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Instrument-Specific Music Performance Anxiety

Aaron L. Manning

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The University of Southern Mississippi

Instrument-Specific Music Performance Anxiety

By

Aaron Manning

A Thesis
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Bachelor of Music
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Approved by:

Dr. Nicholas Ciraldo
Assistant Professor of Guitar

Dr. Michael Miles, Director
Department of Music

Dr. David R. Davies, Dean
Honors College

Abstract:

For the musician, the occurrence of Music Performance Anxiety is a certainty. The extent, severity, and type of symptom of Music Performance Anxiety experienced vary depending on the performer. The instrument's role in Music Performance Anxiety, however, might also be a factor in the type of symptom experienced by a performer. Does the type of instrument played lend itself to certain physical symptoms of Music Performance Anxiety? By studying the students of the University of Southern Mississippi's School of Music, this thesis explores the relationship between instrument types and physical symptoms of Music Performance Anxiety. Its ultimate goal is to find relationships between the type of instruments played and the type of symptoms experienced.

Key Terms:

MPA – Music Performance Anxiety

Hyperventilation – breathing at an abnormally rapid rate

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Chapter 1: Context

To the musician, a performance represents the zenith of the musician's endeavors. It is a time for the performer to showcase his/her technical ability and musicianship after all of the hours spent cultivating them. It is a time for the audience to be moved by this technical and musical display. Most of all, it is a time for the music to become more than just a collection of notes on a page. It is a time to tap into the emotions and feelings that only music can stir, uniting performer and audience within this musical experience. Such a time should be welcomed, considering the immense effort that musicians put into mastering their instruments and music.

Sadly, however, it is this time that many musicians fear the most. The fear of mistakes, the fear of audience disapproval, the haunting memory of bad past performances, memory slips, technical deficiency, and a plethora of other scenarios can provoke a deep sense of dread known as Musical Performance Anxiety (MPA). This can rob the performance of joy and replace it with fear and worry. The performer can be overwhelmed physically, emotionally, and psychologically by this apprehension. Performing can become an arduous task in this way, and the music itself is stifled, unable to breathe and flow, due to the intense pressure on the musician.

Dr. Ruth Ann Galatas shows, in her dissertation, "A Survey of Techniques in Imagery Training for the Treatment of Performance Anxiety," that this is true for

even the most experienced performer. Revered stage actor Sir Laurence Olivier relates his struggles with performance anxiety commenting that, “...such punishment was now served upon me in the form of a much-dreaded terror which was, in fact, nothing other than a merciless attack of stage fright with all its usual shattering symptoms” (7). Anton Rubinstein, the great 19th century piano virtuoso, began struggling with MPA in his fifties due to his failing memory. He laments that:

I begin to feel an uncertainty; something like a nervous dread often takes possession of me while I am on stage in the presence of a large audience...one can hardly imagine how painful this sensation may be...This sense of uncertainty has often inflicted on me tortures only to be compared with those of the Inquisition, while the public listening to me imagines that I am perfectly calm (Tanner, Whitaker 1987).

Even the great Romantic composer Frederic Chopin suffered from MPA. He felt he was “not fitted [sic] to give concerts. The audience intimidates me, I feel choked by its breath, paralyzed by its curious glances, struck dumb by all of those strange faces” (Kenny 1).

In extreme cases, musicians can become so entrenched in MPA that they believe their only option is to put down the instrument entirely. An unnamed cellist in Dianna Kenny’s *The Psychology of Music Performance Anxiety* believes he has come to this point. He relates that:

I think I am good enough to be at the professional level, but at the moment it’s just not possible because of the stress and the pressure that I am putting

on myself. Now I am at the point of actually making the decision to put the cello away and stop doing it altogether (5).

These performers' extreme passion for music has been replaced by an equally extreme dread, turning their greatest love into their greatest fear.

Accurately defining this dread has proved elusive by experts over the years. This is due in part to a lack of consensus on the definition of terms associated with MPA. Kenny states, "while [literature on MPA] shows that many researchers use the terms 'stage fright', 'performance anxiety', and 'music performance anxiety' interchangeably there is not always agreement as to the meaning of these terms" (48). In light of this, she has proposed her own definition of MPA that takes into account a more contemporary understanding of MPA, one in terms of its anxiety disorders and social phobia. Her definition is:

Music performance anxiety is the experience of marked and persistent anxious apprehension related to musical performance that has arisen through underlying biological and/or psychological vulnerabilities and/or specific anxiety-conditioning experiences (61).

She goes on to say it is exhibited through affective, cognitive, bodily, and behavioral symptoms that can affect musicians throughout their performing careers within a variety of performance situations (61).

Dale Reubart, in his book *Anxiety and Musical Performance: On Playing the Piano from Memory*, also seeks to define MPA, but starts off within the larger realm of general anxiety. He distinguishes between two types of anxiety: normal and neurotic. He defines normal anxiety as the "wariness towards the natural dangers

which confront all human beings”, the instinctual response of self-preservation within organisms (6). Neurotic anxiety is this same feeling of apprehension but in response to an event that in reality is of minimal threat or danger. He states, “the responses are generated by the individual’s interpretation rather than by the actual threat [the event] impose[s]” (7). MPA is a neurotic anxiety (7).

The actual source of the anxiety, however, can be due to any number of reasons, and it is here that looking at MPA becomes more difficult. As each person is different and has different experiences, so too is the source of their anxiety. Some may have low self-esteem about themselves or their playing, and such views can lead to a feeling of worthlessness and cause performances to be bland and without emotion. Others may carry the weight of a particularly bad prior performance experience. This memory may keep a constant fear of the stage buried deep within them. Other sources may be technical ones, such as too little preparation, a piece that is too hard, or tension-inducing body posture that limits the success of the performance.

The consequences of this anxiety are easily identified by those who have been in a performance situation, whether it be a presentation, musical performance, or speech. Reubart outlines a number of ways anxiety affects the performer, both physically and mentally. As the day of performance draws near, individuals may experience sleep and appetite loss, upset stomach, and vomiting. Apprehension about “forgetting the music, losing one’s place, the mind ‘going blank,’ a state of mental confusion and disorientation, the head ‘swimming,’ [and] the total inability to focus” weaken the performer’s confidence in their mental preparedness (7).

Along with this, distress and fear can set in at the prospect of an on-stage mental collapse that would inevitably lead to feelings of humiliation, vulnerability, and inferiority. All of these symptoms are tied to stress that suppresses positive thought, which is known as “catastrophizing” (7). Reubart concludes with the thought that “[these] feelings are all too familiar to those who have suffered uncontrollable anxiety” (8).

These physical symptoms, though troublesome to the performer, are natural to the body that feels in danger. The body’s innate sense of self-preservation automatically responds to stress through certain physical means to enhance its ability to combat a perceived threat. The problem arises when this act of self-preservation initiates during an occasion of little to no actual danger, such as a performance. Reubart calls this “one of the phylogenetic miscalculations of nature” (8). The body’s confusion results in physical reactions that hinder the performer’s ability to play his/her instrument. Physical symptoms include rapid breathing, sweating, increased heart rate, appetite loss, vomiting, hypertension, cold limbs, and shaking.

Each of these symptoms has a logical function for the body during the act of self-preservation. An increased heart rate helps blood flow quickly to muscles. High blood pressure and cold limbs are a result of bodily functions that ensure decreased blood loss if injured in battle. Sweating in the palms and feet aid in a speedy escape from danger. Deep and rapid breathing increase the oxygen supply to the muscles and cardiovascular system. Vomiting and appetite loss are due to the inhibition of the digestive system, which allows more blood to be used by the muscles. Finally,

shaking and hypertension provide more strength in a fight (8-9). Unfortunately, these reactions are of little use to the musician and can impair the performance.

For all the research in MPA and its effects on the performer, little has been studied on the relationship between instrument-specific MPA, particularly the physical symptoms of MPA. Could it be possible that the type of instrument one plays correlates to the type of physical symptom experienced? Research by Patrick Gomez, et al., in the study “Hyperventilation Complaints in Music Performance Anxiety Among Classical Music Students”, suggests that this could be possible. They found that singers and wind musicians were more troubled by respiratory problems before performing than other types of instrumentalists, suggesting that the body part used for a performance is more likely to be physically affected by MPA. This, however, has not been expanded to all instrument types and physical maladies. It is within this realm of instrument-specific anxiety symptoms that I will explore in this thesis. I will look for connections that suggest instrument type as a possible indicator of MPA physical symptoms. The research question to be answered is, ‘within the university setting, is there evidence to suggest that the type of instrument played correlates to a certain type of MPA physical symptom, thus making the music student more likely to experience this symptom?’

Chapter 2: Literature Review

The review of literature that explores the research question will be discussed under the following headings: Views of Anxiety, Yerkes-Dodson Curve, Physical Symptoms of MPA, Real World Examples of MPA, Solutions to MPA, Gap in the Literature, Sample and Testing.

Views of Anxiety:

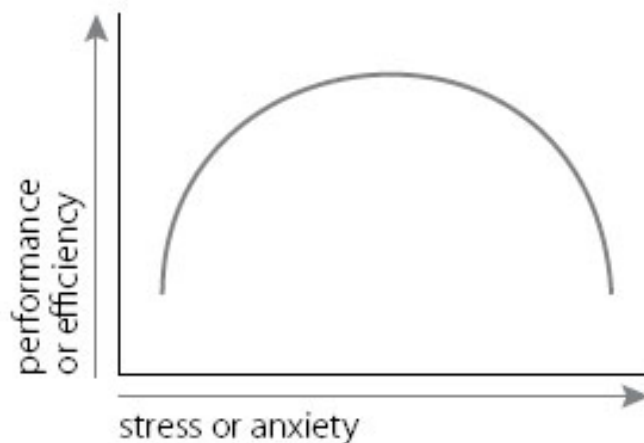
Dale Reubart's purpose in *Anxiety and Musical Performance: On Playing the Piano from Memory* is to provide relief to piano students who are struggling with performing music from memory. The main topic of the book is music performance anxiety, but Reubart is very thorough in his intent and research. From the onset of the book, two views of anxiety from different camps of psychology are discussed. In the psychoanalytical view from Rollo May, anxiety is the unease felt in reaction to a danger that threatens the core beliefs or values associated with one's personality (3). Under the behavioral psychological view of B.F. Skinner, anxiety is just an emotional reaction to stimuli presupposed by one's innate disposition (4). He then goes on to classify two different types of anxiety. Normal anxiety, as discussed in Chapter One, is the instinctual feeling of threat when faced with a danger. The second, neurotic anxiety, is this same feeling of threat but at levels disproportionate to the actual danger (6-7). From here Reubart discusses how anxiety affects performers. Psychological disturbances include panic, confusion, disorientation, forgetting music,

inability to focus, and irrational worry (7). Physical symptoms include loss of sleep, loss of appetite, vomiting, shaking, dry mouth, hyperventilation, cold hands, and hypertension (8).

Yerkes - Dodson Curve:

The Yerkes-Dodson Curve has long been the standard explanation for the effect of anxiety on a performer. The curve shows that, as anxiety increases, so does the success of the performance... up to a point. After this point is reached, a continual increase of anxiety starts to inhibit the performance (Reubart 13).

Anxiety initially enhances the performance because it makes the performer more cognizant of cues pertinent to performance success while also disregarding those that are of no help. However, as the anxiety level increases, the scope of cognition becomes too focused, causing the performer to disregard cues relevant to performance. Thus, the performance's overall success is affected (Reubart 14). This curve is represented by the inverted U:



(<http://blogs.hbr.org/>)

Andrew Steptoe in his article, *Performance Anxiety: Recent Developments in Its Analysis and Management*, shows that the Yerkes Dodson Curve can be applied to the music performance setting. He relates an experiment where young classical and operatic singers were asked to rank performance quality from five different performance scenarios: private practice, lesson, dress rehearsal, public performance, and audition. They were then asked to rank the anxiety experienced at each different scenario on a scale of 1 (extreme anxiety) to 9 (calm). From this data, it was found that performances associated with moderate anxiety were felt to be most successful. Lower and higher anxiety rates correlated to lower performance success (538). This supports the Yerkes-Dodson Curve in that higher anxiety rates led to greater success up to a midway point. Once past this point, success dropped sharply.

Dianna Kenny, however, has objections to the Yerkes-Dodson Curve going so far as to call it, "probably the most quoted (and misquoted) figure in the history of psychology." She starts by showing that the original experiments (conducted in 1908) were carried out on mice and not humans. Also, the experiment was intended to find the relationship between learning speeds of tasks and stimulus strength, such as varying intensities of punishment stimulus. The experiment resulted in three graphs, each graph representing a task of differing difficulty levels that the mice learned. For easy tasks the relation between stimulus strength and learning speed was linear, not U shaped (138). This meant that the more punishment stimulus a mouse received the faster it learned the task. It was in the 1950s that researchers expanded the results to include the correlation between arousal and performance. Later, the idealization of this relationship widened to include stress,

arousal, and anxiety's relationship with performance (139). This is a far venture from the initial variables of learning speed and stimulus strength. Going back to the graph of the learning speed of an easy task, applying the currently accepted variables of the curve (performance and anxiety) would suggest that performance of an easy piece is most successful when the performer is under immense stress, which is exactly the opposite of the current understanding of the Yerkes-Dodson Curve.

Kenny believes the relationship between performance and anxiety is much more complex than what the Yerkes-Dodson Curve provides. For instance, the curve does not take into account a performer's state and trait anxiety and how it relates to their technical ability (141). Performers with low trait anxiety need higher levels of arousal to reach their ideal performance, while high trait anxiety performers need a minimum amount of arousal to reach peak performance. In regards to technical ability, the more a performer has practiced a piece the more arousal is needed to reach peak performance. If a performer has a shallower grasp of the piece then less anxiety is needed to reach peak performance. Obviously, it follows that too little practice of a piece will result in a poor performance regardless of anxiety levels, and the potential for a great performance increases as mastery of the piece increases (142). Other factors, such as attention, further complicate this relationship. Therefore, the Yerkes-Dodson Curve is unable to fully explain the relationship between performance and anxiety (143).

Physical Symptoms of MPA:

Mark C. Ely, in his article “Stop Performance Anxiety!”, provides a thorough investigation into the physical, cognitive, behavioral, and psychological aspects of MPA. Particularly useful to this research is his look at the physical aspects of MPA. The physical symptoms of MPA are the easiest to study and isolate, since their existence can be observed and measured. Ely shows that the physical problem of MPA arises out of the interaction between the central nervous system and the autonomic nervous system (36). These two systems usually work independently of each other. The autonomic system’s job is to control basic human functioning, like breathing or heartbeat rate. However, when the body perceives danger, the central nervous system will take control of the autonomic nervous system in an effort to equip the body for combat. This phenomenon is what leads to the sweating, heavy breathing, shaking, and other physical symptoms of MPA (36).

Real World Examples of MPA:

Dianna T. Kenny, in her book *The Psychology of Music Performance Anxiety*, shows how music performance anxiety can have a variety of sources and can span musical genres and the duration of a career. In one instance a cellist gives three testimonies from different times in his career. The first testimony shows his initial experience with music performance anxiety at a school recital. He relates that, “it was... one of the most embarrassing moments of my life...It made me lose confidence in myself” (5). Later in his life he recounts a wonderful performance for an audience of three thousand. He “played very accurately, but also with great freedom and expression... This performance enhanced [his] reputation” (5).

However, MPA returned years later. This time the anxiety was so intense he began considering quitting the instrument all together (5). This testimony shows that music performance anxiety is an issue that performers deal with throughout their entire careers and lives. It isn't isolated to a certain period in a performer's life. Bouts with MPA can come in waves of varying intensity, and for some it can be too much.

Kenny also uses this same testimony format to show how MPA affects performers from many different genres of music, not just instrumental performers. In addition to concert performers, indie vocalist Cat Power and pop legend Barbara Streisand relate their struggles with solo music performance anxiety. The source of MPA also varies. In one instance it was a bad performance at an early age. In another it was a troubled childhood. Others include perfectionism, causing a performer to give up after a few missed notes and fear of getting a bad review. Taken together, Kenny shows from real life examples that the music performance anxiety problem is as specific to the performer as his/her fingerprint. This problem permeates the entire sphere of musical performance and is something all performers should be mindful of.

Solutions to MPA Symptoms:

The problem of performance anxiety, however, has not gone untreated. There are several methods and mindsets used by musicians to counter this anxiety. Barbara Schneiderman in her book *Confident Music Performance: The Art of Preparing* focuses on the reverse of anxiety: confidence (4). She argues that anxiety

shouldn't be dealt with during the days or weeks leading to a performance, but that the solution to anxiety lies in the personal life of the performer. It is found in how the performer approaches practicing, learns music, and views himself/herself. Confidence should be built into the "whole person" throughout his/her life and not isolated to a few methods or tactics (1-2).

However, methods and tactics are used to cope with anxiety. In *But I Played it Perfectly in the Practice Room!* by Charlotte Whitaker and Donald Tanner, nine different methods for dealing with anxiety are listed. One is the physical exercise of deep breathing and relaxation. Anxiety can lead to an involuntary shaking of body parts. By actively trying to quell shakes through intentional relaxation and deep breathing, shaking can subside (7). Another tactic is shifting the focus of the shaking body part to another part of the performer's body. By focusing on one's toes instead of one's jaw during a performance, tightness in the jaw can subside (6). Other methods are proposed in Ruth Galatas's dissertation *A Survey of Techniques in Imagery Training for the Treatment of Performance Anxiety*. Her methods focus on the performer's relationship with the audience. One method is for the performer to gain confidence by considering that he/she must be good if all of the people present came just to hear him/her perform (13). Another tactic is to focus on one person of the audience instead of the whole. By focusing on a benevolent stranger, he/she becomes the sole recipient of the performance (14).

Another tool used by performers is the biofeedback technique. Andrew Steptoe, in *Performance Anxiety. Recent Developments in Its Analysis and Management*, relates that these techniques have been used to address muscle

tension in singers and string instrumentalists. Tension is recorded through electrodes that are applied to the muscles experiencing tension. The electrodes pick up the activity of the tense muscles and display them on a screen or through a speaker. This allows the performer to actually see or hear the tension that his/her muscles are experiencing, making it easier to recognize and control tension levels (539-540).

Gap In the Literature:

The work of Patrick Gomez, et al. in the article, “Hyperventilation Complaints in Music Performance Anxiety Among Classical Music Students”, suggests that specific physical maladies have been shown to be more prevalent in students that play a certain instrument. In their research they found that wind musicians and singers were affected by respiratory problems associated with MPA more frequently than students who played other instruments. This could be due to the required focus on the respiratory system in playing their instrument, regardless of anxiety (562). But they also relate that little research has been done on instrument-specific symptoms associated with performance anxiety (558). From their research it seems that the type of instrument a person plays and specific physical symptoms of MPA may have a correlation. Does a certain instrument lend itself to certain physical symptoms? The fact that little research has been done on the subject shows the need for a closer look into the correlation of instrument to MPA physiology.

Sample:

In “Stage Fright: Its Experience as a Problem and Coping With It” by Brigitta Danuser, et al., Danuser and her colleagues assessed the negative feelings of MPA and the experience of stage fright as a problem through surveying college students. The team justifies the use of college music students as an appropriate and important survey group by stating that music students have been shown to have higher levels of performance anxiety than other groups and are just beginning to learn how to cope with it (762). This validates the use of university students as the sample for this study. Using music students ensures that the sample will be a group that is subject to performance anxiety on a regular basis (762). With the varied amount of instruments played at the university, it will be easier to survey players of each instrument for the physical symptoms of their nervousness and look for correlations therein.

Ch. 3: Methods

Research Question:

Within the university setting, is there evidence to suggest that the type of instrument played correlates to a certain type of MPA physical symptom, thus making the music student more likely to experience this symptom?

Variables:

In narrowing down the sample for this thesis, three criteria need to be met. The first is that the sample needs to include a variety of instruments. Instrument type refers to the main instrument with which the student studies and performs. This includes brass, woodwinds, strings, percussion, and voice. Since the

relationship between instrument type and the physical effects of MPA is being studied, it is important that as many instrument types as possible be represented. The sample must also have enough performance experience to know the ways in which MPA physically affects them. Performance experience refers to experience gained from performing in front of an audience, such as a recital, audition, dress rehearsal, competition, or jury. Third, the sample needs experience with MPA within a similar environment. Environment refers to area and collective effect of the area on the music student during the course of his/her study. This acts as a control for the entire process of data gathering. It ensures that subjects of my research have similar performance backgrounds and opportunities.

Sample:

College music students at the University of Southern Mississippi fit all three criteria. The range of instruments they play represents every family of instruments, and each instrument has enough players to gather a substantial amount of data. As music majors, USM requires students to perform, ensuring an understanding and experience with MPA. Each student has a performance class that meets once a week, known as recital class, built into their curriculum. Its sole purpose is to provide performance experience. There are two types of recital class. General recital class meets the first Tuesday of every month. In this class all undergraduates of the school of music meet, and a select group of students perform for them. For the rest of the month students have departmental recital class. Here students only meet with their instrument studio to perform. All students are required to take this class. In addition to the class, music students regularly have recitals, competitions,

auditions, and other avenues for performing through the university or outside of it. Finally, these students share the same environment. While experiences can vary from student to student, each one is under a similar curriculum with similar performance opportunities. They are all music students from the University of Southern Mississippi. Their qualifications make them valuable to the research.

In the study "Stage fright: Its Experience As a Problem and Coping With It", Brigitta Danuser, et. al, comment on the importance of using university students in studying MPA. They relate that college music students typically suffer from high levels of MPA, making their experiences credible and valuable in understanding MPA (762). Furthermore, since music students are preparing for a career in the performance field, they perform in public on a regular basis, a point already highlighted (762). The last reason for studying music students is to help them in coping with MPA. To ensure the success of students in the music field, universities are taking more interest in the teaching of coping strategies for MPA (762). By studying MPA in these students, successful coping strategies are found, benefitting both the university and the student.

Instrumentation/Procedures:

In regards to the physical symptoms associated with MPA, a simple questionnaire that lists all of the involuntary bodily reactions associated with performance anxiety was made. These physical symptoms ranged from those within the body, such as increased heart rate, to observable ones outside of the body, such as hyperventilation or shaking. The symptoms surveyed include: increased heart rate, sweating, shaking/jitters, coldness/numbness, nausea/vomiting,

hyperventilation/rapid breathing, muscle tension, and appetite loss. Participants ranked on a scale from one to five to show the extent of the symptoms experienced before performing, one being “never experienced” and five being “always experienced”. The participants also included the type of instruments that they play, their classification, their gender, their major, the number of performances that they have given, and the type of performances given.

It is important to note that the questionnaire will assess the symptoms experienced and their severity on a performer *before* they perform, *not during* a performance. Symptoms experienced during a performance could be due to an increased focus on the body parts being used to perform, and not be due to anxiety (Patrick Gomez, et al.). By focusing on symptoms before a performance, there will be less concern over non-anxiety induced symptoms.

The music performance anxiety symptoms questionnaire was administered at the beginning of general recital class. As mentioned above, general recital class is the performance class where the entire school of music meets. This ensured that a substantial amount of data was collected, a total of one hundred and seventy-five respondents. Having students reflect on their experience with MPA over the course of their performing careers provided an accurate assessment of the symptoms most experienced. This, coupled with such a large sample size, undoubtedly made the data more accurate and reliable. At the end of recital class, students returned the questionnaire to the researchers as they exited.

Data Analysis:

Data from the MPA symptoms questionnaire was compared for each participant. This data was separated according to instrument type. From these groups it was assessed whether relationships existed between instrument type and the kind of physical symptom experienced and the extent of this experience found within players of these instruments. From this, it was concluded whether instrument type and physical symptom experienced are independent of each other or if the type of physical symptom experienced corresponds to the type of instrument being played. Ultimately, the data will show if there are instrument-specific physical symptoms due to MPA.

The data was also grouped according to class specification and again for the number of performances given. These groupings allowed the researchers to see if students' class specification or number of given performances corresponded to a higher or lower rate of symptom experience when compared to the rest of the groups. This showed trends that existed throughout students' performance careers at USM and as a whole.

Results

The results of the questionnaire totaled 175 responses from students and represented 18 different types of instrument from 5 different instrument family groups. The 5 different instrument families and their total responses are as follows: Voice – 45, Brass – 40, Woodwind – 43, Strings – 29, and Percussion – 18. Respondents indicated the extent of their experience with MPA symptoms before a performance by ranking on a scale of one to five how often they experienced each symptom. Each number corresponded to a different level of experience. The

numerical designations are as follows: 1 – Never, 2 – Rarely, 3 – Occasionally, 4 – Frequently, and 5 – Always. So, for example, a response of 5 for appetite loss indicated that the respondent always experienced a loss of appetite before a performance. The responses for each symptom were grouped according to instrument type. From here an average of the responses was taken to find the extent of experience for each instrument type. This experience average represents the degree to which a performer typically experiences a symptom before a performance. For example, Flutes had an experience average of 4.6 for increased heart rate. This means, on average, flute players nearly always experience increased heart rate before a performance. The *overall* experience average for each instrument family was found by averaging all of the responses within the instrument family. The following tables show the instrument experience averages and overall experience averages for each instrument family. The total number of responses per instrument is underneath:

Table 1: Brass Experience Average

	Brass					Overall
	Trombone	Trumpet	Tuba	Euphonium	Horn	
Increased heart rate	3.67	3.82	3.80	3.50	3.57	3.68
Sweating	2.33	2.91	3.80	2.75	3.86	3.03
Shaking/jitters	3.44	3.18	3.00	2.63	3.43	3.15
Coldness/numbness	1.44	2.00	2.20	1.25	1.71	1.70
Nausea/vomiting	1.33	2.00	1.00	1.00	1.43	1.43
Hyperventilation	2.11	2.00	1.40	1.25	2.00	1.80
Muscle tension	2.00	2.27	2.20	2.25	3.43	2.40
Appetite loss	1.67	2.27	2.60	2.25	2.00	2.13

Trombone (9), Trumpet (11), Tuba (5), Euphonium (8), Horn (7)

Table 2: Voice Experience Average

Voice	
Increased heart rate	3.71
Sweating	2.13
Shaking/jitters	2.98
Coldness/numbness	1.73
Nausea/vomiting	1.38
Hyperventilation	1.62
Muscle tension	2.53
Appetite loss	2.40

(45)

Table 3: Woodwinds Experience Average

	Woodwinds					Overall
	Saxophone	Clarinet	Oboe	Bassoon	Flute	
Increased heart rate	4.00	3.93	3.50	4.50	4.60	4.09
Sweating	2.77	3.07	2.75	2.50	3.30	2.98
Shaking/jitters	3.69	3.86	2.50	1.50	4.20	3.65
Coldness/numbness	1.69	2.36	2.25	1.00	2.70	2.16
Nausea/vomiting	1.38	2.29	1.00	1.00	1.40	1.63
Hyperventilation	2.00	2.64	1.75	1.50	2.80	2.35
Muscle tension	2.77	3.57	2.75	2.50	3.50	3.19
Appetite loss	3.08	3.14	2.00	1.00	3.80	3.07

Saxophone (13), Clarinet (14), Oboe (4), Bassoon (2), Flute (10)

Table 4: Strings Experience Average

	Strings					Overall
	Violin	Cello	Viola	Bass	Guitar	
Increased heart rate	3.63	3.50	4.50	2.00	4.14	3.86
Sweating	2.63	2.50	4.00	1.00	2.93	2.79
Shaking/jitters	2.88	2.50	4.50	5.00	3.93	3.52
Coldness/numbness	2.75	2.25	3.50	1.00	2.14	2.38
Nausea/vomiting	1.13	2.00	2.50	1.00	1.21	1.38
Hyperventilation	1.75	2.50	3.00	1.00	1.93	2.00
Muscle tension	2.88	2.25	4.00	5.00	3.14	3.07
Appetite loss	2.50	2.75	4.00	1.00	1.71	2.21

Violin (8), Cello (4), Viola (2), Bass (1), Guitar (14)

Table 5: Percussion Experience Average

	Percussion		Overall
	Percussion	Piano	
Increased heart rate	3.23	4.40	3.56
Sweating	2.15	2.20	2.17
Shaking/jitters	2.38	3.00	2.56
Coldness/numbness	1.38	2.40	1.67
Nausea/vomiting	1.15	1.40	1.22
Hyperventilation	1.00	1.40	1.11
Muscle tension	1.54	3.00	1.94
Appetite loss	1.62	3.20	2.06

Percussion (13), Piano (5)

Table 6: Overall Experience Average of All Respondents

Overall	
Increased heart rate	3.81
Sweating	2.66
Shaking/jitters	3.23
Coldness/numbness	1.92
Nausea/vomiting	1.43
Hyperventilation	1.85
Muscle tension	2.69
Appetite loss	2.43

Because of the small sample size for some instruments and the disparity in the number of responses (14 guitar responses vs. 2 bassoon response for example), it became necessary to compare instrument families rather than specific instruments. The sample size for families is much greater, making their averages more reliable. This approach is more general in scope, but it does reveal some interesting trends as seen in this graph of overall averages:

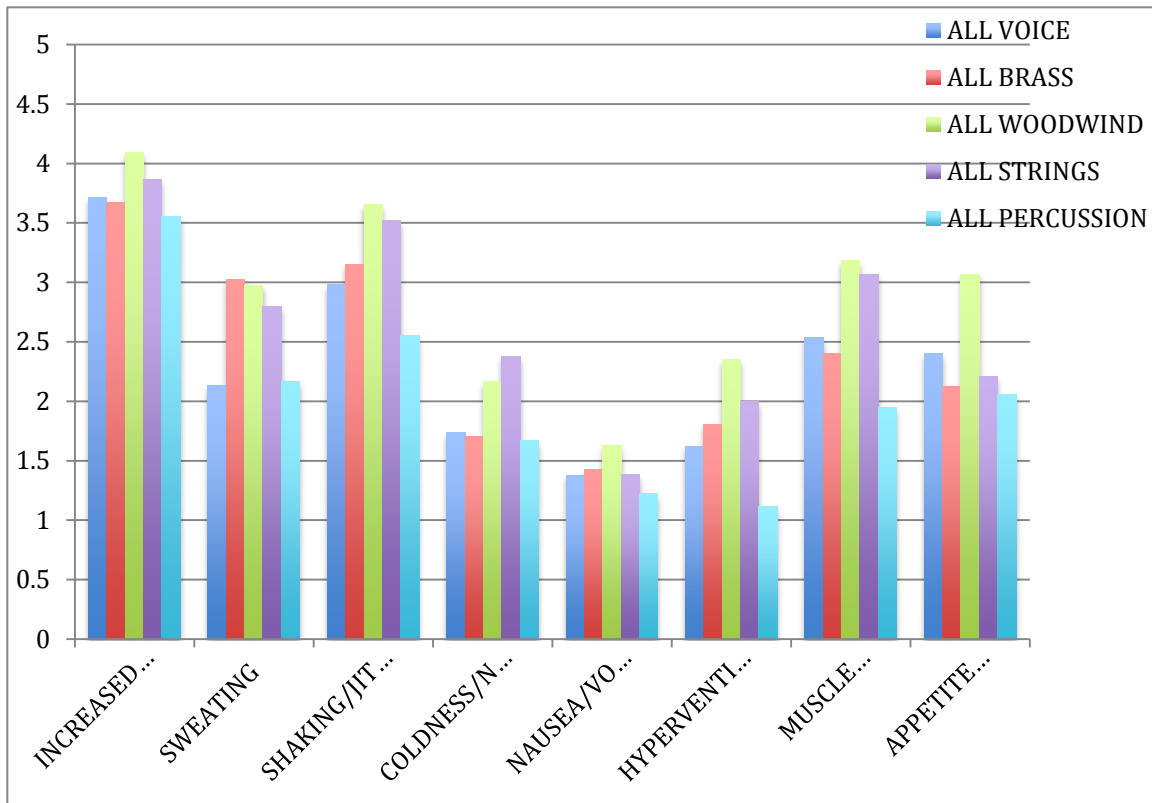


Figure 1: Instrument Family MPA Symptoms Average Graph

As the graph indicates, increased heart rate is the most experienced symptom overall. The least experienced symptom is nausea and vomiting. Woodwinds have the highest experience average in 6 of the 8 categories. These categories are: increased heart rate, shaking/jitters, vomiting, hyperventilation, muscle tension, and appetite loss. Brass has the highest experience average in sweating, and Strings have the highest experience average in coldness/numbness. Also interesting is that Percussion has the lowest experience average in every category, except sweating which is Voice.

From this, Woodwinds deal more often with MPA than any other family group of instruments. In fact, by comparing Table 3 to Table 6 one can see that their

experience averages are higher than the cumulative experience averages of all 175 respondents. To be fair, some symptoms, such as increased heart rate and nausea/vomiting, have similar experience average among all family groups, but some symptoms have a much higher experience average gap. Three of them stick out. The first is hyperventilation. Woodwinds have an average of 2.35, compared to the overall average of 1.85 and the lowest average (Percussion) of 1.11. The next symptom is muscle tension. The Woodwinds average is 3.19 compared to an overall average of 2.69 and the lowest average (Percussion) of 1.94. The last and most pronounced disparity is appetite loss. Woodwinds average a 3.07. This is compared to the overall of 2.43 and the lowest average (Percussion) of 2.06. Comparing instruments within the Woodwinds family show that Clarinet and Flute's experience averages contribute the most to the high averages of hyperventilation and muscle tension. Flute itself contributes most to the high appetite loss experience average. In fact, Flute has the highest experience averages in all but two categories in the Woodwinds family, nausea/vomiting and muscle tension.

Taking a look at Brass reveals another interesting trend. Brass is at or below the overall average of all 175 students in every category except for sweating. In sweating not only are they above average, but they also have the highest experience average of all families with 3.03 compared to the overall average of 2.66 and the lowest average (Voice) of 2.13. Viewing the individual instrument average breakdown of Brass shows that Tubas and Horns had the highest averages (though the lowest respondents) with 3.8 and 3.86. Trumpets are behind them with an

average of 2.91. This indicates that of the Brass family Tuba, Horn, and Trumpet players contribute the most to this high experience average.

The last symptom not discussed for highest experience average is coldness/numbness. Strings have this highest average with a 2.38. Comparing it to the overall average of 1.92 and the lowest average (Percussion) of 1.67 shows that this symptom does not have as wide of a difference gap as some of the other symptoms. However, it is of worth to note that the Strings group is just under Woodwinds as the second highest experience average (and a close third in another) in five of the eight categories, except for this category where it breaks the trend by being the highest experience average. Discounting Violas because of a small sample size, Violins contribute most to the high average with an experience average of 2.75.

On the other side of the spectrum are lowest experience averages, and the Percussion family emerges as the least likely group to experience MPA physical symptoms by having the lowest experience averages in 7 of the 8 symptoms. In fact, Percussion would be lowest in all categories, had Voice not edged it out in sweating (2.13 vs. 2.17). Three of these averages are of note: shaking/jitters, muscle tension, and hyperventilation. Percussion has an experience average of 2.56 in shaking/jitters compared to the overall average of 3.23 and the highest average (Woodwind) of 3.65. For hyperventilation, Percussion has an average of 1.11 compared to the overall average of 1.85 and the highest average (Woodwind) of 2.35. Finally, for muscle tension Percussion's average is 1.94 compared to the overall of 2.69 and the highest (Woodwind) of 3.19. These three symptoms have the largest gaps between the high and low averages. What is even more interesting is

that when looking at the Percussion family group breakdown, one sees that Piano brings up the experience average in every category, some quite significantly. Taking it all together suggests that percussionists outside of the piano are least likely to experience MPA symptoms out of all USM School of Music students.

As mentioned earlier, Voice is the last of the “extremes” with the lowest experience average in sweating of 2.13. The overall average is 2.66 and the highest (Brass) is 3.03. One thing that sticks out is that the Voice and Brass experience averages are nearly similar for every other category, except for here in sweating, where they are the farthest apart.

Another way to analyze the data is to group it according to class specification. Doing so finds the experience averages of each category according to year in school. There were 54 freshmen, 43 sophomore, 56 junior, and 22 senior respondents. One would assume that the extent of experiences with MPA symptoms would decrease over time as the student progressed from freshmen to senior year due to increased performance experience and technical skill. However, this assumption proved to be the exact opposite of what the data shows, as seen in this graph:

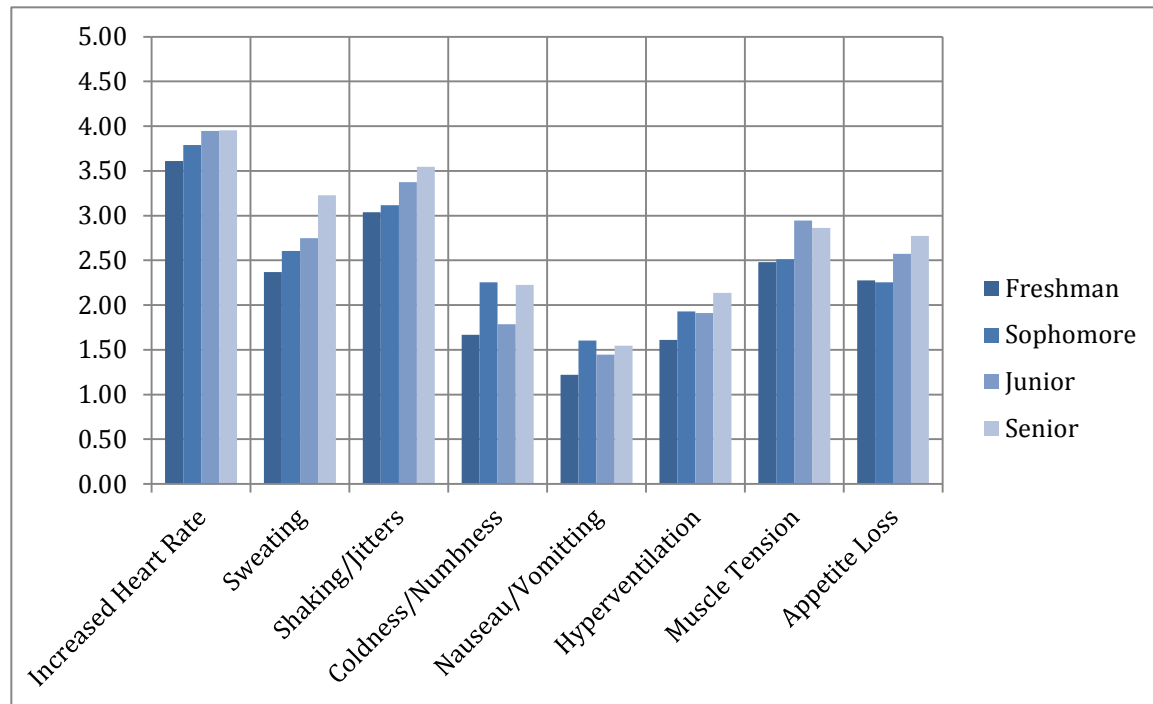


Figure 2: Class Specification MPA Symptoms Graph

There is a clear trend of increase of experience averages from year to year. According to the data, students experience these symptoms more often the longer that they are in school. In fact, comparing seniors to freshmen shows that the experience average of seniors is greater than that of freshmen in every category.

What are the ways to explain this? First off, one could argue that it is not fair to compare the freshmen and senior averages because of the significant difference in sample size. But, freshmen and juniors have nearly the same sample size, and the trend still holds true. In fact, freshmen have the lowest averages in every category except for appetite loss. Another argument is that being a senior does not necessarily translate to more performances given or that being a freshman does not necessarily mean that one has not given a lot of performances. The key would be to

see how these averages compare when grouping the data according to number of performances given. Fortunately, this question was a part of the questionnaire and made into a graph. The reader should know that there was an error in the questionnaire in regard to this question that was not caught until after the data collection process. Respondents indicated the approximate number of performances given by circling either 1-5, 6-10, 11-15, 20-25, or 25+. As is seen, the option of 16-19 was mistakenly omitted, and the 25+ selection should have been 26+. Nevertheless, the data collected is still valuable and worth analyzing. Here is the graph:

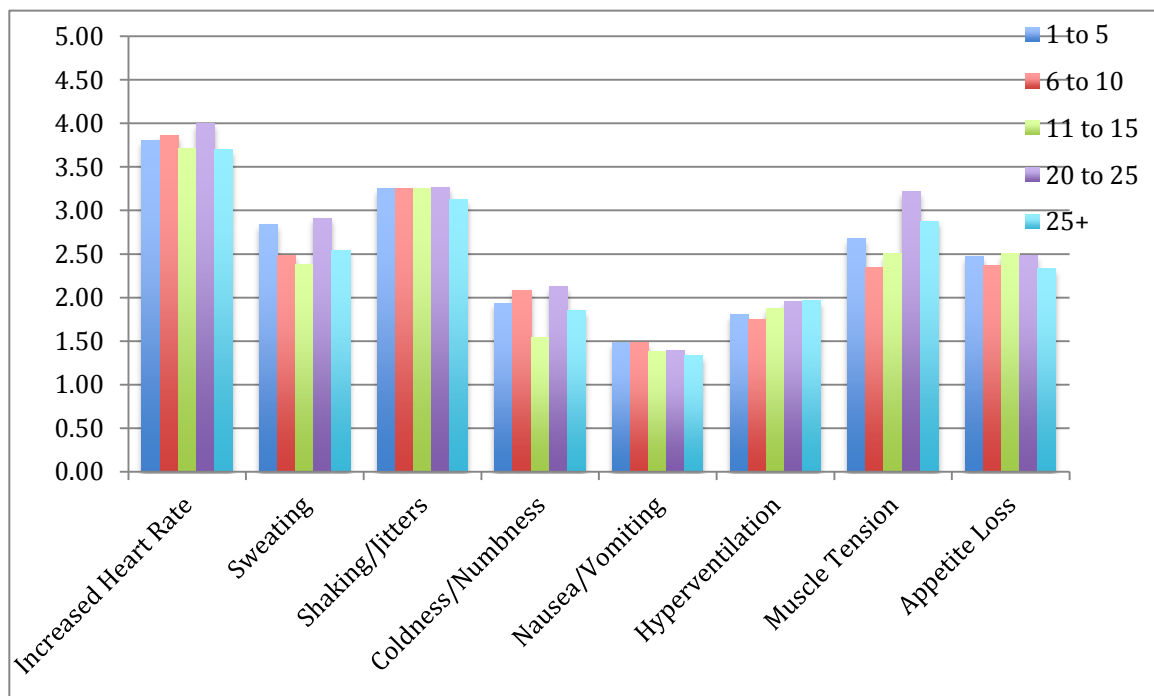


Figure 3: Number of Given Performance MPA Symptoms Graph

This graph offers no discernable trend. While one would assume that more performances would lead to a lower experience rate of symptoms, this graph shows

that it does not make much of a difference. For example, the second highest performance number group, 20-25, is at or near the highest averages of nearly every category. And when the 25+ group has the lowest experience average (increased heart rate, shaking/jitters, nausea/vomiting, and appetite loss) it is only by the slimmest of margins. Comparing only the 1-5 group to the 25+ group does not yield convincing results either. 6 out of 8 times the 25+ has a lower experience rate, but this too is by very slim margins and twice the 25+ has a higher experience average.

Considering both graphs together indicates that the number of performances given and the number of years one has attended the USM School of Music has very little impact on how often one experiences MPA symptoms before a performance. It is also important to remember, however, that not all performances are equal in their stress levels. Juniors and seniors are often performing, competing, or auditioning in high anxiety situations where a scholarship, award, or other prize is on the line. Another thing to consider is that this study is looking only at extents of experiences before a performance; therefore it is limited in its scope. It cannot comment on the severity of experienced symptoms a performer has during a performance. In this regard, Figures 2 and 3 are best analyzed as showing that experience with MPA symptoms or more likely to increase overtime as a student has increased in instrument study and performance opportunities.

In summary and conclusion, the data indicates that there is some degree of connection between instruments and symptoms. Woodwinds, in particular, experience more symptoms on average than any other instrument group, particularly hyperventilation, muscle tension, and appetite loss. Strings are most

affected by coldness and numbness. Brass experiences sweating more than any other group. Conversely, percussionists have the lowest experiences averages for nearly every category, making them least likely to experience MPA symptoms. Focusing on MPA symptoms according to class specification and number of given performances yields unexpected results. Students tend to experience MPA symptoms more as they progressed in school, not less. Even accounting specifically for the number of performances given, it is not conclusive that students with more performance opportunities experienced symptoms less. This suggests that whichever symptom a student performer experiences, he/she will continue to experience it even with more performance opportunities. In the end, MPA is a reality for every musician. Therefore, it is important to understand how it affects the performer. Only then can steps be taken to cope with its effects. This thesis, then, is a small step towards a more complete picture of Music Performance Anxiety, in hopes that music will flow unfettered by self.

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