

**Canadian University Music Society  
Annual Conference 2009**

**Carleton University, Ottawa, ON**

*Minding the Music: Neuroscience, Video Recording, and the Pianist*

Dr. Milton Schlosser, Professor of Music, University of Alberta

[miltos@ualberta.ca](mailto:miltos@ualberta.ca)

### **Abstract**

Musicians who experience failure or perceive themselves as failing are prone to feelings of distress and sadness. Neuroscience research involving functional magnetic resonance imaging (fMRI) has previously identified how prefrontal, anterior cingulate, and limbic areas become activated when subjects view sadness in others, thus impairing physical performance. However, a 2008 study headed by sport psychologist and neuroscience researcher Dr. Henry (Hap) Davis IV tracked the brain's reaction to personal, self-referent failure and how the effects of such failure can be reversed. Davis *et al* had athletes repeatedly view their own career-threatening failed performances in two sessions that were separated by a cognitive intervention (CI). The intent of the CI was to counteract less blood flow to parts of the brain responsible for athletic performance. The success of the protocol, as determined through fMRI measurements, prompts this two-year study of students in a Canadian university piano studio. A Recital Review Protocol (RRP) is suggested that builds on the swimming model, but also addresses the relationship between brain plasticity, emotion regulation, and sustained meditational practices.

### **Keywords**

Affective Neuroscience, Cognitive Intervention, Emotion, Pianists, Teaching, Videos

### **Overview**

- 1. Introduction**
- 2. Literature**

Davis IV, Henry, Liotti, Mario, Ngan, Elton T., Woodward, Todd S., Van Snellenberg, Jared X., van Anders, Sari M., Smith, Aynsley, & Mayberg, Helen S. (2008). fMRI BOLD Signal Changes in Elite Swimmers While Viewing Videos of Personal Failure. *Brain Imaging and Behavior*, 2, 84-93.

### **Table 1 fMRI Study's Video Review Protocol (VRP)**

- 
- PART I**
- Neutral Video*, 4 minutes. Watch video of other swimmers racing. Indicate any levels of distress/sadness on scale of 0-7 using fiber optic device.
  - Rest*, 1 minute.
  - Fail Video*, 4 minutes. Watch video of self in career-threatening failed performance. Re-experience feelings immediately during and after the performance. Indicate levels of distress/sadness on scale of 0-7 using fiber optic device.
  - Rest*, 1 minute.
  - Fail Video*, 4 minutes. Watch video of self in career-threatening failed performance. Re-experience feelings immediately during and after the performance. Indicate levels of distress/sadness on scale of 0-7 using fiber optic device.
  - Rest*, 2 minutes.
- PART II**
- Cognitive Intervention with Sport Psychologist*, 20 minutes.
    - Express feelings generated from watching failed race.
    - Express self-referent cognitions related to actual performance ("I am slow," "I need to work on my arm tone," etc.).
    - Consider and imagine performance changes for next race.
- PART III**
- 8-13. Repeat steps in Part I, 16 minutes.
-

3. **Present Study**
4. **Method**
5. **Results**
  - a. **Lesson- and Performance-Based Data**
  - b. **Recital Review Protocol (RRP) Data**

**Table 2** Recital Review Protocol (2009)

---

**PART I**

1. *Mindfulness Breathing Exercise.* 20 minutes before watching recital DVD. Log state of mind at end of meditation.
2. *Recital Video.* 45-60 minutes. Re-experience the way you felt immediately during and after the performance. Log your experiences. Continuously monitor mood during viewing. If appropriate, use the scale 0-7 to indicate any temporary distress and/sadness (7 being the strongest distress and sadness; can be used in specific moments in performance, ends of movements, etc.).

**PART II**

3. *Cognitive Intervention with Instructor.* 20 minutes.
  - Express feelings generated from watching yourself perform each piece.
  - Express self-referent cognitions related to actual performance ("I am slow," "I need to work on my arm tone," etc.) Consider and imagine performance changes for the next time you perform each work.

**PART III**

- 4-5. *Repeat steps in Part I.* 20 + 45-60 minutes.

**PART IV**

6. *Reflect on Process.* Now that you have watched the video a second time, how do you feel about the performance: better, worse, the same? Log your feelings and thoughts; rate your overall sense of distress/sadness on scale 0-7.
- 

6. **Discussion**
7. **Conclusion**