Designing an online, hybrid learning pathway to support singers with music performance anxiety

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COMPONENT 1 – PROJECT PORTFOLIO

Introduction

A staggering 60–80% of professional musicians have reported experiencing debilitating MPA that significantly impairs their ability to practice, perform, and function in their field (Gómez-López, B. and Sánchez-Cabrero, 2023; Cirujeda, 2014 as cited in Sullivan 2025; Kenny, 2011), and up to 95% of music students (Wiedemann, et al., 2022) in past research studies. For such a prevalent issue, little has been done to support musicians suffering MPA, possibly because of the established culture of "weeding out" anyone who isn't tough enough to "make it" in the business (Kenny, 2011; Nettl, 1995 as cited in Perkins et al., 2017). Given that a high percentage of musicians go on to work in music (Brook et al., 2020), it seems even more pressing to address issues hindering them from performing at their best.

I have identified specific modalities for singers that have proven successful both in research studies (Sullivan, 2024; Sullivan 2025) and in my own practice as a voice teacher and insider researcher, as effective treatments for MPA in singers. These will be incorporated into an artefact consisting of a) evidence-based yoga poses and Qigong exercises shown to alleviate anxiety b) elements of Acceptance and Commitment Training for Musicians (ACT) (Juncos & De Paiva e Pona, 2022), including pertinent elements of the Mind Body Stress Reduction (MBSR) (Kabat-Zinn, 2023), as a foundational tool for singers to alleviate their MPA symptoms and improve their experience as performers. This practice-based tool (Nelson, 2013) will be a web-based, hybrid Learning Pathway (Williams and Rosenbaum,2004) designed to effectively and efficiently move the user through various modules that will ultimately relieve their symptoms of MPA, leading to a better performance experience.

Planned Programme of Study

Theoretical influences

MPA affects musicians somatically, behaviorally, and/or cognitively (Kenny,2011). Studies show that musicians are less likely to seek psychological help despite these high incidences (Kenny, 2011). With the introduction of Eastern Medicine Practices (EMP) in the West and the popularization of yoga (Hammond,2025), mindfulness (Kabat-Zinn, 2023) and Qigong (Cohen, 2018), Western music training has begun to include EMPs for musician-specific applications that can lead to an improved performing experience. Elements of these

modalities, such as mindfulness and visualization can be found in peak performance training courses (Greene, 2002). However, these methods alone do not address navigating the psychological landscape of physical and mental obstacles that can “paralyze” a musician with MPA (Sullivan, 2025). ACT for Musicians (Juncos and De Paiva e Pona., 2022) includes specific methods to address the psychological and cognitive aspects of performing, such as mindfulness and elements of compassion-focused mental training (Gilbert, 2009).

Best Practice influences: Relevant current best practices and pedagogies informing the artefact development.

Since their introduction to the West, EMPs, along with third-wave psychotherapeutic methods: ACT/CFT (Juncos and De Paiva e Pona, 2022; Gilbert, 2009), have been applied to issues surrounding MPA in musicians with relative success. Along with the publication of his book (Juncos & De Paiva e Pona, 2022), Juncos has begun ACTraining workshops for music teachers to enable them to help their students who are suffering MPA (Juncos and De Paiva e Pona, 2022). Yoga and mindfulness have been widely accepted as beneficial for singers after the publication of books like Yoga for Singers (Lister, 2011), The Mindful Musician (Cornett, 2019), Performance Success (Greene, 2002), and multiple studies showing the positive effects of yoga on musicians with MPA (Stern et al., 2012; Khalsa et al., 2009). Workshops around the world are being offered to musicians employing mindfulness and yoga techniques to benefit musicians. While the introduction of Qigong in the West is still relatively recent, studies have shown evidence that it can also be beneficial for alleviating anxiety (Hung et al., 2021; McCrary, 2013; Sousa et al., 2012).

Methodological influences

The influences in choosing methodologies for this artefact design include:

• Kolb’s iterative cycle (Kolb, 1984)
• Nelson’s model of Practice as Research (Nelson, 2013)
• Langer and Merleau-Ponty’s Embodied Cognition (1989); Varela et al.’s Embodied Mind (2017) – also incorporated into Nelson’s learning model in Know How;
• Williams and Rosenbaum’s LPs (Williams & Rosenbaum, 2020)

Aims & Objectives

AIMS

My aim in this study is to design an artefact that singers with MPA can engage in both autonomously and with face-to-face (F2F) support to enable reflection, repetition, and alleviation of MPA symptoms both in embodied practice and performance.

OBJECTIVES

SPECIFIC – Build a web-based, hybrid, six-week LP allowing learners to access and sustain MPA treatment through therapeutic exercises and facilitator support without having to go to a therapist.
MEASURABLE – Users will be able to monitor their progress and notate their module completion rate by notating the date of module completion weekly in their personal journals.
ACHIEVABLE – The LP design is simple enough for me as voice teacher to design and for students to use over a six-week duration, making it a tool that users access as needed after finishing the initial six weeks.
RELEVANT – For musicians suffering MPA, this program integrates multi-modal, repeatable, therapeutic tools they can apply in their everyday practice.
TIMEBOUND – The LP will be completed over a six-week duration.

Expected learning outcomes

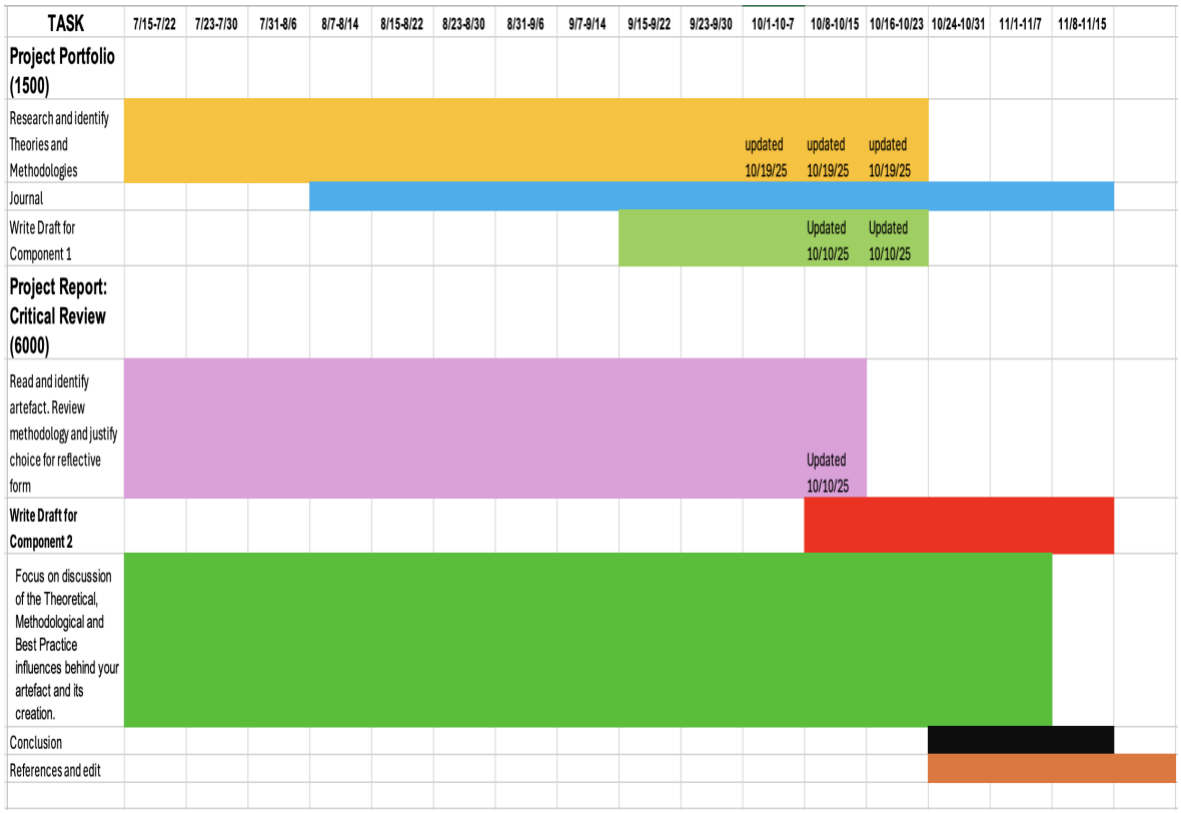
- Learn about PaR, LPs, and constructivist methodologies related to this artefact and how to best optimize the learning of the individual.
- Pinpoint which exercises and concepts to include in the initial learning path that have shown evidence of relieving MPA.
- Design a creative and fun LP to train users to somatically, cognitively, and behaviourally transform their approach to coping with MPA symptoms.

Activities and 'Assessment Criteria'

CRITERIA

- Is it time-efficient? Can it be completed in 6 weeks?
- Is it user-friendly?
- Is the Nelson's Know That, Know How, Know What cycle included?
- Are the yoga and qigong exercises easily accessed through a YouTube link?
- Is there an iterative reflexive process involved during the learning cycle?
- Is there a mind-body connection in the learning?
- Received feedback from participant (journal notes and interview)?
- Did the user notice improvement in their MPA symptoms?

Timescales and Review Dates



Methodology

Practice as Research (PaR)

I have chosen PaR as the methodology for designing this artefact due to its epistemological applicability in a formalized artistic study. The practice of music alone fails to provide the reflexivity and insight that a structured, iterative process provides to substantiate its academic rigor (Maes et al., 2014). The embodied musical cognition of the singer's practice and performance experience is a key part of understanding the artist's experience (Maes et al., 2014; Dallow, 2003), and the breakdown of the interconnectedness causes the overactive MPA mind to interfere with optimal motor control and performance (Kenny, 2011; Juncos & DePaiva e Pona, 2022). The theoretical knowledge behind practice-based research is fundamental to designing an artefact relevant for workplace practice and performance (Nelson, 2013). PaR links the two components, bringing the theoretical knowledge and the practice of singing together in a constructivist and iterative, reflective process informed by my prior research and teaching experience. (Sullivan, 2024,2025; Nelson,2013; Dallow, 2003), which will be useful in designing an artefact for singers with MPA.

Learning Pathway Development

The PaR methodology will be employed in the design of the artefact in the form of a hybrid online LP that will provide the user with not only a guided learning experience with explicit steps to address their MPA issues, practice physical and cognitive exercises to relieve MPA, and reflect, process feedback, and track progress but also an easily accessible learning tool which can be repeated to reinforce the learning. An LP is a sequence of learning experiences that leads to proficiency in the shortest possible time (Williams & Rosenbaum, 2004). The LP artefact will be based on a constructivist learning theory in which knowledge is constructed through experience (Nelson, 2013; Biggs & Tang, 2011; Dewey, 1938).

Inclusion/Exclusion Criteria

Inclusion Criteria:

• Know That – Literature that provides the theory behind PaR, EMP, LPs, and MPA treatments.

• Know How – A mix of white and grey literature to include books, peer-reviewed papers, and online resources, because

o EMP (Yoga, Mindfulness, Qigong) is still relatively new to academia and research.

o LPs have origins in the corporate world and also lack literature in academia

• Know What – best practices in MPA treatments which bring together theoretical knowledge with practical, embodied cognition (Merleau-Ponty, 2004).

• Key Search terms include, Music Performance Anxiety, Practice as Research, Learning Pathways for higher education, Embodied Cognition, Reflexivity, Mind-Body Practices

Exclusion Criteria:

• Literature not in English

• Studies of patients with chronic illnesses other than anxiety or depression.

COMPONENT 2 – PROJECT REPORT

Introduction

In research studies of professional musicians, 16.5% to 60%, and 21% to 96% students (Irie et al., 2023; Wiedemann, et al., 2022; Kenny, 2011) have reported experiencing music performance anxiety (MPA), “the experience of marked and persistent anxious apprehension related to musical performance that has arisen through the interaction of biological and psychological vulnerabilities and specific triggering situations.” (Kenny, 2011, p. 61). For

such a prevalent issue, little has been done to support musicians suffering MPA, possibly because of the established culture of “weeding out” anyone who isn’t tough enough to “make it” in the business (Kenny, 2011; Nettl, 1995 as cited in Perkins et al., 2017). Given that a high percentage of musicians go on to work in music (Brook et al., 2020), it seems even more pressing to address issues hindering them from performing at their best.

I identified specific modalities for singers that have proven successful both in research studies (Sullivan, 2024; Sullivan, 2025) and in my own practice as a voice teacher and insider researcher as effective treatments for MPA in singers. I chose a) evidence-based yoga poses and qigong exercises shown to alleviate anxiety b) pertinent elements of mindfulness and the Mind Body Stress Reduction (MBSR) course, and c) elements of Acceptance and Commitment Training (ACTraining) including Compassion Focused Therapy (CFT) as the foundations for a practical artefact that singers can use continuously to alleviate their MPA symptoms and improve their overall experience as performers. This artefact is a practice-based tool (Nelson, 2013) in the form of a web-based, hybrid LP (Williams and Rosenbaum,2004) with which singers can 1) travel on a six-week hybrid, online learning path customized for MPA sufferers to practice various modalities of MPA treatment, which can be repeated after the six-week time frame 2) enable user-directed self-reflection to document and integrate the information learned and facilitate an effective treatment for the user 3) Have live group sessions to practice learned skills in performance and receive peer and facilitator support 4) have the opportunity to share feedback and discuss the treatment with the facilitator.

Critical Review (Know How, Know That, Know What)

Know That

Practice as Research

Nelson’s triangular model of Practice as Research (Nelson, 2013) is at the core of the design for this artefact to treat MPA. The model consists of three essential components:

• Theoretical Knowledge (Know That) – This is the factual knowledge often stated as truths or propositions and tying together the embodied and theoretical knowledge often through documentation and/or writing, and in this case, in the artefact itself.

• Embodied Knowledge (Know How) – The value of tacit, embodied knowledge of the singing practitioner is integral to the understanding that arises during the singer’s experiential learning process. In the case of singing, it is the implicit, physical knowledge that singers gain from experience practicing this art form.

• Contextual Knowledge (Know What) – Engagement with existing theories and scholarly

literature that contextualize the practice. This context provides the evidence to substantiate the choices made in the artefact design. (Nelson, 2013)

Nelson's (2013) Know How, Know That, and Know What model can be integrated into the development of the LP for treating singers with MPA, as it combines the embodied knowledge of the singing performer with the theory behind the techniques and exercises selected for the LP. These exercises involved achieving 'flow' and optimal mental and physical states to generate new insights and critical self-reflection to produce an innovative research design, making Nelson's learning method particularly suitable for research in vocal pedagogy (Nelson, 2013). The deeper understanding that one gains from an iterative and reflexive process of the practice of singing, combined with the theoretical background, can engender a documentation of results in the form of a practical application – the artefact – and can be beneficial in the long run to the singing community when identifying methods on how to improve MPA symptoms among singers (Nelson, 2013). This triangular process has been incorporated into a hybrid, web-based LP for a convenient and efficient mode of learning.

Learning Pathway

LPs were originally designed to be used in a corporate context (Williams and Rosenbaum, 2004) but has since been adapted and found to be effective in higher education and other contexts as well (Ortiz-Vilchis et al., 2023; Wang, 2023). The design for this artefact is based on the LP outline by Williams and Rosenbaum (Williams and Rosenbaum, 2004) but within an educational context (Ortiz-Vilchis et al., 2023; Wang, 2023; Biggs & Tang, 2011). It can be formal or informal and organized in a progression of self-directed steps that help users move from training to proficiency in the most efficient way possible (Šundov & Gregorić, 2014; Williams & Rosenbaum, 2004). The user can choose a structured (linear) or autonomous (nonlinear) LP, which enables the flexible instructional sequencing of Kemp's model (Kemp, 1977) or the modular design architecture as described by Gibbons (2013) contingent upon the user's needs at the given time. The design will incorporate these key characteristics:

Learning Pathway Key Characteristics (Huggett & Ockers, 2023)

• Performance-focused: The purpose of a learning path is to help users achieve proficiency as expediently as possible.

• Structured sequentially: The LP follows an intentional sequence of activities — each step builds upon the one previous to achieve expedient progression.

• Data-driven: The LP was designed by analyzing which exercises have been effective for

alleviating MPA in research studies, what can be realistically completed in a 6-week time frame and incorporated into the user's lifestyle.

• Efficiency-oriented: The ultimate goal is for MPA sufferers to gain a tool that can be easily incorporated into their schedules and achieve positive results in a short amount of time.

Kenny, MPA, and Mixed Modalities to Achieve 'Flow'

Musicians ideally strive for a 'flow' experience when performing – the autotelic zone that one enters when fully engrossed and enjoying an activity (Kenny, 2011). A state of MPA can be characterized by negative emotions overtaking all other emotions, and/or being unable to have control over one's physical state e.g., increased heart rate, inability to control one's movements, and impairment of performance quality (Irie et al.2023; Kenny, 2011). Physical exercises such as breathwork and yoga, as well as positive self-talk and mindfulness for therapy proved to be popular strategies used by musicians to relieve MPA symptoms before, during, and after performances (Irie et al., 2023; Paese & Egerman, 2023). For more cognitive MPA symptoms, studies of ACT on musicians had positive results (Sullivan, 2024; Mahony et al., 2022; Shaw et al., 2020; Juncos, 2017). Chin & Kale (2019) found that breathwork and physical movement yielded improved cognitive function and activation of the parasympathetic nervous system, and in studies of combined modalities of mindfulness, breathwork, and somatic exercises in conjunction with behavioral/mental training, a multi-modal approach seems to produce the best results in MPA treatment for singers (Sullivan, 2024; Flock, 2021; Irie et al., 2023; Mazzarolo et al., 2023). Therefore, a multi-modal approach combining breathing, physical, and cognitive exercises was used for the artefact design.

Qigong

Western healthcare science has been heavily influenced by the Cartesian approach to dualism of the mind and body (Keller, 2020). While evidence-based data and skepticism is valued in Western medicine, this approach has historically not aligned with the 4000-year traditions of EMPs and could explain the slow uptake of mind-body practices such as Qigong and yoga as legitimate practices to improve health (Keller, 2019). Qigong, meaning "life energy" in Chinese, is a system of dynamic and still breathing techniques, exercises, and visualization that regulates the Qi, or life force. and the theory behind Qigong is that when this Qi is flowing, we are in a state of good health (Cohen, 2003). There are still very few academic papers studying the benefits of Qigong as a treatment for MPA specifically, but among the few that exist, one study by Sousa et al. (2012) resulted in decreased levels of anxiety, heart rate and salivary cortisol levels in music students. Other studies on the effects

of a Qigong intervention for anxiety and increased flow experience have also yielded positive results (Hung et al., 2021; Devi, 2020).

Yoga and Mindfulness

Yoga, a holistic, Eastern mind-body practice, has shown evidence in the last 5 decades of being effective in counteracting and preventing the negative, psychological and physical impacts that stress can have on a musician (Sullivan, 2025; Khalsa et al., 2009; Stern et al., 2012). Yoga encompasses a wide range of exercises, including meditation, breathing, and deep relaxation (Khalsa, 2004). Kripalu yoga, used by MPA researchers, such as Khalsa et al.(2013,2009,2004) and Stern et al. (2012), resulted in therapeutic benefits for musicians, as well as for other medical disorders and improving psychomotor performance (Ray et al., 2001 as cited in Khalsa, 2004; Green et al.,2000 as cited in Khalsa, 2004). Increases in flow and mindfulness were directly correlated with decreases in MPA (Butzer et al., 2016). Flow and mindfulness are desired experiences in yoga practice (Khalsa et al., 2009). Kabat-Zinn is credited with extracting the medically beneficial aspects of mindfulness in the 1970s and putting it into a scientific context (Kabat-Zinn, 2025), making it more palatable in Western culture.

According to the various research studies, the practice of yoga and mindfulness show evidence of optimizing psychological and physiological states and of alleviating MPA, serving thus as a solid platform on which to base a portion of the LP for this artefact (Khalsa and Cope 2006 as cited in Butzer et al., 2016; Khalsa et al. 2009, 2013 as cited in Butzer et al., 2016; Stern et al., 2012 as cited in Butzer et al., 2016).

Acceptance and Commitment Training

Among the more recent, third-wave psychological therapies, Acceptance and Commitment Therapy and its musical counterpart ACT for Musicians (Juncos & DePaiva e Pona, 2022) has incorporated a holistic, multi-modal, music teacher-led approach to MPA treatment with mindfulness as one of the key concepts to achieving more freedom in the mind and body during performance (Juncos & DePaiva e Pona, 2022; Juncos et al., 2017;). ACT for Musicians also incorporates the concepts of loving kindness from EMP (Kabat-Zinn, 2023), self-compassion from CFT (Gilbert, 2009), acceptance and commitment (Hayes & Strosahl as cited in Sullivan, 2024), and psychological flexibility (Hayes & Strosahl as cited in Sullivan, 2024).

Vocal performance relies on healthy breathing and vocal mechanisms, both of which can be negatively affected by MPA (Juncos et al., 2017). A study of community choral singers found

that 95% experienced MPA symptoms. The most common symptoms among those suffering MPA were: 1) reduced vocal tone quality and vocal mechanism function, 2) hyperventilation causing light-headedness, 3) dry mouth, 4) tension, sometimes causing issues with diction (Stothert, 2012 as cited by Clarke et al., 2020). Such symptoms can greatly detract from a vocalist's ability to perform to their greatest potential.

Results over multiple studies involving ACT for musicians with MPA including a study by a singing teacher on a university musical theater student (Shaw et al., 2020) and ACT psychotherapy for seven vocal students (Juncos et al., 2017), showed increases in psychological flexibility in the participants, as well as better control of physical movements, the ability to accept their MPA symptoms, and defuse MPA-related thoughts (Paul, 2024).

Merleau-Ponty, Varela et al., and Embodied Cognition

It would be remiss to explore mind-body practices without considering the phenomenological philosophy of embodied cognition often attributed to Merleau-Ponty (Merleau-Ponty, 2004/1948 as cited in Keller, 2020). The predominance of the Cartesian perspective in medicine and healthcare in Western culture until recently (Keller, 2020) has greatly limited the scope of potential treatments for singers suffering MPA, among other issues. The dualism of viewing the mind and body as separate and treating the body as a machine (Keller, 2020) has given voice educators an incomplete picture of how to treat MPA symptoms that are often enmeshed in both the mental and physical experience of the singer (Kenny, 2011). Furthermore, Varela et al. (2017) have opened the horizon of cognitive science to consider the nondualism of Eastern culture, in which philosophy and cognitive science, as well as mind-body are not considered separate entities. In embodiment theory, cognitive processes are considered to be grounded in the organism's sensory and motor experiences, resulting in bodily experiences having a direct effect on the mind (Barsalou 2007 as cited in Khoury, 2017). Therefore, in both the practice of singing and performing, as well as in developing exercises for singers with MPA for a LP, one needs to treat both the mental and physical aspects of performing for singers. Practitioners in several skilled movement domains understand that self-conscious thoughts can disrupt well-practiced actions. They like to entrust the routine, habitual action sequences of the body to kinesthetic memory (Schiavio, 2019). But since they also know how vulnerable and context-sensitive performance can be, there is value in bringing memory and movement together, so that thought and action work in tandem instead of in competition with each other (Sutton et al., 2011, p. 80 as cited in Schiavio et al., 2019). The practice of embodied cognition by including exercises, both physical and mental, into the LP artefact enables the user to

embody the kinesthetic experience of performing while simultaneously training the mind for a better experience.

After researching various theoretical methodologies (Know That) for optimal learning and analysing best practices employed in past studies involving MPA treatment, including my own best practices from voice teaching and performance coaching experiences, certain modalities of MPA treatment surfaced as being particularly successful in treating singers with MPA. Mindfulness [e.g. positive self-talk and visualization techniques (Hatzigeorgiadis, et al., 2009; Cohen & Bodner, 2018)] and yoga (Chang et al., 2003 as cited in Kinney, 2025; Blyskal, 2022; Butzer et al., 2016; Czajkowski & Greasley, 2015; Stern et al., 2012; Khalsa et al., 2009), Qigong (Devi, 2021; Hung et al, 2021; Sousa et al., 2012), and ACT for musicians (Sullivan, 2024; Mahony et al., 2022; Clarke et al., 2020; Juncos et al., 2017) have proven to be effective in reducing performance anxiety and have since been successfully utilized for dancers and musicians (Hatzigeorgadis, 2009; Klockare, 2014; Gerena, 2015; Cohen & Bodner, 2018).

Know How

The specific exercises used in these studies have been extracted as evidence-based best practices in yoga, mindfulness, qigong, and ACT to include in this LP. The inclusion of these exercises allows the kinesthetic and mental embodiment of skills that alleviate MPA and enhance performance for singers. Each method represents different modules in the LP, and for this artefact prototype, a general wellness LP has been created as a means to address a broad range of typical MPA issues that singers face. This artefact enables the LP to be used reiteratively and indefinitely as a general support system for the user.

The Modalities

Yoga/Mindfulness

Because empirical data indicates that Kripalu yoga is an effective style of yoga to treat MPA, a Kripalu yoga sequence was chosen for this artefact, with exercises that can be practiced in a yoga/mindfulness flow. This video link has been excerpted from the Kripalu.org website (2025). Another video was chosen as an alternative option so that the user can alternate between videos. This Yoga for Anxiety video was specifically chosen for its relevance to anxiety, with poses that I chose for its benefits for singers with MPA (Mishler, 2016). An additional benefit in both videos is the inclusion of mindfulness practices and breathwork (Pranayama). Both videos are under 30 minutes, making them easily achievable even with busy schedules.

Qigong

While there are still very few studies of the effects of qigong on musicians with MPA, a few key exercises have been tested in studies on subjects with MPA (Sousa et al., 2012), anxiety, or in comparing the 'flow' experience with the Qigong experience (Hung et al., 2021; Csikszentmihaly,1994 as cited in Hung et al., 2021) and all showed promising results(Tsai, 2025; Hung et al., 2021;Sousa et al., 2012). One commonality among studies of qigong for anxiety has been to continue the practice of qigong regularly for six to eight weeks (Sousa et al, 2012; . Specific exercises or practices that have been identified as yielding positive have been identified (see Appendix 5). Given that the benefits and positive results of Qigong do not seem to necessarily be correlated to the style of Qigong, I chose a Qigong video (Cranfill, 2017) for the LP that incorporates many of the beneficial exercises included in past studies, such as the 'white ball' exercise, breathing, centering, some 'Eight Brocades' exercises, and basic Qigong moves. Additionally, I chose qigong moves that seem to promote flexibility in the spine and ribs, relaxation and breathing, mindfulness and focus, positive visualization, and good mobility, which are all conducive to healthy singing. For the first version of LP, the user will be asked to do the 20-minute YOQI Purge and Tonify video (Cranfill, 2017) at least twice a week.

ACT for Musicians- ACT Exercises

Another key module in the LP includes the exercises from ACT for Musicians (Juncos & De Paiva e Pona, 2022). According to Clarke et al. (2020), group interventions of Acceptance and Commitment Coaching (ACC) have been effective, due to the peer support it enables. Another best practice was to put the 'Values' exercises, placed originally toward the end of the ACT for Musicians book (Juncos & DePaiva e Pona, 2022), at the beginning of the ACC intervention to increase participant willingness, motivation, and exploration of values (by session three) (Paul et al., 2024; Glaser et al., 2009 as cited in Clarke et al., 2020; Eifert & Forsyth, 2005 as cited in Clarke et al., 2020;).

In almost all of the studies of ACC and ACT for Musicians with MPA, participants made clinically significant improvements after group sessions and individual coaching alike (Sullivan, 2024; Paul et al., 2024; Mahony et al., 2022; Juncos et al., 2017). In designing the LP artefact, these best practices were taken into consideration and incorporated as online or face-to-face group sessions, in which participants took part once a week for the six-week duration. Several of the best practices identified in past studies were used in the ACT live, group sessions module (see Appendix 4)

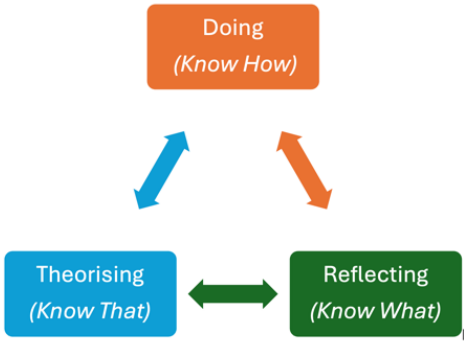
Singing and Performing

Two key modules in the LP are the performance modules at the beginning and end of the LP. The performance module at the beginning of the LP enables the participant to experience MPA symptoms in a performance setting to get a baseline for symptoms experienced. Their observations and experiences are then recorded in a personal journal and shared voluntarily with the group. Similarly, the participant has the chance after the intervention to perform again in front of the group and practice their new skills gained from completing the exercise modules in the LP, notate any differences in their experience in their personal journal, as well as discuss and share feedback about the experience with the group.

Know What

In Nelson's "triadic model of learning" (Nelson, 2013), Know What represents the synthesis of theoretical knowledge (Know That) and embodied knowledge (Know How). As the contextual knowledge portion of the learning, Know What is where the true value of PaR lies, allowing the user (in this case, MPA sufferers) to engage in critical self-examination, contextual awareness, and self-reflection using an artefact that can serve multiple users. The design of this LP was conceived through theory as lived experience (Nelson, 2013) by recognizing empirical research about MPA (e.g. Kenny, 2011; Juncos et al., 2017), theoretical foundations of embodied cognition (Barsalou, 2007; Merleau-Ponty, 2004), experiential learning (Nelson, 2013; Biggs & Tang, 2011; Kolb1984), and the therapeutic interventions of yoga (Khalsa et al., 2013; 2009; 2004; Stern et al., 2012), mindfulness (Kabat-Zinn,2023; Czajkowski & Greasley, 2016) Qigong (Sousa et al., 2012), and ACT for Musicians (Juncos & De Paiva e Pona, 2022). The synthesis acknowledges that MPA is not a singular psychological construct but a multifactorial condition that manifests physically, cognitively, and emotionally (Kenny, 2011). Therefore, the conceptual design of the artefact is intentionally multimodal, integrating cognitive, behavioural, and somatic (Kenny, 2011) approaches to MPA treatment. Studies have shown that multi-modal interventions with mental, physiological, and cognitive strategies, can ease the symptoms of MPA and improve performance quality (Kinney et al., 2025; Mazzarolo et al., 2023; Irie et al., 2023; Blyskal, 2022; Flock, 2021; Chin & Kale, 2019; Matei & Ginsborg, 2017; Juncos et al., 2017; Butzer et al., 2016). As a result, the lived experience of the user becomes theory, completing the PaR cycle (Nelson, 2013) and generating further contextual knowledge that can be applied, evaluated, and adapted for multiple users in subsequent LP iterations.

Figure 1: Nelson's Triangular Model of Practice as Research (2013)



Contextual Frameworks and Integration of Experiential Learning

The contextual framework of this artefact was drawn from Nelson's (2013) premise that artistic research gains rigorous knowledge from the multi-modal, iterative, and cyclical process of doing, reflecting, and theorising. The integration of Kolb's (1984) experiential learning cycle: Concrete Experience, Reflective Observation, Abstract Conceptualisation, and Active Experimentation, is used to fortify the user's learning experience adding empirical rigor to the practice-based research.
Each module in the LP allows the user to move fluidly between the notions of Active Experimentation (engaging in therapeutic exercises), Reflective Observation (journaling and discussion with group or one-on-one), Abstract Conceptualisation (connecting the learning journey to the theoretical concepts), and Concrete Experience (performing live for the group).

Examples of PaR (Nelson, 2013) fortified by Kolb's Experiential Learning Cycle (Kolb, 1984)

Active Experimentation and Know How/Know What – The Exercise Modules

The embodied performative epistemology (Merleau-Ponty, 2004; Varela et al., 2017) of the artefact appears in the yoga, Qigong, and ACT for Musicians (Juncos & De Paiva e Pona, 2022) exercise modules of the LP. The yoga and Qigong modules are linked to YouTube.com videos (youtube.com, 2025) [see Appendix 5], while the sensitive subject matter of the ACT for Musicians module warranted a more personal, group session approach in real time. These modules exemplify the concept of practice as a mode of knowing (Nelson, 2013), and the user is encouraged to experiment with various modalities of EMPs to help the user to gain awareness of their mind-body connection, breath, and

cognitive state (Varela et al., 2017). In addition, since the activation of the parasympathetic nervous system seems to be empirically correlated with combining breathwork and muscle contraction (Chin & Kales, 2017), the repetition of the yoga, Qigong, and mindfulness exercises [in ACT for Musicians (Juncos & De Paiva e Pona, 2022)] calm the parasympathetic nervous system, promote better breathing, and allow better awareness and control of the body's mechanics (Chin & Kales, 2019), resulting in a deeper embodiment of the knowledge of mind-body connection and cognitive self-soothing mechanisms through reiteration. Since knowledge is generated through lived experience and grounded in sensorimotor capacity (Varela et al., 2017; Merleau-Ponty, 2004), the user can then synthesize these modules, both in-person and by practicing with video, and embody the calming mind-body skills and apply them to their singing performance.

Figure 2: Active Experimentation (Kolb, 1984)and Know How/Know What (Nelson, 2013) in the LP Exercises

Concrete Experience and Know How – The Performance Modules

In the LP modules involving live performance for the group at the beginning and end of the LP journey, the user has the opportunity to sing for an audience and experience how their MPA is manifested in a real-life situation. This experience is important, not only to discover which fundamental skills of singing performance are already embodied in the singer and unaffected by MPA, and which skills are worsened by MPA during a live performance. After journeying through the LP and all of the exercises over the six-week duration, the user then returns toward the end of the LP to perform again for the other subjects and assess how well the therapeutic effects of the multi-modal exercises have been embodied to ameliorate the user's MPA during performance. These Concrete Experience (Kolb, 1984) modules are key moments on the LP for the user to practice their art form in a lived experience that then propels the user to the self-reflection portion of the LP journey.

Figure 3: Concrete Experience (Kolb, 1984) and Know How (Nelson, 2013)

Reflective Observation and Reflexivity (Know That Moving Toward Know What) – The Self-Journal, Group Discussion, and Interview Modules

In Kolb's (1984) Reflective Observation and in Nelson's Triadic Model of Learning framework (2013), experience becomes knowledge through embodied reflection: knowledge arises through and from the body in action (Nelson, 2013). Reflection often occurs in the doing itself (e.g., mindfulness exercises, vocal work, rehearsal, performance) as much as in written analysis afterward. For the LP, the user is encouraged to reflect throughout the six-week process, taking notes in a journal, mindfully observing discomfort before, during, and after performance, and sharing thoughts with peers/facilitator and reflecting on their peers' thoughts about the experience. The reflexivity is built into every step on the LP. In doing so, the experience and learning from the experiences evolves into embodied knowledge (Varela et al., 2017; Merleau-Ponty, 2004).

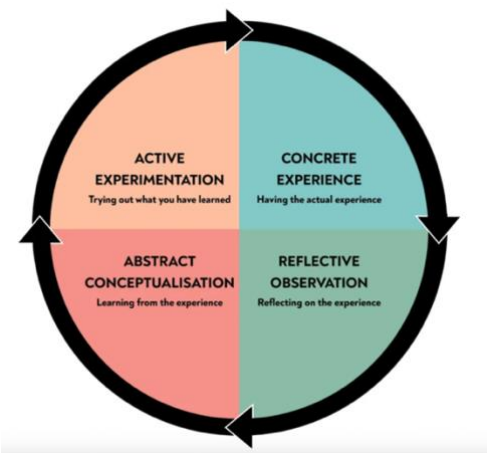
the experience and learning from the experiences evolves into embodied knowledge (Varela et al., 2017; Merleau-Ponty, 2004).

Figure 4: Reflective Observation (Kolb, 1984) and Reflexivity (Nelson, 2013)

Abstract Conceptualisation and Know What

In the Abstract Conceptualisation portion of the Kolb Learning Cycle framework (1984), the user has gained embodied knowledge from their journey through Active Experimentation, Concrete Experience, and Reflective Observation. The user's embodied knowledge can, in turn, ultimately be applied after traveling through the LP, to an improved performing experience in which MPA symptoms are not obstructing the performer's path to an optimal performance. The design also benefits from knowledge borne out of reflection, and what is learned could be used to design additional LP modules in future forms of the LP based upon the user's experiences. The learning is mutually beneficial for both designer and user and improves the artefact upon repetition.

Figure 5: Kolb's Experiential Learning Cycle (Kolb,1984)



Evaluation of the Effectiveness of the Artefact

The aim in this study was to design an artefact that singers with MPA could engage in both autonomously as well as with F2F support to enable reflection, repetition, and alleviation of MPA symptoms both in practice and performance.

The autonomous pieces included participating in the yoga and Qigong exercises with virtual video guides repetitively and journaling thoughts about the experience so that the user could engage in meaningful and independent practice on their own schedule. The F2F components included a) the initial and final individual debriefs and interviews with the facilitator b) the group sessions at the beginning and end of the LP where the participants perform live for each other c) F2F ACT for Musicians sessions with facilitator/peer support

and discussion. From my experience conducting a study in the past with live participants for an ACT for Musicians program (2024), as well as my other desktop studies of MPA treatments (Sullivan, 2024; Sullivan, 2025; Flock, 2021; Juncos et al.,2017; Matei & Ginsborg, 2017; Stern et al., 2012, Kenny, 2011) I decided to include:

• Mixed modalities of treatment, based on data from previous studies (see above)
• A hybrid virtual and F2F generalized treatment program for MPA as a prototype that can be customizable in later iterations.
• Both individual and group sessions with the facilitator for support in order to provide autonomy for the user and personal support simultaneously to prevent disengagement.
• The interface is designed to engage users across age groups by incorporating game-like elements that promote participation and reduce the perception of it being a 'treatment'.
• A six-week duration of the LP based on the minimum timeframe used in similar past studies.

Potential issues that may arise in the actual execution of the LP could be:

• The user may find it difficult to complete each exercise module once a week. Potential solution: virtual checklist and reminder alerts sent to user group.
• Scheduling F2F sessions might be logistically difficult. Potential Solution: Doodle.com poll (2025) to have overview of all schedules (Sullivan, 2024).
• If a user has injuries or mobility issues, exercises may be challenging. Potential solution: facilitator can produce modified/customized videos for this user.

Conclusion

In order to achieve the synthesis of Know How and Know That tacit exercises in the modalities of yoga, Qigong, and mindfulness that showed statistically significant results for improving MPA symptoms in past studies were included in the LP. Additionally, the performances at the beginning and end of the LP provided Concrete Experience upon which Reflective Observation could take place. and enabled the interplay of embodied practice (Merleau-Ponty, 2004) and theoretical knowledge, mutually informing one another to improve the performing experience for MPA sufferers. Another important component of synthesizing Know How and Know That was the Reflective Observation recorded in the user's personal journal, and Abstract Conceptualisation of learning to apply the acquired skills in real life performance practice.

One concern is that users may find it difficult to complete all of the modules of the LP if they have busy schedules, but the LP does not have an expiration date and can be reused reiteratively. It would be useful to test the LP prototype on a beta group in future studies for further feedback.

Critical Reflection

This critical reflection of my experience designing an artefact for practical use in the workplace uses Gibbs Reflective Cycle (1988) to provide a structured process to analyse the design process, enriched by self-reflection of my personal growth.

Description– What happened?

This critical reflection of my experience designing an artefact for practical use in the workplace uses Gibbs Reflective Cycle (1988) to provide a structured process to analyse the design process, enriched by self-reflection of my personal growth.

In Module 5, I was tasked with designing an artefact that addresses a problem relevant to the workplace and the learner's developmental needs. Given my interest in MPA, I decided to work on an artefact that would help alleviate symptoms of MPA in singers. As a voice teacher, performance coach, and singer who suffers MPA myself, I contributed not only my own firsthand knowledge of the negative effects of this condition but also drew from my past research studies on various types of treatment for it (Sullivan, 2024; 2025). From 2007 to 2012, I also worked at Training Management Corporation (TMC) – A Berlitz Company, a global leadership company that specialized in creating learning paths for corporate clients. This is where I first observed the effectiveness of online and hybrid tools that encourage autonomous learning by the user and took inspiration for creating the LP for singers with MPA.

Feelings – What were you thinking and feeling?

It took considerable time to organize my accumulated thoughts, experiences, and knowledge into a coherent idea for an artefact for this module. It was my first time learning about research artefacts, so my confidence in the design was initially tentative. However, when I reflected on my experience with LPs from my previous job at a training company, I became eager to give form to my idea.

The issue was which elements, from too many, to include in the design. Through my past studies, both desktop and with participants, I discovered that multi-modal treatments for

MPA seemed to be the most effective. Therefore, I wanted to include treatment modules in yoga, Qigong, ACT, and mindfulness. However, this is a lot of content to review in one module, so it was very difficult to condense the review to fit within the word count. However, my conviction about this approach being the most effective for MPA treatment in singers motivated me to continue with this design even though it made the review content heavy.

Evaluation – What was good and bad about the experience?

The initial design phase was a negative experience for me, because I lacked knowledge and experience about how to design an artefact. I knew which subject matter I wanted to research, but I didn't know how to synthesize my ideas into a clear and conceptual framework. Furthermore, my unfamiliarity with Nelson's PaR (2013) led me to spend a great deal of time reading, opening new lines of inquiry. Condensing the ideas was the greatest challenge.

The positive part of the design process was that I gained a great deal of knowledge about PaR (Nelson, 2013), embodied cognition (Merleau-Ponty, 2014), Kolb's Experiential Learning Cycle (1984), and LPs (Williams & Rosenbaum, 2020), which ultimately helped me to design a robust LP grounded in theory to treat MPA.

Analysis – What sense can you make of the situation?

Having come from conservatory training and a career as a performer myself, my philosophy up till now has largely been based on what Nelson describes as the practice of the art form itself constituting the knowledge, and additional theorization as being unnecessary or even unwelcome (2013). It is important to note that having created my own solution to MPA without documenting the process was only helpful to myself. Synthesizing the practice with the theory of different modalities of MPA treatment and writing about it benefits my students and other singers and not just myself.

It is also important to note that there may be inherent bias in the design of the LP, since I was interpreting EMPs from the perspective of a Western-trained researcher reading literature in the English translation of their language of origin, and as a result, not fully understanding the cultural context of those practices. However, my Western lens on the benefits of these practices may also have been an advantage in designing an LP for Western singers.

Having gone through my own learning cycle of PaR through designing the LP in this research study, I have come to understand that the PaR model is a much more robust model

for research in the arts that encourages reflexivity and engenders recyclable knowledge, rather than it ending with the individual (Nelson, 2013).

Conclusion – What else could you have done?

As a whole, I believe the LP can be an effective tool for improving the user's performance experience, and it would be a logical next step to test the artefact in a research study with participants. In addition, for future iterations, the LP could be expanded and made truly customizable, allowing the user to identify which particular types of MPA affect them by including the K-MPAI (Kenny, 2011), other assessments, and tailoring the LP to include exercises that target the user's specific issues. It would also be ideal to modularize the exercises even further so that users can practice an individual exercise or multiple exercises, depending on their time restraints or individual interests. The expansion of the idea would take time and better technology. In the future, one could test to explore whether a general LP is more beneficial than a customized one.

Action Plan – If it happened again, what would you do?

My next course of action will be to design a mixed methods, interpretivist (Weber, 1949) research study with singer subjects suffering MPA to test the LP's effectiveness in improving MPA symptoms. After completing an application for ethical approval from the UWTSD committee, I will recruit tertiary voice student subjects to participate in studying the effects of an LP for improving MPA symptoms.

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Appendix 1

LEARNING PATHWAY MODULES

INTRODUCTION AND CONCRETE EXPERIENCE

1. **MEET with your Facilitator: Ethical rights and background info will be covered. Schedule a meeting with facilitator to discuss the background of the modules chosen as well as making sure the subject understands their rights.**
2. **PERFORM - Attend a group session in person to**
    a. **Perform**
    b. **Notate symptoms experienced in a Personal Journal**
    c. **Discuss personal experiences with MPA**

****

ACTIVE EXPERIMENTATION - EXERCISE MODULES (6-week duration)

3. **YOGA – Click on the link and do the yoga session once a week for six weeks.**
4. **REFLECT – Notate your thoughts in your personal journal.**
5. **QIGONG - Click on the video link and do the Qigong session once a week for six weeks.**
6. **REFLECT – Notate your thoughts in your personal journal**
7. **ACT for MUSICIANS – Attend a group ACT session in person or virtually 1x a week for six weeks.**
8. **REFLECT –** notate your thoughts in a personal journal

CONCRETE EXPERIENCE & ABSTRACT CONCEPTUALISATION PHASE

9. **PERFORM - GROUP SESSION (in person)**
    a. Perform
    b. Notate symptoms experienced
    c. Discuss personal experiences with MPA with the group
10. **Individual interviews** – Share feedback about the LP with your facilitator and compare MPA experiences before and after the group session performances. Subjects can share notes from Personal Journal and MPA experience notes with the facilitator.

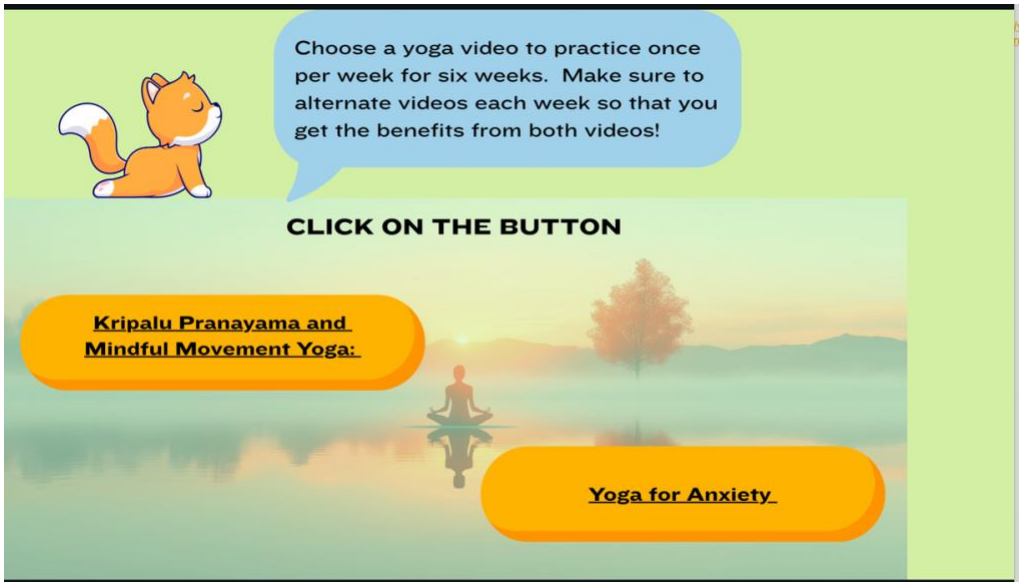
Appendix 2

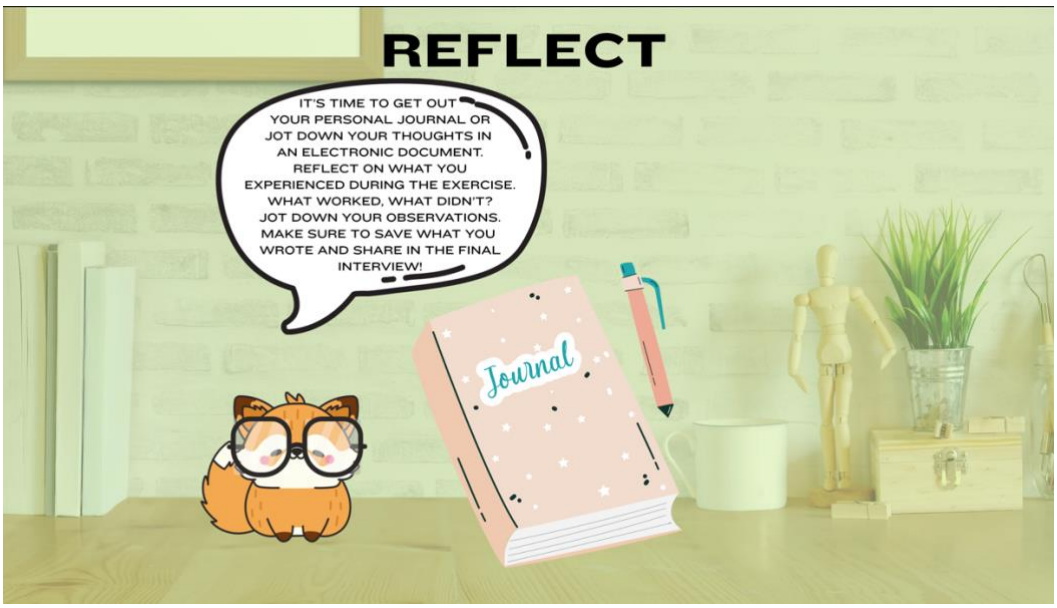
CLICK ON LINK TO VISIT THE LEARNING PATHWAY ARTEFACT ONLINE:

https://www.canva.com/design/DAG4QMimVgc/2yETr7KbrBNGoUuEA8mB5w/view?utm_content=DAG4QMimVgc&utm_campaign=designshare&utm_medium=link2&utm_source=uniquelinks&utlId=h124445efea

Appendix 3

The Learning Pathway Artefact


Choose a yoga video to practice once per week for six weeks. Make sure to alternate videos each week so that you get the benefits from both videos!
CLICK ON THE BUTTON
Kripalu Pranayama and Mindful Movement Yoga:
Yoga for Anxiety


REFLECT
IT'S TIME TO GET OUT YOUR PERSONAL JOURNAL OR JOT DOWN YOUR THOUGHTS IN AN ELECTRONIC DOCUMENT. REFLECT ON WHAT YOU EXPERIENCED DURING THE EXERCISE. WHAT WORKED, WHAT DIDN'T? JOT DOWN YOUR OBSERVATIONS. MAKE SURE TO SAVE WHAT YOU WROTE AND SHARE IN THE FINAL INTERVIEW!
Journal

CONGRATULATIONS, YOU HAVE ACHIEVED STAGE ZEN!!!
Stage Zen

Appendix 4

ACT Exercises showing effectiveness in past studies :

• Self-compassion

• Acceptance

• Sit with the bad feeling and let it pass like clouds

• Chinese finger trap

• Discussion about Shame

• Turn negative thoughts positive

• Set goals and identify motivations

(Sullivan, 2024; Juncos & De Paiva e Pona, 2022)

Appendix 5

Qigong Exercises with evidence for improving anxiety symptoms

• Sousa et al., 2012 - The 'white ball exercise'

• All - Breathing, centering, 'wu wei' philosophy (McCrary, 2013 as cited in Tsai, 2025)

• Hung et al., 2021 - Ba Duan Jin or '8 Brocades Exercise'

• Johansson et al.;2008;Griffith et al., 2008 - Basic Qigong

• Devi, 2020 - Fragrance Qigong (Xiang Gong)

Video links used in the LP Exercise Modules:

• Kripalu Pranayama and Mindful Movement

Yoga: https://youtu.be/61RyEri2bbA?si=3gaXXsAh1TIrLCp9

• Yoga for Anxiety (with mindfulness, breathing, and

twists): https://youtu.be/bJJWArRfKa0?si=_ecxgIEIltS9oAM7

• Qigong Purge and Tonify: https://youtu.be/3GtFp6sz5zM?si=oMlTPuRLVkwlqsB

Appendix 6

JOURNAL – Arisa Kusumi Sullivan's Module 5 Experience

8/26/25 – I still have no idea what I am going to do for my artefact.

I've been attending lectures and thinking about it. I have a vague idea, but I still have so much reading to do to solidify my knowledge on the various learning models and philosophies. I feel like I still have so much to learn before I piece together the framework for this project.

My vague idea: I am going to create some kind of artefact that is a method that singers can follow daily to alleviate their MPA issues. This artefact will combine:

- Yoga
- Qigong
- MBSR
- ACT
- And Compassion-Focused self-talk.

I will draw from all of the various studies and research I have done thus far to determine which elements of each medium will benefit singers with MPA.
The plan is:

1. Read Nelson and Kolb
2. Begin gathering which resources to read and draw from to determine what is the most effective practice to alleviate MPA.
3. Determine the methodology and research how to apply this methodology
4. Begin outlining how to structure the various elements to be a smooth flowing, practical, and organic method that singers can incorporate into their practice every day.
5. Write the paper content.

That is all for now.
-Arisa

09/08/25

I have been reading through Nelson's Practice as Research for the last week. I guess I automatically assumed that there was a discrepancy between conservatory and university learning, as well as artist research vs academic research (Hannula), but it is interesting to learn exactly how they are different. Having come from a conservatory environment, I find it sometimes tedious to need to prove through praxis and make everything fit into an academic mold. But I am willing to learn how to do this so that I can write my papers and complete my MA.
Feyerabend = *Reading, seeing, feeling and talking with and within one's own peer group is ridiculously underrated and must be rescued and returned to the core of any research action and activity.53*

Nelson - *the primary purpose of research in my formulation is to produce new insights effectively shared (within the academy) which is subtly different from producing art for the arts world.*

Basic research is experimental or theoretical work undertaken primarily to acquire new knowledge of the underlying foundations of phenomena and observable facts, without any particular application or use in view.63
UNESCO, 2008, http://uis.unesco.org/en/glossary- term/basic-research, accessed 28/06/21.

Stephen Kemmis: Action research aims at changing three things: practitioners' practices, their understandings of their practices, and the conditions in which they practice. These three things – practices, how we understand them, and the conditions that shape them – are inevitably and incessantly bound together with each other.

9/15/25
I'm starting to write now. It's taken me a while to understand exactly what we are tasked with, and I didn't want to create a schedule without understanding what it involved. So today, I am setting out to create my movable GANTT chart and begin organizing the bare bones of this paper. I still don't really understand what exactly I am doing, but I figure that by getting started, I will begin to understand more.

09/27/25
I scanned through *The Embodied Mind* after attempting to read Nelson's *Practice as Research*. I found *The Embodied Mind* to be filled with superfluous theoretical details that are not pertinent to my research, but I did find a few nuggets of information that summarize how it is pertinent to my artefact. Then, when I returned to reading Nelson, it was actually easier to read, because the two complement each other and help make one another clearer. This time, when I went back to Nelson, I was able to pinpoint the statements that apply directly to my research, particularly surrounding embodied cognition, which I think applies very well in relation to mind-body practices in singing.
I was also able to sum up the Nelson model with keywords that would help me recall what each one component means**:**

- **Know That** (**Knowing)** – academic knowledge gained normally thru reading.
- **Know How (Doing)** – procedural, incremental knowledge gained by doing and leading to *embodied knowledge.*
- **Know What (Being)** – Reflexive knowledge/informed critical reflection.

It was a good example of learning by doing iteratively by reading (know that) and embodying knowledge (know how). I had to go thru a process of reading outside of the Nelson to come

back and understand the Nelson. Now I can reflect on that gained knowledge thru *know what.*

10/10/25

I am now in the phase of assembling which research papers and literature to cite in the paper. This includes

- Finding papers on practice as research as a methodology
- Finding specific MPA reducing treatments, e.g. yoga poses, types of meditation and mindfulness practices, qigong exercises, ACT exercises.

10/18/25

I am currently trying to find papers on learning pathways to support my decision to use this learning methodology in Module 5. I learned about learning pathways from working in a corporate training company. It was an effective method for users to autonomously learn mandatory information in the most efficient manner. I believe that this methodology would also be effective and efficient for learners in higher ed suffering from MPA. It's been difficult to find literature on the UWTSD site. I'm not sure exactly why, but it could be due to its predominant usage in corporate settings. So, I am using ChatGPT to find more literature on the topic, so that I will have literature to support my paper.

10/26/25

I have made a lot of progress on my paper! Thank God. I finally see the light at the end of the tunnel. I will need to support my various sections, first involving the KNOW THAT and supporting the different types of theories that are behind this artefact. I'm almost done with this section. Then I need to show how these theories are in practice with Know How, doing various exercises as steps in the Learning Pathway. Qigong, Yoga, ACT exercises in play. Then the final part will be the Know What, bringing together how this learning will be manifested in the learning pathway and integrated into the user's mind and body to allow iterative learning. Then I just have to write the critical reflection as well…about 3000 more words to go. I finally feel like I have a clear sense of how to proceed from this point forward. This is a relief.