
An Intervention to Promote Mind-Body Awareness in a University Wind Ensemble

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Abstract

The interdisciplinary Riverside Performing Arts Medicine team, consisting of a conductor, physician, physical therapy assistant, and psychologist, developed strategies to reduce musician performance anxiety with the goal of increasing the level of creative performance and member satisfaction. An intervention based on research and theory in medicine and psychology is described in this paper. While only a single-group pre-test post-test research design was possible, this theory-based intervention led to positive reactions and provides useful tools for music ensembles to incorporate into their repertoires.

Keywords: ensemble, heart rate variability, mindfulness, motivation, performance anxiety, positive imagery, self-awareness

Introduction

We may affirm absolutely that nothing great in the world

has been accomplished without passion.

Georg Wilhelm Friedrich Hegel (1770-1831)

Rehearsals and performances are the lifeblood of the ensemble when the printed notes come to life. The conductor encourages, guides, and provides feedback to ensemble members, focusing primarily on the technical aspects of performance while, perhaps, overlooking the psychological environment experienced by the individual performer. The goal of this article is to examine strategies based on research in psychology and physiology that provide tools for enhancing ensemble member satisfaction and creative performance capabilities. The following describes an intervention incorporating heart rate biofeedback, group dynamics principles, and leadership theory to improve motivation and performance in a university undergraduate ensemble. Christopher Newport University is a small, liberal arts institution of 5,000 students, primarily undergraduates, and the wind ensemble is comprised of music majors and non-music majors alike, including first-year through fourth-year students.

Questions at the beginning of the intervention included: 1) What effect will a mind-body intervention have on the satisfaction of student performers with their experience as part of the university wind ensemble? 2) How will meetings with mental and physical health specialists impact the students' satisfaction with their wind ensemble experience? and 3) Will the intervention positively impact students' creative capacities? The authors developed a mind-body intervention designed to allow musicians to manage performance anxiety and experience what Csikszentmihalyi terms "flow," the state of being "when one is functioning at peak capacity,

including mind, body, and energetically, and the perception is one of well-being and timelessness.” Flow is antithetical to performance anxiety and is a sought-after state by musicians who pursue excellence, self-regulation, optimism, and health.¹ According to Gray, flow is when “attention is attuned to the activity itself, and there is reduced consciousness of self and time...The mind is wrapped up in the ideas, rules, and actions of the game and relatively impervious to outside distractions.”² The stress of being observed and evaluated leads to better performance by those with expertise on a familiar and well-practiced task, and worse performance by novices.³ As Gray states, “Evaluation has this pernicious effect because it produces a mind-set that is opposite from the playful state of mind, which is the ideal state for learning new skills, solving new problems, and engaging in all sorts of creative activities.”⁴ Students in a music ensemble, therefore, who are of varying levels of age, experience, and musical and technical proficiency may react differently to the stress of rehearsals and performances and the inevitable corrective feedback that may lead to negative emotions.

The first element of Csikszentmihalyi’s study was whether or not flow was being affected by performance anxiety, a condition that can play a significant role in student attitudes in rehearsal and performance. For example, does a student who struggles technically with the music suffer anxiety and exhibit negative feelings, either toward the ensemble or toward himself or herself? Music Performance Anxiety (MPA) is comprised of a combination of physiological, cognitive, behavioral, and emotional components. Thurber states, “Music Performance Anxiety continues to be a pervasive and significant problem for many professional and student musicians. Coping strategies have included pharmacological, behavior management, cognitive techniques, cognitive-behavior therapy, meditation, guided imagery, biofeedback, Alexander Techniques, music therapy, hypnotherapy, and combinations of treatment modalities with cognitive-

behavioral intervention such as with medication.”⁵ Beta blockers provide short-term confidence but long-term helplessness if one begins to believe that one needs them to succeed. As Thurber states, “Beta blockers can reduce physiological components of Music Performance Anxiety but do little to reduce the psychological components. The literature shows that techniques that combine mental, physical, and emotional components of Music Performance Anxiety show greater efficacy in reducing MPA than single modalities that focus on one component of MPA alone.”⁶ What appears to be highly effective in controlling anxiety is the Alexander Technique. Reported by Thurber, “In a study in 1995 by Valentine et al, students who had received training in Alexander Technique, consisting of relaxation and posture awareness exercises, showed significant improvement in technical quality, musical quality, improved positive mood, and less change in average heart rate as compared to the control group in low stress performances.”⁷

Performance anxiety and negative cognitive appraisals of corrective feedback can hurt creative capacities, and sustained fear leads to an unremitting, hypervigilant state. Over the last few decades, a new diagnosis of failure of the automatic nervous system has emerged. Seen predominantly in perfectionist teenage girls, Postural Orthostatic Tachycardia Syndrome (POTS) is associated with achievement cravings. More simply, when a B+ is never acceptable, there are not only psychological but also health consequences. For survival and relief from unremitting fear, individuals may quit or tear down the group’s leader, their legitimacy, values, and/or vision. Be aware, it is their fear that is speaking.

Gray believes that flow is “the ideal state for learning and creativity.”⁸ Moreover, he writes that the state of play, which encourages flow, is ruined by “focusing attention too strongly on rewards and outcomes”⁹ and that “a positive mood improves creativity, insightful reasoning.”¹⁰ In relating flow to careers that foster creativity, Gray writes, “Many highly

successful novelists, playwrights, artists, musicians, and poets have written or stated in interviews that to think and produce creatively, they must forget about pleasing an audience, or pleasing critics, or winning prizes, or earning royalties. All such thoughts stifle creativity. Instead, they must focus fully on the product they are trying to create, as if creating it for its own sake.”¹¹

Connecting Mind and Body

Flow occurs when both aspects of the body’s regulating system--the Automatic Nervous System (ANS)--are fully engaged, not one or the other. The two complimentary branches of ANS are 1) the Sympathetic fight or flight response, and 2) the Parasympathetic relaxation response that counterbalances the sympathetic response. A certain amount of fear is necessary for arousal, learning, and performance, and fear is expected to gradually increase prior to a big event. Cuddy describes the “body-mind” connection, using the body’s physiological processes to develop the power to manage thoughts, feelings, and behaviors. In referencing the biopsychosocial (BPS) model, Cuddy writes, “A mountain of evidence shows that our bodies are pushing, shaping, even leading our thoughts, feelings, and behaviors, and it’s doing so in ways that either facilitate or impede our ability to bring our authentic best selves to our biggest challenges . . . Research shows that in pressure-filled situations, when we are distracted by thinking about possible outcomes of our performance, our skills are measurably diminished.”¹²

Mind-body interventions focusing on controlled breathing and exhalation can enhance the parasympathetic nervous system’s ability to counter the sympathetic nervous system’s stress-arousal response, leading to reduced anxiety and depression, improved optimism, emotional control, and pain coping, and behavioral outcomes of reduced aggression and impulsive behavior, and improved addiction management, work and school performance.¹³ According to

Haase, “When faced with stress, whether it’s giving a talk in front of a hundred people or feeling pressured to get a second gold medal at the Olympics, we experience changes in our body. Improving internal communications with our bodies may be as simple as spending a few minutes each day in focused breathing. Quietly pay attention to inhaling and exhaling without otherwise reacting. Over time, this exercise should teach you to have a change in breathing when anxious but be less attached to that reaction, which may help to improve your reaction in a stressful situation.”¹⁴ According to Björn Vickhoff of the Institute of Neuroscience and Physiology at the University of Gothenburg (Sweden) et. al, “The heart does not keep a constant rhythm. On the contrary, heart rate (HR) is accelerating and decelerating constantly. This fluctuation in HR is called heart rate variability (HRV). It is known that HRV and respiration affect each other. It is documented that pronounced respiratory sinus arrhythmia (RSA) is beneficial to circulation and improves well-being. For this reason, yoga breathing and guided breathing have beneficial effects on blood pressure and HR.”¹⁵ Resonant breathing, maximizing the oxygen and carbon dioxide exchange, maximizes the physiological relaxation response.¹⁶ Focused breathing, therefore, manages both the mind and the body.

The Intervention

In Spring of 2015, Christopher Newport University formed an official alliance with the newly created Riverside Performing Arts Medicine program at Riverside Health System, a large, regional medical complex. This program, with Dr. Mark Reimer serving as the liaison between the university and the Riverside program, provides education and guidance to the university’s performing arts programs in dance, music, and theatre, including the assistance of medical experts in the areas of audiology, vocal health, movement, injury prevention, and stress management who work throughout the year with students in these disciplines. The intervention,

involving psychologist Dr. Diane Catanzaro, physician Dr. Ron Gharbo, physical therapy assistant Ms. Brittany Reed, and wind ensemble conductor Dr. Mark Reimer, began in Fall 2015 and continued into Spring 2016.

This team of experts instructed the students in the wind ensemble and worked together to devise strategies that would result in a more cohesive, focused, and positive atmosphere. Following an initial meeting in the Fall of 2015 between Catanzaro, Gharbo, and Reimer, Reed delivered a few weeks later the first Riverside Performing Arts Medicine lecture to the members of the wind ensemble on heart rate variability (HRV). She led the ensemble in exercises in breathing and mental imagery, encouraging the students to focus their thoughts on positive memories to help reduce stress. Approximately one month later, Gharbo met the ensemble and spoke on the benefits of HRV, including a heightened sense of mental alertness and self-regulation over thoughts and emotions. He explained to them that professionalism is a choice one makes and then asked them to think of a goal--something greater than themselves, something that really “sings to them”--that would help ground their thoughts and behavior, keeping them focused on the learning process. Next, he instructed them how to prepare their body for a rehearsal, or, in his words, how to “dial up.” This involves two minutes of rigorous exercise before the rehearsal begins in order to raise one’s heart rate. His recommendations included walking vigorously up and down a few flights of stairs or doing wall sits. Once the student returns to the rehearsal room, he or she is to return to a parasympathetic-stimulating posture, “strike a power pose,” with chest and arms open, chin up, and eyes looking straight ahead. The musicians then sit and, for two minutes (carefully timed), engage in unison, resonant breathing (deep, unison breathing with long exhalations—five seconds inhale, five second exhale) while recollecting and feeling positive emotions such as gratitude. This process maximizes oxygen-

carbon dioxide exchange, shifts emotion to a positive state, and helps calm the “racing mind,” all necessary for the members to overcome the challenges of the music. In addition, each player inhales and exhales through a breathing tube, enhancing the sensation of air rushing into the lungs in order to increase lung capacity and to strengthen breath control, therefore improving tone quality, intonation, and technique.¹⁷

Gharbo provided a simple Stop, Shift, and Decide Method to be used prior to each rehearsal: 1) STOP the racing brain through focusing on something physical, such as posture, exercise, and resonant breathing, 2) SHIFT emotion to a positive state by feeling or sensing the emotion of gratitude, and 3) DECIDE that being a resilient professional allows for errors and values discipline. Before engaging in this routine, the ensemble members must bring to mind that “something” that is bigger than themselves, that belongs to just them, that inspires them, and that motivates them. Maybe that “something” is simply being and acting like a professional. The detailed process before each rehearsal includes:

1. Exercise

This should be employed anytime the members are not focused, especially as they get closer to the anxiety-causing event. Possible, and quick, routines before a rehearsal include climbing stairs or doing wall sits for at least two minutes. Laughing and talking are allowed in order for the members to get the need to socialize out of their system. When they return to the rehearsal hall, they will immediately “dial down” with the power pose and two-minute resonant breathing exercise and then “dial it back up” as they begin to rehearse. To be a professional, one has to learn how to dial up and dial down on demand; otherwise, one just might be sloppy about it all one’s life and burn out.

2. Strike a Power Pose

By striking a power pose, you break free from your fear ruminations to focus on something physical. We know posture does lead to behavior. An open chest with the head held up should lead to some comfort with vulnerability that leads to self-confidence.

3. Breathe

Resonant breathing—five seconds in and five seconds out—is a technique designed to gain maximum oxygen-carbon dioxide exchange and maximize physiologic relaxation response. Focusing on the chest and feeling the shift of the heart in sync as it surfs the help from the diaphragms is efficient. Challenge individuals to feel the shift in their chest to improve self-awareness. Purely observational, but athletes may value exercise more than performers, but performers are seemingly more adept at learning to feel shifting emotion. Complete silence can be uncomfortable, but the members must complete this exercise in complete silence to foster professionalism. It is helpful to have a large, analog clock with a clear second hand to help maintain focus. Resonant breathing should be done for two to five minutes at the beginning and end of rehearsal, as needed.

4. Decide

Once physiologically settled, decide your frontal lobes previously discussed values of who you are and who you want to be. Make a choice, now that YOU (you did it) have self-regulated. Make a choice to foster healthy hormonal balances. Love yourself, love each other, and love something bigger than yourself (spirituality, professionalism, leading a life of significance, and more).

In the course of this preparation for rehearsal, the performers are aligning the power of their body with the power of their mind, enhancing their parasympathetic nervous system's ability to control the stress response, increasing their level of confidence, sharpening their concentration, and shifting into a positive and proactive frame of mind.

A third lecture was delivered toward the end of the semester by Catanzaro, who lectured on group dynamics, the impact of group norms on rehearsal motivation, the importance of communication in fostering a healthy team, and the responsibility of each individual for the success of the entire ensemble.

Student Reactions and Results

Student reactions to the intervention were very positive. As the university has only one wind ensemble, there is no control or comparison group to compare outcomes related to student satisfaction regarding their experience in the ensemble. Consistent with “action research,” the

team was able to compare the reactions of this ensemble with those measured in previous semesters. All ensembles at the university take an end-of-semester survey called the IDEA Student Ratings of Instruction, allowing comparisons with previous semesters' student reactions. Two key elements of the IDEA ratings are a student self-assessment of progress in "developing creative capacities" and an overall rating of the wind ensemble course. Spring 2015 responses, from the previous year's wind ensemble, were compared with Fall 2015 responses of students who experienced the intervention, using an independent groups *t*-test. There was no significant difference in self-assessments of progress in developing creative capacities between the group that did not receive the intervention (mean = 4.0, sd = 1.21) and the group that received the intervention (mean = 4.4, sd = .94), $t(1, 44) = -1.33, p = .095$. However, a comparison of overall ratings of the wind ensemble course showed a significant difference between pre-intervention (mean = 3.4, sd = 2.5) and post-intervention groups (mean = 4.3, sd = .89), $t(1, 44) = -2.76, p = .00$, indicating a difference that is unlikely to be due to chance or random probability.

It is important to note research limitations. While this pretest-posttest comparison of student ratings of the wind ensemble course shows significant improvement, caution is warranted in interpreting this as solely due to the intervention, because this is a quasi-experimental single group pretest-posttest research design. This type of design is common in applied, action research, as randomized control group comparisons for a true experimental design would require numerous wind ensembles with random assignment to intervention and non-intervention conditions. Due to the lack of a control group, it is possible to attribute the positive student reactions to a "Hawthorne effect," an increase in group performance or productivity in response to the novelty of receiving extra attention and special treatment from management, rather than the specifics of the experimental intervention.¹⁸ However, if the increased attention resulting

from a motivational atmosphere, understanding of group dynamics, and the power of a mind-body intervention leads to the Hawthorne effect, it is nevertheless a “real” effect.

In addition, the pre-intervention Spring 2015 wind ensemble had rated the course lower than previous wind ensembles, so the increase between Spring and Fall 2015 could be attributed to a phenomena known as regression to the mean. Had previous semesters’ ratings been considered, no significant difference would have been found. This could be attributed to a “ceiling effect” as ratings of wind ensemble have generally been quite high, leaving little room for improvement in ratings.

While there are limitations in the ability of the outcomes assessment to provide the strong empirical evidence that the intervention leads to measurable improvements, the design of the intervention was based on a solid foundation of research, and the intervention did train wind ensemble members to use proven methods to manage the sympathetic nervous system arousal that often leads to performance anxiety.

Because of the positive response to the intervention by students, there is now an ongoing “Committee on Mindfulness” that consists of four students within the wind ensemble, representing each class, who reports each week, via e-mail, to the members of the ensemble in a “Friday Inspiration” that includes the major achievements of the week along with an inspirational story, quote, song, or meme. Moreover, a staff member in the university’s counseling center who has Bachelor’s and Master’s degrees in music performance, a M.S.Ed. in mental health counseling, and is a Licensed Professional Counselor now assists both the ensemble and the entire music program by presenting workshops throughout the year that are specifically designed to help music majors develop effective practice habits, hone concentration skills in rehearsal and performance, and nurture their mental, physical, and spiritual well-being.

Future studies might include a collaborative effort between music departments interested in combining resources to do a randomized control-group experiment on a similar mind-body intervention on musical performance ensembles. This type of intervention might inspire high school, university, and professional music ensembles interested in helping nurture performers' ability to use the power of the mind-body connection to foster better skills in managing the autonomic arousal that can increase performance anxiety and impact member satisfaction.

Summary

Developing a commitment to professionalism requires the conductor and the musicians to look beyond technique and explore how mind-body relationships and psychology impact musical performance. Getting “in the zone” is achieved when one is able to focus solely on the music without the distractions of evaluation apprehension, negative emotions, and stress-inducing thoughts. Through a methodical and consistent approach involving heart rate variability, focused breathing, positive imagery, posture, intellectual curiosity, emotional stamina, and a proactive frame of mind, musicians are set free to achieve their highest potential.

Using the newly created Riverside Performing Arts Medicine team, Christopher Newport University, Reimer, and his intervention team came together with the goal of increasing the musical quality of the ensemble and raising the level of satisfaction among its members—a goal for the ensemble to achieve passion, focus, and success. These methods were carefully and incrementally introduced into the ensemble, including clear explanations of their benefit to the individuals and to the musical and technical growth of the ensemble. With the sense that there was a new and fresh approach to helping them improve, the students began to undertake rehearsal preparation on their own without prompting from the conductor. A few of the students even used their newly-developed knowledge and skills to help them lessen their anxiety in taking

examinations in other courses. Utilizing research and theory on the mind-body connection has the potential to enhance performers' ability to achieve their highest potential.

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³ Robert B. Zajonc, "Social Facilitation," *Science* 149 (3681) (July 16, 1965): 269-274.

⁴ Gray, 132-33.

⁵ Thurber, 2.

⁶ Ibid, 21-22.

⁷ Ibid., 16.

⁸ Gray, 153.

⁹ Ibid., 146.

¹⁰ Ibid., 137.

¹¹ Ibid., 135.

¹² Amy Cuddy, *Presence* (New York: Little, Brown and Company, 2015): 240, 102, 112.

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¹⁴ Gretchen Reynolds, *To Better Cope With Stress, Listen to Your Body*, blog in *The New York Times*, January 13, 2016.

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