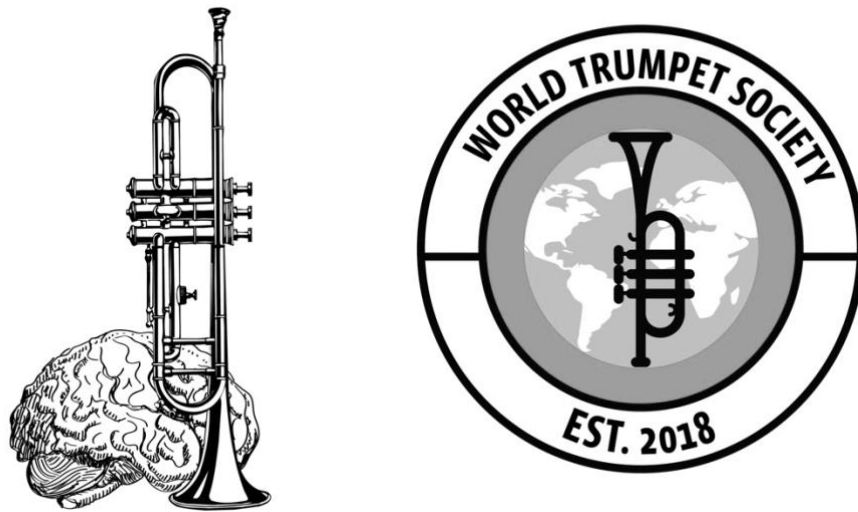


CIRMMT Outreach Project Report

Neuroscience of Trumpet Playing Workshop

Presented by Isabelle Arseneau-Bruneau



World Trumpet Society Seminar 2019

Queen's University - Dan School of Music, August 20-25th, 2019

Event Summary

Aimed for the participants of the World Trumpet Society Seminar 2019, this outreach project involved a 90-minute oral presentation with PowerPoint, with an interactive behavioural research exercise, and a question period. I presented three aspects of cognitive neuroscience research that apply in the studio and explored their possible implications with the seminar's participants. It provided a first peek at neural mechanisms involved in music performance and trumpet playing.

Objectives of the Project

This workshop aimed to reach musical audiences that are not familiar with scientific research, to promote the interdisciplinary culture between artists and scientists. About 20 people attended (mostly students in trumpet performance), including 4 trumpet teachers from Canadian Universities. All four teachers were interested to host the project at their own institution, which was a very positive sign of the success of the workshop. Participants showed that they had integrated the learning objectives of the workshop through their follow-up questions. A few questions were asked by raising hands, but most of them were submitted anonymously in written format. It made people less afraid of judgment and provided room for critical thinking about the experiments. The 18 questions submitted in written form were all very pertinent, helpful to extend the workshop, and for future directions. The group appeared very engaged through the whole presentation as many participants took pictures of the slides.

Overall, the project was successful in relation to its learning objectives. With neuroscience fundamentals, the participants were able to recognize main areas of the nervous system involved in music performance and debunk five myths heard in the studio. They also interacted with behavioural research, differentiating internal from external FOA and identifying their limitations in music performance, associate different FOA instructions with various trumpet methods, and compared how focusing one's attention on different elements may affect their playing. Then, participants briefly explored how auditory perception is interlaced with music performance, and learned how strategies that may enhance auditory perception and representation can translate in their own practice.

[REDACTED]

[REDACTED]

Specific Recommendations and Future Directions

I would make small changes to the workshop for the next presentations. I finished 5 minutes earlier than I planned to, although this time got easily filled by answering questions. Thus, I would spend more time on the "muscle memory" myth section, as participants were particularly captivated by it. I would notably add a slide on the different forms of memory as this topic came in two follow-up questions from the audience. A slide from another outreach presentations I made would have addressed this issue. I will at least integrate this content as supplementary slides. I also noticed that I should provide papers for more than one questions to participants, as the audience was very engaged, and some participants would have asked more than one. There is potential to develop in this workshop, perhaps making it a series of 3 or 4 individual workshops that would explore each of the different sections in more depth. Ultimately and regardless of the format, I wish to integrate my own results and extend the section on my current research. It would make the narrative of the workshop more complete.

Home About WTS Seminars & Events News Contact

WTS ARTISTS & FACULTY

Search SEARCH

All Members • Faculty • Guest Artist

 Huw Morgan Guest artist	 Wayne Bergeron Guest artist	 Clare Miller Guest artist	 Dan Tremblay Faculty
 Isabelle Arseneau-Bruneau Guest artist	 John Raschella Faculty	 Josh Davies Faculty	 Merrie Klazek Faculty
 Michael Cichowicz Faculty	 Rebecca Wilt Guest artist	 Richard Staelzel Faculty	 Russ DeVuyst Faculty
 Stefan Johnsson Guest artist	 Stephane Beaulac Guest artist	 Trent Sanheim Faculty	

Appendix II: Project Detailed Description

Part 1) Fundamentals of Neuroscience and Common Myths Heard in the Studio (*Duration: 20 min*)

A first section gave a broad overview of neuroscience of music principles (anatomy and systems involved). The information provided was tied to myths/beliefs in relation to practice and learning that may occur in the studio or circulate in the media: (e.g.: “The brain is like a computer”, “I must be technically efficient before playing musically”, “I just need to practice more...”, “No pain, no gain”, “The muscle memory”). Participants were then invited to write their own questions anonymously for clarifications/debunking at the end of the presentation.

Part 2) Effects of Focus of Attention on Music Performance on the Trumpet (*Duration: 25 min*)

Stemmed from research conducted during my master’s in Music and Human Learning at the University of Texas at Austin, I examined how instructing musicians to concentrate on different aspects of their playing (e.g. their sound versus their lips) can affect their performance outcomes. Known as focus of attention (FOA), this topic is increasingly investigated in many fields of performance psychology. However, results in music research are not as straightforward. I presented the work of colleagues, as well as our own results, and explained how these scientific findings may apply to trumpet playing, as well as their limitations. Explored interactively, a volunteer played a short melody with instructions to focus their attention on different elements of playing (fingers, lips, distal target, sound, imagery). The FOA instructions were unknown to the audience. Participants compared their preferred versions in relation to the FOA instructions, the volunteer’s preferences, and trumpet methods. This research drew links with different trumpet methods, such as Jacobs’ and Cichowicz’s Pedagogy, which is well represented in the seminar.

Part 3) Listening Skills Matter More Than You Might Think (*Duration: 25 min*)

As Jacobs and Chicowicz particularly stressed the importance of sound conception to guide music performance, this section explored in more depth the auditory aspects of neuroscience involved in trumpet playing. How is the brain involved in hearing and why do listening skills relate so closely to performance? I highlighted links between the auditory and motor systems in relation to brain enhancements observed in musicians, a central topic of my doctoral research at McGill University. With insights from recent neuroscience findings, this section was tied with questions such as “Why can a colleague or student seem to hear something differently than I?”, “Are mental practice and visualization efficient practice strategies?” or “What elements can I manipulate in my practice to improve my auditory skills and musicianship?”

4) Questions Period (*Duration: 15 min*)

I answered questions submitted by participants during the first and last parts of the presentation. As a way to re-actualizing learning and ensuring the comprehension, participants were invited to answer questions that related to the presentation content. In total, 18 questions were submitted in the written form. Some questions were also asked by raising hands.