recorded loop. When we used three mics and three pedals with two participants, the audio became difficult to hear clearly and Brian observed that it was difficult to find any silence using the technology in this way. Using three mic 'stations' with Christopher in a solo improvisation was interesting, as he created an audio landscape as he moved from station to station.

Some observations in the improvisations between Christopher and Laurel: when each person was given the ability to manipulate the other's voice, the real-time manipulation created relationships, narrative, and occasionally conflict. When Laurel sang a loop, Christopher transformed it by pitching it down very low. At another point, Christopher whispered a loop: when Laurel increased the volume, it seemed as though something very private was made public.

Conversely, a loud, more aggressive timbre was diminished by having the volume turned down. Laurel would often play or sing a part first, then repeat and record it: it was interesting to hear a sound, become familiar with it, then hear it repeat as it was 'captured' in a loop.

For the final improvisation of the morning between Philip and Christopher, the speakers were localized to the microphones and triggers, so that a loop recorded at a mic station would be heard only from the speaker at the same mic station. Having the loops localized to the speakers enhanced distinction between loops. Philip created a rhythmic bedtrack, causing this improvisation to feel more songlike than previous experiments, and they used text (the phrase 'candies for children').

Cathy felt that the rhythmic bedtrack possibly made for a desire for greater density in the improv: with only the two last loops audible, the audio texture would begin to build, but would be continually dismantled whenever a new loop was added.

Christopher noted that rather than be given the control to manipulate his recorded audio himself, he preferred to have Philip manipulate his tracks.

As we had concluded on Day 1, we noted that both Christopher and Yvonne created loops of much longer duration than those typical used in Ableton Live in the context of pop music. Also, the wireless headset was a welcome addition, as it was great to not have the participants' movement restricted by a fixed mic position.

DAY 2 P.M. - with JESSICA and a group of U of T theatre graduate students

We began the afternoon with two experiments using loops to create a musical round or canon form. Laurel recorded and looped a round 'Had I Wings To Fly'.

Jessica asked if it was possible to have the recorded sound move around the space, so Philip reassigned the mics so that all three mics would go into record simultaneously from one trigger: then Philip and Laurel did an improvisation using voice and waterphone as they moved around the space. As we listened back to the improv done with this new equipment configuration, it was very intriguing to hear the sound 'move' around in the space.

The next three experiments involved the group of students: the first experiment was a vocal improvisation, the second was a soundscape, and in the third, students were instructed to improvise accompaniment to Laurel's live lead vocal.

The vocal improvisation involving everyone was very dense. The soundscape (we asked the students to create a seaside environment) was very interesting and evocative. In the final experiment, the students noted that they found it difficult to accompany Laurel by creating loops, especially in terms of lining up rhythmic elements with her live singing. Laurel expressed a desire to have more direct contact with the accompanists, and we felt that using the software in this fashion caused the 'live' performer to feel compelled to accompany the loops rather than the other way around.

At the end of the afternoon we all agreed that sourcing each speaker to the microphone at each station and hearing loops panned and move around the space was a very desirable and satisfying element of the audio treatment.

DAY 3 A.M. - with actor/writer MARTIN JULIEN

After giving Martin a brief introduction to the equipment and the software, we engaged him in 10 experiments – one was an improvisation with Philip, one was with Laurel, and the others were solo improvisations.

It was very interesting to watch Martin listen and respond physically as well as vocally to the loops as he created them, and to observe the speed and intention with which he moved from each mic station to the control keyboard to manipulate his loops. At one point Martin was lipsync-ing to his own voice, which was a curious effect. Brian observed that he lost track of when Martin was triggering a loop and when Martin was making vocal sounds 'live'. Martin was very adept at using text with the technology, both in linear and non-linear fashions. In one improvisation, he skilfully created a fascinating narrative by looping bits of improvised text, and created characters by manipulating the pitch and volume of his loops. In this experiment, the loops were perceived as externalized versions of each character's internal thoughts.

A general observation at the end of the morning: we noted that we haven't been using reverb or digital delay in our manipulations (although they were available), and did not miss those audio effects.

Brian observed that over the past days we had learned how to set up templates and parameters that were useful to participants to enable them to use the technology themselves. Philip suggested another possibility for future experiments – to have all 3 pedals at one central position with the mic and speakers in different locations.

DAY 3 P.M. - with composer/performer LEE PUI MING

We began with a brief introduction to Pui Ming of the mic, software and control keyboard and she did a trial improvisation. Her second improv was at one vocal station. During the improv, she asked Philip to alter volumes of some of her loops and to remove some of her earlier loops to 'thin out' the texture of her improv. Pui Ming wanted control of which tracks were playing, and also wanted the ability to make abrupt breaks in the texture.

We conducted 6 more solo experiments with Pui Ming. In one improvisation, Pui Ming used 2 stations - a mic with a footswitch trigger to record, and a keyboard controller to manipulate the recorded sounds. It was very interesting to watch Pui Ming shift from 'performance' energy (very intense and 'in the moment') when she created the loops to a more impartial, 'matter-of-fact' energy when she manipulated the audio.

In an improvisation with Pui Ming, Laurel wore the wireless headset and indicated to Philip when she wanted to go into record, while Pui Ming used the mic at one of two stations to record. It was interesting to watch the difference between the stationary position and the wireless headset. Brian observed that it was difficult sometimes to tell what was 'live' and what was being recorded and played back: this distinction was blurred by the fact that Laurel was always being amplified whether she was in record or not.

We noted that one way that Laurel could signal Philip during the improv was to repeat a sound (in effect creating 'live' loops). Pui Ming indicated that she didn't want control of Laurel's voice, and that she enjoyed not being the sole person responsible for the manipulation of the sound. She also indicated a preference for performing live in the improv with Laurel over using Ableton.

Pui Ming indicated that she would have liked to have a trigger on her person, and that it was a distraction from the creative moment to have to return to the pedal and microphone 'station'. Philip liked hearing the mix of acoustic and amplified sound, and enjoyed hearing the sound of the building itself respond and reverberate with the sounds created in the improv.

A general observation this afternoon: we noted that we should have considered altering the lighting in the space earlier - we felt that the lighting was more conducive to our work when we shut off the florescent work lights.

DAY 4 –

We met with Bruce Barton and students of his course 'Liveness Reconsidered': we presented our observations about our work with Ableton Live, and had a lively discussion with the graduate students about technology and performance.

SUMMARY

At the conclusion of our research we made the following observations:- we found that the chosen array of equipment and software was fairly malleable. Philip was usually able to quickly reconfigure the apparatus to accommodate new ideas and whims of the participants (including ourselves), and that the software was very flexible and adaptive to the wide variety of approaches by our collaborators.

- for the majority of the experiments, Philip played an active role in the performance as the shaper of the composition, and he noted that he found it hard to keep track of what was happening when more than 4 or 5 recordings were actively looping. Philip also observed that the origin of manipulated sounds seemed to remain clear unless very heavy manipulation was applied. Putting the performers in control of the equipment was most interesting when they interacted emotionally with the devices they were using to manipulate the sound.

- there was something inherently engaging about the "deja-vu" (deja-ecouté?) effect of hearing sonic reproductions (loops) created from a performance we had just witnessed.

- one interesting and unforeseen development was the use of our multiple microphones simultaneously to record a surround sound "impression". When played back over multiple speakers (corresponding to each microphone), the movement of the performers was reproduced as well as the sound itself. This effect could be described as "ghostly".

We thank Nightswimming for the wonderful opportunity to experiment with our collaborators and Ableton Live as part of Pure Research.

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This research was conducted at the University of Toronto, Canada, from December 11-13, 2006.