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Pilot Study to Assess Breathing During Sight-Read Stringed Instrument Performance

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Introduction

For many musicians, one common occurrence during a performance is the presence of stage fright. Stage fright, though not always expressed can influence the confidence and self-esteem of a performer, and thus can affect the quality of the performance¹. Every day musicians are affected by stage fright, and there has been no exact solution as to how to lessen the feeling of anxiety musicians feel before performing. A way to quantify regularity of breathing could be crucial to enhancing a musician's musical ability, as well as eliminating the discomfort of stage fright during performance. Hotwire anemometry was used in this study to quantitatively assess the regularity of breathing during sight-read stringed instrument performances.

Materials and Methods

Each participant was asked to attend two sessions for data collection, and they were required to bring their own violin or viola to each session. After the first session, participants filled out a survey regarding how stage fright affects them, as well as their thoughts on playing. Participants were to practice breathing exercises during the four weeks between sessions.

In each session:

- The anemometer headset (Figure 1) was placed on the head of the participant, with the hotwire part of the headset placed directly under their nose.
- Trial 1: Participant was asked to breathe normally, without playing
- Trial 2: Participant asked to sight-read and perform a largo/slow piece of music
- Trial 3: Participant asked to sight-read and perform an allegro/fast piece of music
- Participants

Data was assessed by investigators for a comparison between two sessions. LabVIEW was used to collect and quantify data.

Breathing Exercises

- Determine at rest breathing tempo with metronome
- Begin with a "pick up breath", then exhale for the two-beat downbow half note; inhale for two-beat upbow half note:



- Play scale of half notes while breathing as above, and at the same tempo:



- Breathe as above while bowing whole notes, first with open strings as in step 2, then with scale as in step 3:



- Play with quarter notes while breathing as above, then make up own exercises



Figure 1. Hotwire anemometer and power source

Results

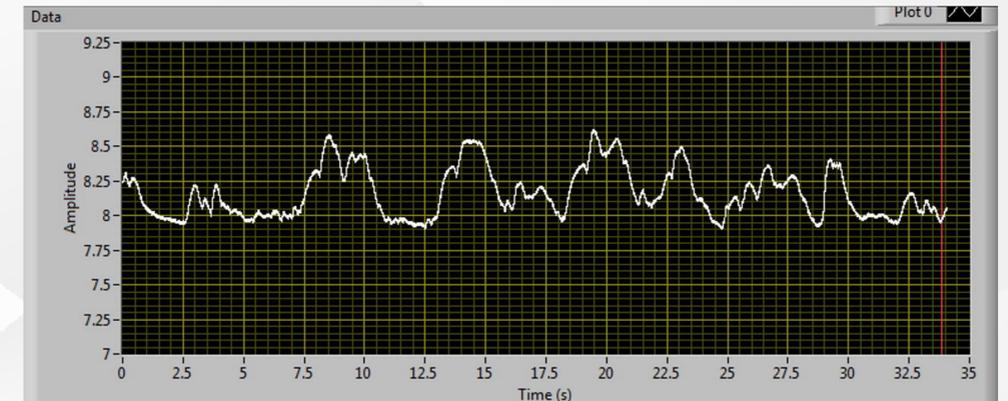


Figure 2. Breathing during largo piece in first session before training with breathing exercises

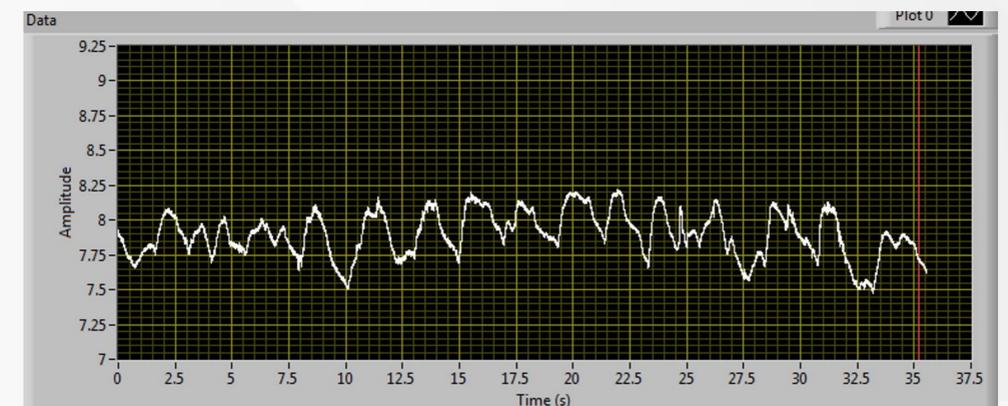


Figure 3. Breathing during largo piece in second session after training with breathing exercises

Future Work

Future work will involve the development of a new anemometer, as well as a pulse oximeter to measure oxygen saturation in the blood of performers.

References

1. Steptoe, Andrew, and Helen Fidler. "Stage Fright In Orchestral Musicians: A Study Of Cognitive And Behavioural Strategies In Performance Anxiety". *British Journal of Psychology* 78.2 (1987): 241-249.