Rehearsing and Performing in Cyber Space: a focus on communication and interaction

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Background

• **Ensemble Rehearsal**
  
    • String quartet dynamics
  
  – Goodman, E. (later King, 2002)
    • Coordination, aural and visual communication
  
  – Williamon & Davidson (2002)
    • Piano duo non-verbal interaction
  
    • Ensemble playing (blending, intonation, etc.)
  
  – Ginsborg & King (2012)
    • Rehearsal strategies and social interaction in singer/piano duos
  
  – Bayley & Elverdam (2013)
    • Four players vs. two vs. five
Background

• **Use of technology in music**

  – Orman & Whitaker (2010)
    • Comparison of face-to-face lessons with VC (Polycom)
  
  – Drioli *et al.* (2013)
    • Evaluating LOLA (over 2 days)
  
    • Teaching - the "Third Room" and "Telepresence” (Polycom)
  
  – Riley, MacLeod, Libera (2014)
    • Participants evaluations of LOLA, Polycom & Skype
Aims

• Team of researchers, professors, students and technicians
  – To study musical communication/interaction in SDL
  – To investigate rehearsal strategies & decision making processes in music, via LoLa
  – To investigate how rehearsing, teaching and learning and performance techniques via LoLa differ/relate to face-to-face music making
  – To review the use of the technology (focus on LoLa)
Real-time Interaction

- Eye contact
- Presence effect
- Spatial sound immersion
- High definition sound
- No environmental interference
- Unperceivable latency (<60msc)
Research questions

• How do musicians communicate and interact in rehearsal and performance via LOLA?
• Are face-to-face rehearsal strategies applicable to rehearsal via LOLA or do new strategies emerge?
• What is the impact of the technology, the set-up and the presence of sound engineers on the musicians’ work?
Method

• Participants
  – 4 guitar students
  – 2 guitar professors
  – Technicians; LOLA v.1.4.2; sound engineers

<table>
<thead>
<tr>
<th>Participant</th>
<th>Instrument</th>
<th>Level</th>
<th>Gender</th>
<th>Age</th>
<th>Nationality</th>
<th>Conservatoire</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1</td>
<td>Guitar</td>
<td>Masters</td>
<td></td>
<td>23</td>
<td>Swedish</td>
<td>RCM</td>
</tr>
<tr>
<td>P2</td>
<td>Guitar</td>
<td>Bachelor Year 3</td>
<td>M</td>
<td>21</td>
<td>Swedish</td>
<td>RCM</td>
</tr>
<tr>
<td>P3</td>
<td></td>
<td>Masters</td>
<td></td>
<td>24</td>
<td>Danish</td>
<td>RDAM</td>
</tr>
<tr>
<td>P4</td>
<td></td>
<td>Masters</td>
<td></td>
<td>23</td>
<td>Danish</td>
<td>RDAM</td>
</tr>
</tbody>
</table>

Table 1. Characteristics of the students sample
Method

• Music
  – Shingo Fujii; Fragmentos 2 & 3 (duos, 2009)
  – Østen Mikal Ore; Downtown Choro (quartet, 2010)
Method

• Data

  – Interviews (n= 16) before, during and after rehearsal and performance sessions
  – Observations and video recordings of all (rehearsals (n=8); teaching sessions (n=2) & performances (n=2)
  – Video stimulated interviews (3 months after the last performance)
  – Interpretative Phenomenological analysis (IPA)
LOLA sessions set-up
<table>
<thead>
<tr>
<th>Sessions</th>
<th>Rehearsing/Coaching/Performing</th>
<th>Data collection</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>Interviews (pre-sessions)</td>
</tr>
<tr>
<td>1</td>
<td>Sight-reading &amp; Rehearsal 1 (duos)</td>
<td>Observations &amp; video</td>
</tr>
<tr>
<td>2</td>
<td>Rehearsal 2 (duos)</td>
<td>Observations &amp; video</td>
</tr>
<tr>
<td>3</td>
<td>Coaching + Rehearsal 3 (duos)</td>
<td>Observations &amp; video</td>
</tr>
<tr>
<td></td>
<td>Professors interview</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Final Rehearsal 4 (duos)</td>
<td>Observations &amp; video</td>
</tr>
<tr>
<td>5</td>
<td>Sight-reading &amp; Rehearsal 1 (quartet)</td>
<td>Observations &amp; video</td>
</tr>
<tr>
<td>6</td>
<td>Rehearsal 2 (quartet)</td>
<td>Observations &amp; video</td>
</tr>
<tr>
<td></td>
<td>Performance (duos)</td>
<td>Observations &amp; video</td>
</tr>
<tr>
<td>7</td>
<td>Coaching + Rehearsal 3 (quartet)</td>
<td>Observations &amp; video</td>
</tr>
<tr>
<td></td>
<td>Interviews (mod/post-sessions)</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Final Rehearsal 4 (quartet)</td>
<td>Observations &amp; video</td>
</tr>
<tr>
<td></td>
<td>Performance (quartet)</td>
<td>Observations &amp; video</td>
</tr>
<tr>
<td>9</td>
<td>Review</td>
<td>Video Stimulated Interviews</td>
</tr>
</tbody>
</table>
Preliminary results

• Pre-session interviews

  – All participants had experience with technology but none in playing chamber music at distance
  – No rehearsal plans (in face-to-face) reacting to musical and technical needs in a ‘natural way’
  – Excited about new experience but no expectations or thoughts about rehearsing/performing in a different manner.
Music communication via LoLa

Musical & Technical Decisions
- Attack
- Tempo
- Balance
- Dynamics
- Articulation
- Fingering

Social Interaction
- Ensemble cohesion
- Getting to know peers
- Participation in the research

Use of Technology
- Current set-up
- Ideal set-up
<table>
<thead>
<tr>
<th>Emerging themes</th>
<th>Strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decision making</td>
<td>Exploring/trying out; discussing/negotiating ideas; less talking as rehearsals progressed</td>
</tr>
<tr>
<td>Attack, tempo, synchronisation (in face of latency and sensitive characteristics of guitar)</td>
<td>Eye contact</td>
</tr>
<tr>
<td></td>
<td>Beating time &amp; counting in</td>
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<tr>
<td></td>
<td>Breathing/ taking leadership</td>
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<tr>
<td></td>
<td>Gesture/nodding/movement</td>
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<td></td>
<td>Use of metronome</td>
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<tr>
<td>Balance and dynamics</td>
<td>Once balance was set-up by engineers they worked on nuances</td>
</tr>
<tr>
<td>Articulation</td>
<td>Reading score and trying/discussing</td>
</tr>
<tr>
<td>Social interaction</td>
<td>Weird to start with, hello/goodbye got better but no social gathering outside; shared experiences</td>
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<td></td>
<td>Sharing jokes about music/project brought closeness</td>
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<tr>
<td>Feeling the presence</td>
<td>Not available/couldn’t ‘feel’ the other player</td>
</tr>
<tr>
<td>Technology</td>
<td>Good set-up for rehearsing (positioning of players); bothered by clicks: unaware of technician</td>
</tr>
</tbody>
</table>
Dealing with latency

• anticipating others’ onsets in faster pieces
• focus on keeping own tempo steady
• listening rather than watching as works progress
Non-verbal Communication

“I think the non-verbal conversation is the most tricky thing, by far... when you have someone’s present it’s such a big difference, because you can feel him breathe, you can hear him breathe, you can see the facial expressions...” (P4)

“I did not feel they were responding to the breathing... [P3] set the tempo most of the time ... by counting in...” (P4)

“...when you play with someone, you can show things with your body. And if you want... accelerate a bit, you can show it with the body. And that was hard.” P1
Eye contact, synchronization
More verbal communication

“If someone had a nice idea, we would discuss, try and incorporate it” (P2)

“We talked a lot more than we actually played” (P3)

“We decided dynamics by talking, agreeing and reading what was written on the music” (P1)

“...in this project, I had to know what I wanted well and be really clear on what I said” (P1)
Verbal communication
Attack & tempo (synchronicity)

“...always dragging...could be technology or the ensemble (P3)

“...I was playing almost waiting for the reactions rather than trusting the tempo and trying to be spot on the attacks...hard to synchronise” (P4)

“...yeah, I was just trying to do...be a very tiny bit ahead of what I would actually do myself (P1)”
Balance and dynamics

“We worked on dynamics but balance was decided by the technicians. Once that was set, we worked on nuances (P1)”

“..you don’t know how it will be at the other end... no knowledge of the sound ... makes it more stressful in a sense..” (P3)
Social interaction

“...socially awkward...combined with long distance ...made it an incredibly weird.. ” (P4)

“I remember thinking uh-oh, how do you do this because there is a social thing going on when you don’t know people ... ok I have ideas... but how should I present them ... should I say like ‘yeah... you are doing something wrong ...but later on we were both really good at listening to each other and then reacted on each other’s ideas and come up with ideas both of us. So I felt that was really equal.” (P2)

“...sight-reading was awkward but then we gradually got to know the person more and more...our first experience in doing something [together]” (P2)
Technology

“...there is a lack of presence in the room...could be fixed by a larger screen and better visuals...sound was much better than visuals...for the concentration it would be better not to watch and just listen...” (P4)

“...placement of camera as close to screen as possible so we can get eye contact...” (P4)
Audience

“I was the performer and I didn’t know if an audience was actually physically present on that side or not...just knowing that the people would be in the room as well...it puts other things in your mind that might distort your playing (P3)”
Preliminary results

• Previous work on ensemble playing
  – Instrument specific: lack of volume
    • LOLA: no volume or balance issues, difficulties with nuances
  – ensemble-specific: unity, agreement, feeling/knowing the others, spending time together, leadership
    • LOLA: awkward social setting initially but shared experiences later

• Previous work on ensemble communication
  – verbal interaction: discussion, experimentation, trial
    • LOLA: much more discussions (stated as important due to lack of physical presence) but also experimentation, trials
  – non-verbal interaction: eye contact, feeling pulse, hearing, body gestures, feeling presence
    • LOLA: difficulties in making eye contact, synchronizing beat, feeling the breathing; presence.
Conclusions

• Rehearsals and performances were successful

• How did the musicians feel?
  – Very satisfied with the results of the work
  – Sense of excitement sharing new experiences
  – More responsibility and seriousness to the work

• What would the musicians like to change?
  – Larger screen; more eye contact; hear themselves within the ensemble; ‘feel’ the presence of peers
  – Audience present in the same room
  – LOLA is a ‘fantastic tool’ to work in parallel to face-to-face rehearsals (in spite of guitar being very sensitive to synchronisation issues)
Impact on musical education

• Social interaction developed in different ways
• Eye contact was non-existent, no feeling of presence, and yet, the ensemble performances were successful through adaptation of rehearsal and performing strategies
• Ensemble balance and projection was no longer an issue & more concentration on other aspects of music making
• Need for more verbal communication; development of meta-cognition and self-regulation.
The research project: what is next?

• Does communication, interaction and strategies in the quartet differ from the duos?
• Does verbal interaction change with more experience of working with the technology?
• What exactly are the new strategies or adaptations necessary to work with the latency?
THANK YOU!

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