BMPF 7013F

Resonant Body:
designing the foundations of a transdisciplinary and living somatic practice for singers to support motor-learning outcomes

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Component 1

Introduction

Current approaches to voice pedagogy have begun to demonstrate a shift from reductionist, biomechanical perspectives toward systemic, adaptive models of movement and perception. In a previous module (Bautista, 2025), I systematically and critically investigated the limitations of classical anatomy and Newtonian biomechanics in voice training. This investigation was seen through a biotensegrity lens, an emerging paradigm founded in the fascia and human movement sciences (Levin, 2020; Sharkey, 2021; Lesondak, 2023), to create integrative conceptual bridges that bring new insights toward facilitating the holistic development of embodied high-performance singers. Specifically, highlighting the non-linearity of perceptual-motor-tasks (Abraham *et al.*, 2020; Cacciatore, Johnson and Cohen, 2020; Baer, Vasavada and Cohen, 2019), the role of fascia and imagery in embodied cognition (Rose-Thema, 2020), and highlighting use of Alexander Technique (AT) with its principles of inhibition and directing, to facilitate awareness of habitual patterns, fostering adaptability and habit change (Dimon, 2024). This previous work embraces the complexity of a holistic, somatic approach to voice pedagogy, emphasising the need to acknowledge the fascial system as a key facilitator of free and expressive vocal function.

Building upon these foundations, this project synthesises insights from my previous work with the methodologies and protocols of the Institute of Applied Somatics (IoAS) and the BECOMEBECOME framework into an online embodied reflective process for voice teachers and singers. Its rationale aims to address previously discussed theoretical and practice gaps (Bautista, 2025), and provide practical tools that facilitate an experiential path for singers to explore these previously stated insights. Specifically, the embodiment of dynamic fascial networks and the development of a more adaptive body schema, through AT's inhibition and directing. At the same time, I address the increasing need for nervous system regulation (NSR) protocols for clients in my teaching studio, highlighting barriers to the previously stated aims. A systematic review by Twitchell *et al.* (2025) corroborates my observations by highlighting the adverse effects on cognition among musicians experiencing music performance anxiety (MPA). This study includes both instrumentalist and singer populations; however, it demonstrates a general need for cognitive and psychological well-being to optimise learning and performance. As a result, integrating IoAS-developed protocols for NSR is necessary for two reasons. First, fostering psychological safety and resilience in a singer in the voice studio falls within a voice teacher's scope of ethical and trauma-informed practice (Durham, 2022). Second, approaching NSR by embodying the fascial system sidesteps obstacles in primarily cognitive-based interventions (top-down), such as CBT or ACT, including increased cognitive load, which may further dysregulate the autonomic and parasympathetic nervous systems (Ahmadi, Sezgi Firat Ozgur, and Erhan Kiziltan, 2024). Through this regulation, proprioceptive awareness increases, thereby facilitating the acquisition of perceptual-motor tasks (Dimon, 2024; Traldi, 2022; Zarate, 2013), potentially improving motor-learning outcomes in singing.

The initial iteration of this artefact is intended as an adaptive set of somatic protocols and reflective tools that augment current voice pedagogy practices, to enhance outcomes in the acquisition of vocal-motor tasks by integrating NSR practices into somatic vocal pedagogy. More specifically, it facilitates the development of a singer's awareness of their somatic internal landscape (experience), the identification of a language to communicate that experience, and the support of teachers in working with that language. It will be built on three main pillars, first, of a series of somatic explorations, emphasising process-based learning and non-linear pedagogy. Its main features will include: guided AT body-mapping exercises framed within biotensegrity (Dimon, 2024; Lowell de Solórzano, 2021), somatic psychology and NSR protocols (Traldi, 2022; 2024), and dynamic movement imagery (Franklin, 2022; Olsen and Mchose, 2004; Hartley, 1995). Second, somatic and phenomenological reflective exercises will be included to integrate somatic learning experiences. Third, preliminary assessment and documentation tools are planned to serve as resources for teachers when assessing student progress. For clarification, this artefact is not meant to be a standalone singer intervention or approach in its own right. Lastly, this lays the conceptual and practical foundation for the future development of a manifesto for collaborative, transdisciplinary somatic voice pedagogy, which currently lies outside the scope of this module.

Planned Programme of Study

The first half of this planned program of study outlines the theoretical, practical, and methodological frameworks that ground this project, as well as the ontological and epistemic challenges that divide cognitive-intellectual knowing and somatic or body-knowing. In the second half, operational considerations will be evaluated. Next, the learning outcomes (aims and objectives) will be stated, along with the assessment criteria for assessing this report and the artefact. Lastly, project management considerations will be discussed, including the project timeline, review dates, and defined activities.

Conceptual Foundations

In a previous study (Bautista, 2025), the importance of embodied imagery and the development of a language for one's internal landscape, or kinaesthetic experience, were established as primary insights. Carrying these insights into real practice becomes the next step, and the primary focus of this section. Therefore, this section expands on these insights by elucidating the theories and practices that facilitate them and providing the conceptual foundation for this project. These include: biotensegrity, AT, NSR, somatics, and embodied phenomenology. However, addressing the disciplinary complexity remains a central challenge to this project. Cronin and George (2020) provided a preliminary literature review and analysis framework in the previous study (Bautista, 2025) to facilitate theoretical synthesis across these disciplinary boundaries; however, epistemological tensions remained. Specifically, addressing the evaluation of evidence and the construction of knowledge. Thus, embracing the complexity of this project requires adopting a

transdisciplinary stance as a meta-framework methodology to bridge embodied, phenomenological, and scientific expertise with somatic voice pedagogy practices.

Centring the Observer and Transdiscinplinary Logic
(Methodology 1)

The BECOMEBECOME framework provides a transdisciplinary foundation and lived process for addressing epistemological tensions, while offering an ethically robust container and process for both theoretical and practical experimentation, resulting in the development of a practice-based artefact. More concretely, it is a reflective process for collaborative research. Traldi (2022; p. 57), the developer of BECOMEBECOME, seeks to create knowledge "between disciplines, beyond disciplines, and through disciplines" by centring the observer(s) and utilising process-based learning (PBL), which will be discussed in this section. It should be made explicit that BECOMEBECOME functions as a theoretical and methodological framework, as well as a practical and pedagogical process. Therefore, this approach underpins the project's conceptual foundations, methodology for synthesising academic and non-academic resources, and the design and execution of the artefact. Traldi (2022) posits that theories are interconnected and responsive dynamic systems, allowing distinct theories and practices to converge (figure 1), by layering non-linear dynamic systems within process-based learning and reflection. This is explored through BECOMEBECOME's iterative and temporal participatory processes that cycle between analytical and rational perspectives (figure 2) and experiential and bodily ones, resulting in new knowledge that emerges from their interaction (figure 3).

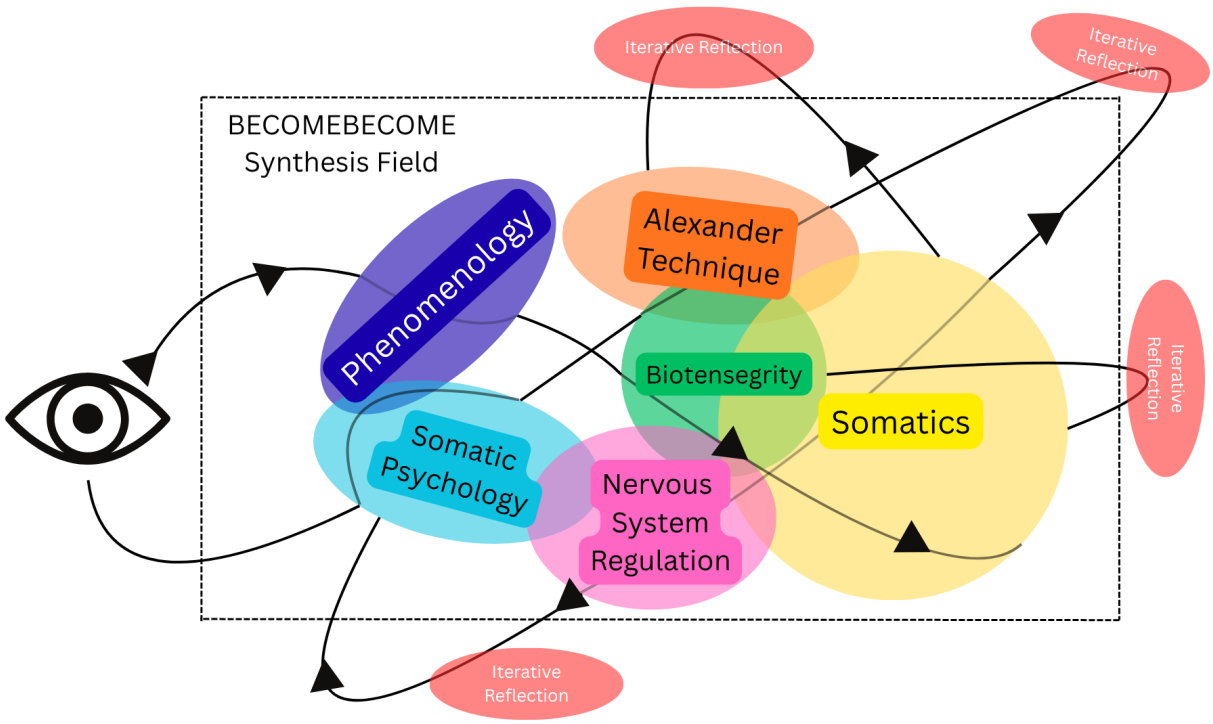

Figure 1: BECOMEBECOME Synthesis Field

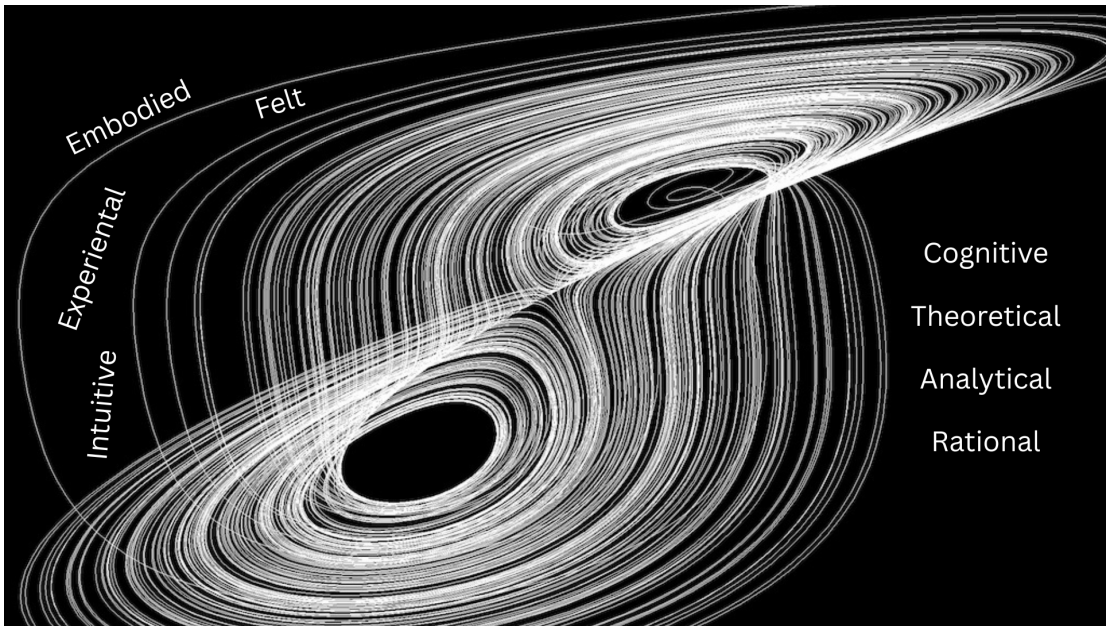

Figure 2: Visualisation of BECOMEBECOME non-linear embodied-cognitive reflective process: what is true for the observer and how do ways of knowing converge?

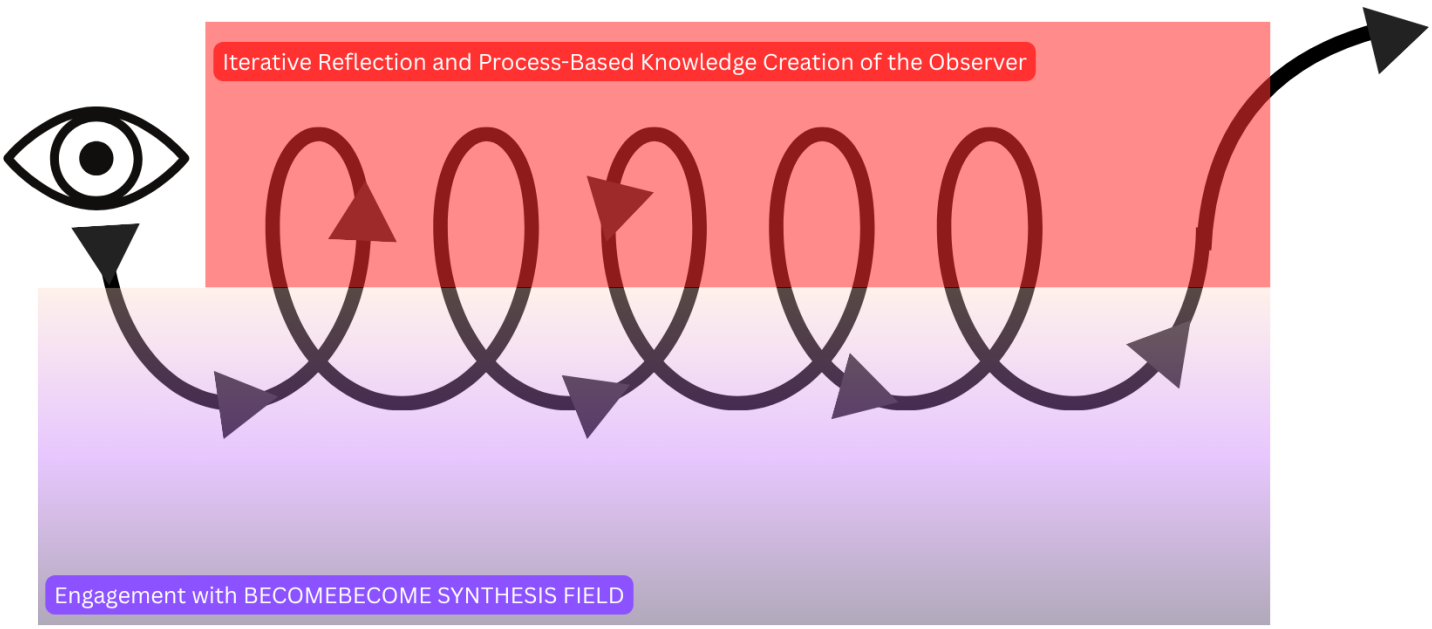

Figure 3: Process-Based Visualisation of BECOMEBECOME Reflection

Approaching this project in this manner acknowledges the complex plurality of observers' experiences, uncovering insights unique to individual standpoints (Orbe, 1998). Thus, acknowledging and honouring the subjective experience of one's internal landscape (Roses-Thema, 2020), by asking what is true for the observer. Through this reflective and cyclical process, knowledge is co-constructed between observer(s) and practical resources, unfolding over time rather than in a single observable moment (Atkinson-Toal, 2024), whereby the lived somatic experience can also be considered and integrated as material for knowledge creation. Thus,

providing the artefact with a framework for consolidating the experiences and insights between the artefact's physical and reflective practices. This embodied methodology will be directly applied into the design of the artefact, and will be evaluated in component two.

Ethical Considerations

Ethical considerations are inherent to this framework, which incorporates the theories and practices woven into it. Renn (2021) describes two characteristics of transdisciplinary research that showcase its embedded researcher ethics:

1. There is substantial collaboration between "diverse knowledge producers and knowledge recipients" (p. 2).
2. Integration of non-academic "knowledge carriers," to involve them in "problem definition, knowledge generation, and problem solution" (p. 2).

Both of these considerations centre the singer in their exploration of somatic experience, legitimising both their current knowledge and their future discoveries. In terms of the artefact, the built-in reflexivity supports the singer in considering the depth to which they are willing and able to explore their somatic experience, aligning with person-centred (Anjum, 2016) and trauma-informed principles (Durham, 2022). Thus, empowering the singer to be an equal contributor to their vocal, musical, and artistic development. However, the challenge of appraising "non-academic input" in a singer's learning process persists and still needs to be addressed (Lawrence *et al.*, 2022, p. 50), thereby adding to the complexity of this project. Thus, additionally calls for the development of robust reflexive protocols for the singer and/or teacher in this artefact.

Synthesis of Core Theoretical And Practical Frameworks

According to the BECOMEBECOME framework, knowledge emerges from the temporal, cognitive, and embodied processes engaged by the observer across multiple entry points (Traldi, 2022). Thus, positioning practice as an essential component of this project's conceptual framework, bridging the gap between theory and practice, and resisting theoretical compartmentalisation (Lawrence *et al.*, 2022). With this in mind, this section synthesises the practices and theories employed in this project.

Another essential theoretical concept of this project is the biotensegrity model. As discussed extensively in previous modules (Bautista, 2025; 2023b), the fascial system is positioned as an integral component of human structure, movement, and perception (Turvey and Fonseca, 2014). Specifically, by redefining its definitions and acknowledging its dynamic, non-linear mechanical properties as living tissue within the body (Meyers, 2021; Bordoni *et al.*, 2018). For a more comprehensive overview of biotensegrity, please see Bautista (2023b). In this project,

biotensegrity (as seen through the lens of BECOMEBECOME theory) is not merely an anatomical or biomechanical concept; rather, it serves as a foundational ontological metaphor and operational tool for process-based learning, which will be built into the artefact.

Current research by the Fascia Research Society provides an updated definition of the fascial system (Bordoni *et al.*, 2024), bringing biotensegrity closer to transdisciplinarity:

> *The fascial system consists of a three-dimensional continuum of soft, collagen-containing, loose and dense fibrous connective tissues that permeate the body.* […] *The fascial system surrounds, interweaves between, and interpenetrates all organs, muscles, bones, and nerve fibers, endowing the body with a functional structure and providing an environment that enables all body systems to operate in an integrated manner.*

By considering the overall presence of the fascial system and its newly defined contribution to the human body, implications for the NSR, kinaesthetic awareness, and motor function for singers become more apparent. Thus, biotensegrity redefines the body and movement, while somatic practices like AT and NSR are embodied practices that can operationalise this model. The artefact establishes criteria for which exercises are to be included. Specifically, they must align with a fascia-inclusive, biotensegrity-based framework.

Practical Influences

AT is a widely established somatic pedagogical practice that has become a mainstream approach in many voice studios (Nelly, 2016). It aids in developing kinaesthetic awareness, thereby facilitating changes in habitual movement (Dimon, 2024; Alcantara, 2017), and improving outcomes in singing posture, breath, and phonation (Weiss, 2005). Critically, AT was included due to my familiarity with the technique, and its significant presence in my current professional practice. However, with respect to the artefact, AT provides only one suggested practice for adaptive somatic exploration. More comprehensive discussions on AT can be found in my previous module (Bautista, 2023).

Dimon (2024), a key contributor to biotensegrity-informed AT practice, partially operationalises both models in an integrative manner, providing practical exercises that sharpen AT practice outcomes. Specific exercises will focus on developing the principles of ‘directing’ and ‘inhibition’ in singers, which will be included in the protocols. For example, constructive rest and directing the head and neck to go “forward and up” (Alcantara, 2017). However, the focus lies primarily on the interaction between muscle and bone, despite the authors' claim to be working within a biotensegrity paradigm. One reason is that the understanding that muscle tissue manipulates the fascia to move bones is already well established (Meyers, 2021), but this remains speculative.

Nevertheless, these exercises contribute an essential component of this project, as its outcomes for enhancing singer instruction and performance are already established.

NSR Practices developed by IoAS, then, become the next operational component for this project. Grounded in evidence-based practice, it offers a model of self-regulation that also facilitates the development of proprioceptive and kinaesthetic awareness, thereby promoting adaptive learning and reflection in singers (Traldi, 2022; Porges, 2022; Ragan, 2021). This project augments biotensegrity-informed AT practice by bridging the cognitive, psychological, and physiological dimensions of singing. Specifically, it facilitates a bottom-up regulatory process through the embodiment of the fascial system, rather than a mental approach (Meyers, 2021). In the artefact, it will utilise movement explorations of various body regions, such as the rib cage and pelvis, to stimulate self-regulation.

Within the context of this project, they both align with BECOMEBECOME, as they are forms of process-based learning in which theoretical and practical knowledge are uncovered through a series of experiences over time (Bautista, 2023b; Traldi, 2022). This transdisciplinary synthesis augments the two-step embodiment process as described by Bonnie Bainbridge Cohen (Bainbridge Cohen, Nelson, and Stark Smith, 2012), of visualisation and somatisation (bodily integration of experiential learning). Specifically, sharpening somatisation through the AT principles of non-doing and directing, in tandem with nervous system regulation practices. Thus, fostering a singer's development of sensing one's internal tensegral landscape (Kussmaul, 2020).

If AT and NSR practices provide the vehicle for sensing one's internal experience, IoAS's somatic psychology and embodied phenomenology practices facilitate the development of a reflexive protocol (Traldi, 2022), supporting a singer in mapping and communicating their internal landscape (Roses-Thema, 2020). According to Zahavi (2018), phenomenology is not merely a robust description of a phenomenon; rather, it is also a description of the observer's relationship to the phenomenon, asserting that phenomena do not exist in isolation. Specifically, the experience of having a body, being within a body, and engaging with the environment through a body does not exist outside of psychological, environmental, cultural, and societal phenomena (Olsen, 2002). Therefore, reflection becomes the act of observing and relating as a complex dynamic system to another (Meadows, 2008), allowing for insights beyond typical academic reflection, such as practitioner intuition (Traldi, 2022). Thus, aligning well with BECOMEBECOME's cyclical and inherently reflexive process, it will provide a basis for the creation of reflexive protocols and assessment criteria within the artefact. Journal exercises from these practices will serve as the primary framework for singer and teacher reflection. Together, these theories and practices constitute the key structures for developing the transdisciplinary practices embedded in the protocols.

Literature Review Methodology
(Methodology 2)

A literature review of will serve as the foundation for the artefact's evidence-based design, requiring a robust methodology for selecting and synthesising both grey and white literature (Adams, 2017). As previously discussed, BECOMEBECOME augments my previous study's literature review methodology (Bautista, 2025), by centring the observer to address epistemological tensions, specifically, asking what is true for my current research and practice, as well as the project's set aims. In this section, the updated inclusion and exclusion criteria and the synthesis process will be discussed.

Inclusion and exclusion criteria, analysis, and synthesis primarily followed the framework of Cronin and George (2020) with additional search protocols for assessing both white and grey literature as discussed in my previous study (Bautista, 2025). However, additional communities of practice (CoP) were included due to project relevance. Shared inclusion and exclusion criteria have remained the same; however, CoP-specific inclusion criteria have been updated to account for the transdisciplinary nature of this project. This second methodology was required to gather a body of literature (data set) to synthesise and apply towards the artefact.

Updated CoP Specific Inclusion Criteria

Community of Practice (Cronin and George, 2020)	Inclusion Criteria	Rationale
Biotensegrity	Published since 2002	Emergence of Stephen Levin's Model of Biotensegrity
	Specific discussion on human movement	Relevance to artefact creation
Human Movement Science	Published since 1980	Emergence of biomechanical tensegrity research
Dance	Published since 1995	Emergence of tensegrity in dance pedagogy
Somatics (including AT)	Published since 1990	Emergence of somatic practices considering fascial networks
	Addresses biotensegrity principals or AT applications in the performing arts OR sports	Relevance to artefact creation
Voice Pedagogy	Published since 2020	Emergence of biotensegrity in voice pedagogy
Transdisciplinary Research	Published since 2020	Due to time constraints and relevance to artefact creation
Nervous System Regulation	Published since 2020	Due to time constraints and relevance to artefact creation

Community of Practice (Cronin and George, 2020)	Inclusion Criteria	Rationale
Embodied Reflective Practices	Published since 2020	Due to time constraints and relevance to artefact creation

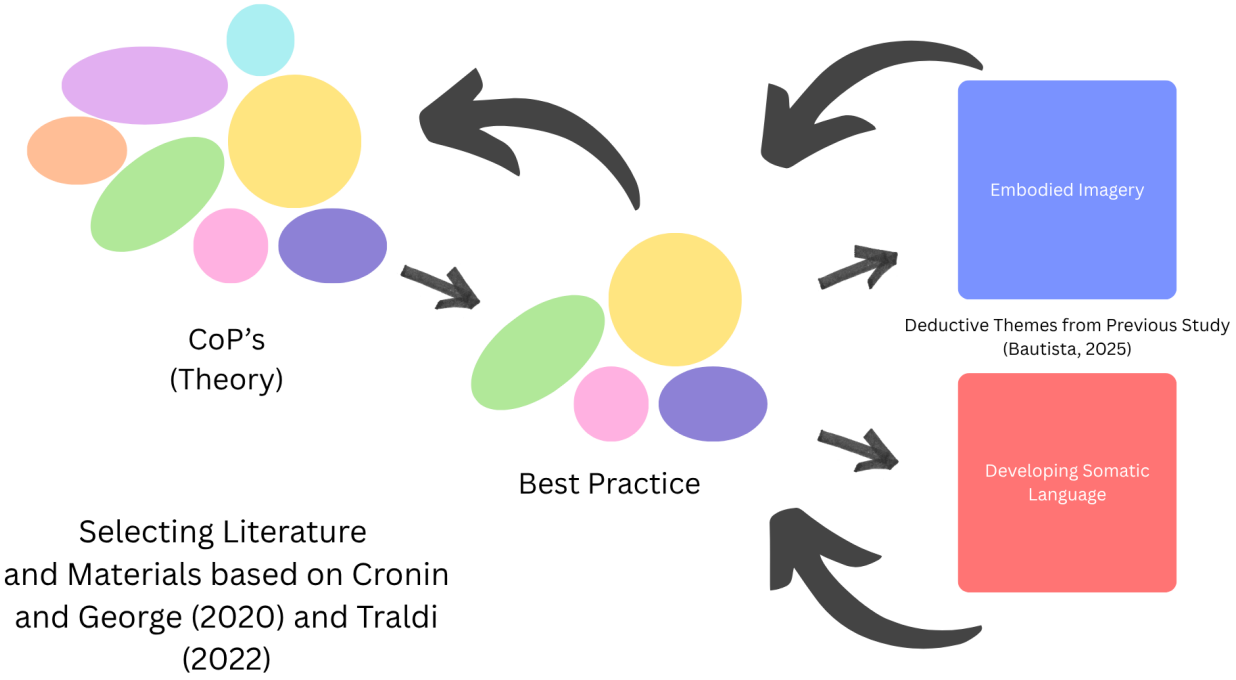

Figure 4: Visualisation of iterative literature review methodology

Literature synthesis was augmented by Traldi's (2022) framework to integrate knowledge gained through my professional practice and my somatic experience. This was central to considering what is true of my own embodied experience, what is observed in my students, what is needed in the artefact, and how these embodied experiences converge or diverge with established practices and theory. Figure 5 visualises this process, demonstrating that there is no starting point; instead, it suggests that insights can be generated at any point within the system.

Learning Outcomes, Aims, and Objectives

Aims:

- Research methodologies for transdisciplinary research in integrative somatic voice approaches to build a foundation for future pedagogical resource development.
- Develop an online resource to foster the development of somatic awareness, and enhance motor learning in singers.

Objectives:

- Establish conceptual bridges between chosen theories and practices, and reconcile theoretical tensions.
- Utilising the BECOMEBECOME framework, develop NSR protocols, specifically for singer populations that qualitatively enhance proprioception and overall kinaesthetic sense
- Develop reflective protocols for somatic reflection
- Develop parameters for evaluating developed protocols

Expected Learning Outcomes:

- Gain a foundational understanding of process-based inquiry and transdisciplinary somatic voice research, and be able to communicate them to users of the artefact
- Understand how to prepare, conduct, and document process-based inquiry and transdisciplinary research
- Understand how to apply research insights into my professional practice

Activities and Assessment Criteria

Planned Activities:

- Review IoAS NSR practitioner foundations, concepts, and protocols
- Develop inclusion and exclusion criteria to conduct a literature review for selecting practices to include in the artefact.
- Establish ethical and safe practice for self-exploration and engagement with the artefact.
- Draft website components
    - Introduction and theoretical foundations
    - Ethical and safe practice for participation
    - Sequencing protocols for practice and reflection
    - Develop modified NSR protocols for singers
    - Phenomenological somatic reflection protocols
    - Assessment rubric for facilitator and self/participant evaluation
- Regular session for project reflection and assessment
- Revise the website through insights found within iterative cycles of reflection and creation

Qualitative Assessment Criteria:

- Artefact (1st iteration) demonstrates successful integration of previously discussed conceptual frameworks
- Website critically justifies methodology and design choices
- Each section aligns with the website aims as stated in the introduction
- Component 2 of this module reflects how the website has met stated aims, and what changes could be made, before participant testing.

A GANT chart has been included below, that describes the research, design, and review stages of this project.

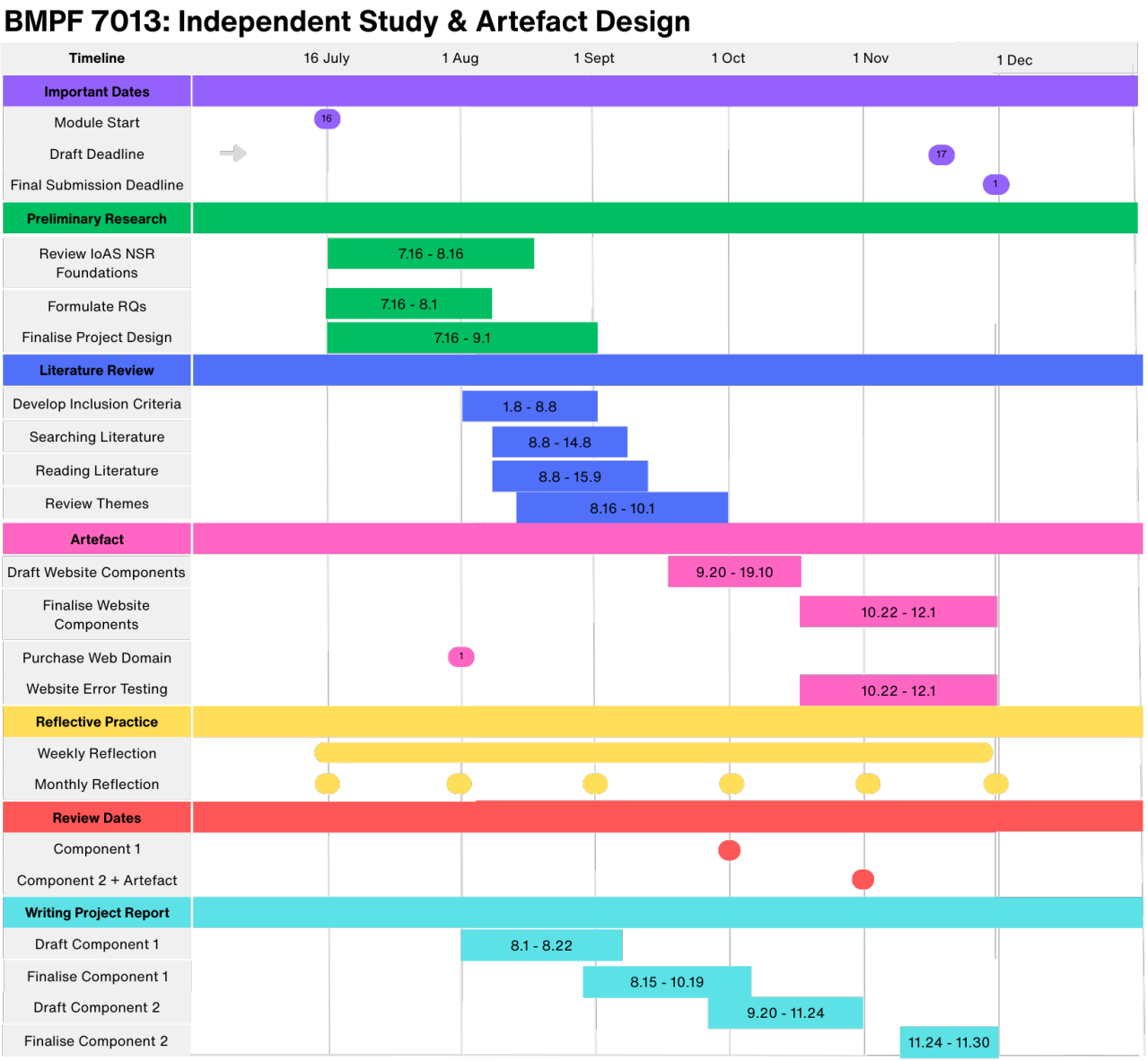

Figure 5: Project Management Gantt Chart

Critical Reflection

Kolb's four-step experiential learning cycle will provide the structure of this critical reflection (Kolb, 1984). First, I will reflect on the knowledge and insights I've gained through my preliminary research (concrete experience), then highlight insights and tensions during the artefact's design process (reflective observation). In the final two steps of the cycle, I will reflect on how the conceptual foundations of this project have essentially shaped the future directions of this process and the resulting artefact (abstract conceptualisation), and how these conceptual foundations transformed into concrete processes that will be used in the design and building phases of this artefact (active experimentation). Lastly, predictions will be made regarding the process and the artefact, taking into account the aims and objectives of this project.

Concrete Experience

My intentions for this project were twofold: first, to provide an initial iteration of an online resource that enables the formalisation of my embodied tools and protocols, which I've collected, modified, and developed over my years of teaching and coaching. Thus, allowing my tacit knowledge to become more explicit and tangible (Nelson, 2013). Second, create a resource that will enable my students to become more active participants in their process of embodiment for singing. While there are somatic voice courses and methodologies that may address the second aim, it was important to honour my experience and knowledge and to validate my current expertise as a starting point for this project (Orbe, 1998). In my current professional context, I work primarily with pre-professional and early-career singers. Upon reflecting on my previous teaching experiences, a recurring theme in my students stood out. It is the lack of kinaesthetic and proprioceptive awareness that seems to delay motor-skill acquisition in singing. For example, a new student with whom I've been working for six months (since the submission of this paper) still struggles to sense the general movements that occur upon inhalation. This student defaults to a cognitive approach to understanding, which makes it challenging to learn movements beyond their current experience, and they lack a means of communicating what they think they are feeling. As a result, I deepened my somatic and embodiment practices and focused on developing a coherent framework that integrates them to address these challenges.

Since somatic experience is highly subjective and individual (Hanna 2004), during the artefact's design process, I considered multiple approaches and methodologies from my professional practice that facilitate the development of one's kinaesthetic and proprioceptive senses. Specifically, ones that aim to support how a singer can learn to communicate their internal experience to others, and regulate their nervous system. Beginning with AT and my dance practice, eventually adding tools from Body-Mind-Centering (BMC), Feldenkrais, and Franklin Method. It became unwieldy, drawing on so many different practices. However, I began to notice parallels between them. First, I began to realise they were all different pathways toward the similar goal of embodiment and efficient movement. For example, AT traditionally focuses on changing

habitual patterns by transmitting embodied knowledge through the skeletal structure (Alcantara, 2017), whereas BMC begins with the soft tissues (Hartley, 1994). Second, there were similarities in the exploratory rather than prescriptive language of these practices, which influence how I communicate with my own students. Lastly, I found that these approaches and tools were not always appropriate for every singer in every context and needed to be modified or avoided. This validated my desire to maintain a user-centred process that fosters self-efficacy and creative autonomy in their vocal development. Thus, solidifying the choice of the BECOMEBECOME framework that underpins the artefact.

Engaging with subjectivity created tensions in my preliminary literature search and design phase, specifically, exploring the transpersonal and intuitive aspects of somatic reflection that are difficult to explain or quantify (Liebowitz, 2019). In previous assignments, I have already discussed the epistemological tensions between evidence-based voice practice and somatic experience (Bautista, 2025; Ragan, 2021). However, the voice pedagogy literature remains oriented toward quantification and rationality (Bautista, 2025), which casts doubt on my process and research interests. Transdisciplinary inquiry centres all actors involved (Renn, 2021), including myself and the communities I serve, requiring me to take substantial time away from the literature to reflect and determine how best to transform these theories and practices into a coherent artefact.

The cyclical and reflective nature of this project, and the framework that underpins it, created challenges in the design process, particularly as an MA student in the midst of training as a practice-based researcher. This was due to three reasons: 1) the time cost of reflecting on an intellectual, embodied, and social level, 2) the messiness of sorting experiences, and 3) unexpected insights that changed the format of the artefact, which will be discussed in the following sections.

Reflective Observation

During the design process, I kept a research journal to document activities and reflections. A recurring theme was uncertainty about the appropriate format for presenting these protocols and reflective tools.

> *I knew what I wanted, in terms of aims and my why. My materials (practices and theories) were also already quite defined, as I am building on insights from previous modules. However, transforming theory to practice, that manifests into a tangible artefact was my biggest challenge* (Bautista, 8-24-2025, Research Journal).

This required considerable time to step away and process what the project sought to become. In this way, however, I was allowing my practitioner intuition to lead the process (Liebowitz, 2019).

Throughout the process, it became clear to me that I was hoping the artefact's format would emerge out of the research process. I attributed this, first, to a lack of clarity and vision. However, upon reflecting on Nelson's (2013) Practice as Research (PaR) model, I was reassured of the value of its iterative process. Nelson suggests that, through further experimentation, I would find clarity and a path forward. I experienced a cycle of positive and negative emotions, oscillating between discouragement and inspiration. However, I was reminded that the process I am working with and within (BECOMEBECOME) underpins the artefact in creation. That suggests I could make early predictions on user experience through my own reflections in the creation and design phase, as I am already an active participant in the process the artefact aims to facilitate. Thus, the messiness of the iterative process was necessary to find weaknesses in the artefact's design.

Abstract Conceptualisation

Reflecting on these experiences and observations, I returned to theory to understand how my intuition informs the artefact. I noticed this while reflecting on this research project and my professional practices through a transdisciplinary lens, specifically by framing my various professional roles as a collective of actors within a transdisciplinary inquiry. These roles would be: researcher, practitioner, singer, coach, dancer, and pedagogue. Consequently, may be seen as different actors working within a system, seeking to produce insights for themselves and from the literature they engage with. Nelson (2013; p. 5) defines intuition as a form of "ecological knowing," whereby the body and its senses are returned from the Cartesian divide (mind vs. body), asserting that they are two sides of the same coin, working in tandem to create knowledge and insight. This not only eases the epistemological tensions I have discussed previously, but also provides a tangible concept that could be further explored and developed in the artefact. More specifically, allowing a singer to reconnect with their intuition as a means to holistically engage with analytical insights, and challenging current practice, to develop intuition that does not completely reject or ignore empirical evidence (Lebowitz, 2019). When considering this aspect, I felt empowered by the notion that individual somatic experience and expertise are honoured and valued. In designing the artefact, drawing on preliminary literature and my previous work, and by exploring and reflecting on physical practices firsthand, I seemed to enter a flow state (Altorjay, 2014), in which I trusted that appropriate insights would come to me. Traldi (2022) describes this as the access to transpersonal wisdom, knowledge, and synchronicities resulting from a regulated nervous system. Therefore, intuition may become more explicitly integrated into the artefact and its design process.

In addition to exploratory movement protocols, reflective prompts are the necessary ingredient to integrate any insights gained from the user. It became essential to discern what reflective practices and frameworks were relevant and useful. For example, drawing from interpretive phenomenological analysis (IPA) (Smith, Flowers and Larkin, 2009) and the embodied phenomenology of Merleau-Ponty (2014). Open-ended phenomenological questioning will

encourage deep exploration of a singer's embodied experience, observing internal and external sensations. This is to create meaning around those sensations, with the aim of finding a way to speak on it past mere description. Thus, embodied IPA reflection helped me imagine new forms of reflection, that may be able to support singers, like my student, in learning to sense and communicate their experience.

Research Questions

RQ1: What best practices can be combined to facilitate embodied reflection in singers that support the development of kinaesthetic and proprioceptive awareness?

RQ2: What best practices can be combined to facilitate the development of physical practices that enhance embodied reflection in singers?

Active Experimentation

In honouring my own somatic experience and practitioner expertise, I allowed my intuition to guide me through the process, after recognising its essential role within the BECOMEBECOME framework and methodology. Throughout this intuitive process, I was led to resources I did not think would be relevant. Additionally, questions emerged that led me down various avenues of inquiry, which I pursued until they were no longer relevant or data saturation was reached. In other words, I would allow everything to act as inspiration for this artefact. For example, throughout this MA program, I have continued to attend dance classes and somatic workshops, staying receptive to ideas that challenge or inspire further avenues of inquiry, often gleaning a new perspective on concepts I thought I already understood. Moreover, recognising moments of synchronicity, allowed my unconscious knowledge to contribute to the artefact. This draws parallels with grounded theory, in which the development of theory and the refinement of data are iterative (Creswell, 2014). However, this experimentation is a fully lived process that considers both analytical and intuitive reasoning. Lebowitz (2014) supports the process of intuitive reasoning, as tacit knowledge (Nelson, 2013), which is often unconscious. Although unconscious, intuition still draws on past experience to make informed predictions (Lebowitz, 2014), as documented in choral classrooms (Paparo, 2011). Therefore, every decision at this stage, will begin by asking how it aligns with my experiences, and future iterations will facilitate the artefact's evolution as more users are introduced.

In recognising the project's organisational limitations (e.g., deadlines and word count), I have decided to limit my scope to the physical practice component of the artefact, based on the most common sources of confusion in my studio. Specifically, this will primarily affect the literature review process and the content of the artefact, as discussed in the planned programme of study section. These exploratory embodiment practices will focus on NSR, breath, alignment, and

relation to the environment. Practitioner literature supports these choices, as they interact as a nonlinear system (Hanna, 2004; Leborgne and Rosenberg, 2021; Lowell de Solórzano, 2021), allowing all three to be addressed indirectly from any starting point. For example, Lewis (2024) demonstrates how alignment directly affects the breath, with forward head posture often limiting ribcage expansion during inhalation; conversely, the conceptualisation of the breath itself affects how the body organises itself for the breathing gesture. Therefore, staying within the scope of the module while maintaining the project's integrative methodology. Finally, I will use Nelson's (2013) PaR model of reflection to critically evaluate this first iteration of this artefact, which will be discussed in component two.

Main areas of experimentation:

- Modifying embodiment and NSR practice to align with voice pedagogy practitioner literature based on insights found through Cronin and George's (2020) method for literature synthesis.
- Modifying open-ended IPA based reflective prompts to align with three selected areas of the embodiment and NSR practice.
- Sequencing of practice and reflection based on Traldi's Kinetic Protocols (2022)
- Regular check-ins for alignment with project aims and learning objectives.
- Creating metrics for indicating the success of my artefact through my aims, objectives, and learning outcomes.

Future Directions

Informal conversations with Traldi and IoAS have provided insight into predicting this project's outcomes and future. For example, empirical studies have yet to be undertaken to evaluate BECOMEBECOME's reflective and NSR practices in singers, however, IoAS (2025) provides a growing database of case studies that suggests its efficacy in developing kinaesthetic and proprioceptive awareness within a general population. I predict that using this database will streamline the testing process, and focus it's application based on what is actually working. Furthermore, this may support the creation of benchmarks to indicate artefact success, based on future user testing, and inform potential changes to future iterations. However, ethical issues regarding data-protection still need to be evaluated. Once this is cleared, the infrastructure for scaling user-testing would be available to reach the population this artefact serves.

Component 2:

Introduction

This project report critically evaluates Resonant Body (artefact), a collection of reflective somatic practices that provides the foundation and an initial iteration of a living, embodied practice for singers. More concretely, it evaluates a set of physical and reflective protocols designed to enhance motor-skill acquisition and movement sustainability in my pre-professional and early career voice students by supporting the development of kinaesthetic and proprioceptive awareness. Evaluation will focus on three main areas, based on Nelson's three-part practice-based research model: "know that," "know how," and "know what" (p. 5). First, the "know that" section will begin by evaluating the coherence between the transdisciplinary conceptual framework underpinning Resonant Body and its practical application within the physical and reflective protocols. Second, the "know-how" section will assess the insights gained from the design and construction of this artefact. Third, the "know what" section will assess the artefact against its project aims, determining whether these have been achieved. Specifically, it will address the successful application of a transdisciplinary framework to achieve pedagogical aims. Lastly, a reflective conclusion will discuss its future directions.

Resonant Body's approach addresses the lack of explicit theoretical and practical literature that bridges Nervous System Regulation practices (NSR), with somatic movement and alignment practices used by singers (Nelly, 2016; Nelson and Blades, 2018; Lewis, 2024), as well as embodied phenomenological reflection practices that transform these experiences into applicable insights (Traldi, 2022; Stephankova and Cermak, 2024). My previous scoping integrative review (Bautista, 2025) implicitly discussed the potential benefits of utilising these three components in tandem, which were then developed and used to inform the design of this artefact. This is for two reasons: first, somatic practices used by singers imply a reflective component to their approach, but do not always make it explicit. For example, Neely's (2016; p. 138) mixed-method study on the use of somatic practices on singers noted that "students must learn to discriminate and discern when movements are efficient, or when the body is not properly aligned," thus suggesting an implicit reflective component. However, it was neither explicitly clear how the process of discrimination and discernment of habitual movement or alignment was defined, nor how the physical practices translated into transferable or applicable insights. Second, addressing and enhancing kinaesthetic perception aids this reflective process. While somatic practices do enhance kinaesthetic perception and motor-learning in singers (Klein, Bayard and Wolf, 2014), the impact of the state of the nervous system is under-explored, and not explicitly discussed in both scientific and practitioner voice pedagogy literature (Crocco and Meyer, 2021; Malde, Allen and Zeller, 2020), despite the growing body of literature that demonstrates its contribution (Ahmadi, Sezgi Firat Ozgur and Erhan Kiziltan, 2024).

To address this, Resonant Body frames its transdisciplinary practice on these primary theories: Biotensegrity, Embodied Phenomenology, and the BECOMEBECOME framework. First, the artefact understands the singer's body through a biotensegrity model, rather than a classical biomechanical one. Specifically, the artefact primarily utilises Turvey and Fonseca's (2014) model for haptic perception, which provides the logic that underpins the physical practices and connects them to the reflective practices. According to this model, recognising the contributions of the fascial system allows for both top-down (prior experience shapes perception and understanding) and bottom-up (direct sensory input shapes perception and understanding) processing (Otto and Greenway, 2016). Thus, providing my students and other users of the artefact with multiple entry points for self-observation during learning and integration of motor tasks used in singing. Second, embodied phenomenology and the BECOMEBECOME framework provide a structure for reflecting on and communicating the pre-verbal felt experiences that Resonant Body facilitates. They manifest specifically through the centring of user experience (Traldi, 2022), the acknowledgement and welcoming of various forms of knowledge (Orbe, 1998), and the iterative and non-linear nature of embodied reflection (Stephankova and Cermak, 2024). As a result, this multi-component artefact provides a rich ground for continuous exploration.

Initial methodological decisions were informed by insights from my previous work, which were used to revise and refine this artefact's methodology. Specifically, Cronin and George's (2020) framework is designed integrate communities of practice (CoPs) to synthesise academic, scientific, and practitioner knowledge within a single study. However, as the project progressed, methodological decisions were made primarily based on the conceptual framework underpinning this artefact. Initially, this was not intended; however, it became clear that as an insider-practitioner, I was also a participant in the artefact's transdisciplinary process. Engaging with the iterative and embodied reflection of the artefact brought the design closer to the needs of my professional practice, while leaving room for future development through the engagement of other users.

Within the broader context of my research, Resonant Body offers an evidence-based (Ragan, 2018) and collaborative, exploratory process that enhances my professional practice by formalising procedures that provide a foundation for future artefact development. Methodologically grounded primarily in the BECOMEBECOME framework (Traldi, 2022), the artefact offers my pre-professional voice students and me the opportunity to be active participants in my research and to contribute to the development of practices that directly address their individual vocal challenges (Atkinson-Toal, 2024). Additionally, it provides the groundwork for evaluating transdisciplinary processes that address epistemological tensions within voice pedagogy (Bautista, 2025) by adopting a nonlinear, collaborative approach to relating to and defining knowledge. Specifically, augmenting Traldi's model with integrative synthesis by Cronin and George (2020), and the embodied reflective cycles of Stephankova and Cermak (2024). This provides a formal methodological structure that leaves room for future artefact development.

Somatic practices such as the Alexander Technique (AT), Feldenkrais, and Body-Mind-Centering (BMC) have amassed a substantial body of literature demonstrating their efficacy in singer development (Neely, 2016; Paparo, 2016; Buchanan, 2014). For example, a systematic review by Klein, Bayard and Wolf (2014; p. 8) provides insight into the efficacy of AT on musicians and singers, demonstrating positive outcomes in reducing performance anxiety, chronic pain, and "habitual movements that predispose them to injury or decreased function," thus, allowing singers to lead healthy and sustainable careers. Moreover, somatic practices support a singer's learning process by increasing mindfulness, kinaesthetic and proprioceptive awareness, and by promoting sustainable alignment, movement, and breath (Gómez-López and Cabrero, 2023; Malde, Allen and Zeller, 2020). These results not only demonstrate the efficacy of these approaches themselves, but highlight the need to recognise and apply more integrative and embodied ways of knowing and teaching singers.

Mingle (2018; p. 210) suggests the central component of a somatic approach is addressing "how to transmit one's subjective experience and understand that of someone else." Specifically, integrating the teacher's direct bodily experience with their pedagogical knowledge to recognise and assess the sensations (cues) that facilitate sustainable singing technique. Taking a somatic approach, then, asks a teacher or singer to engage with the pre-cognitive experience, which speaks directly to unconscious habitual patterns that facilitate change (Rose-Thema, 2020).

Conceptualising this process to allow both independent and collaborative somatic voice exploration aligns with the project's commitment to promoting self-efficacy in singers by centring their experience in the learning process. However, it is essential to note that these frameworks and embodied paradigms are still emerging and require further development, given their leaning toward a phenomenological rather than quantitative approach in somatic voice research. Contemporary voice pedagogy is increasingly aligning with these approaches, recognising that the lived experience cannot be separated from vocal technique; therefore, the artefact has been directly drawn from these practices as a foundation for addressing this methodological gap, specifically in the curation of its protocols, sequencing, and transmission.

A central concept of a somatic voice approach is embodied cognition, in which cognitive processes are shaped by felt experience. This is also known as a bottom-up approach (Ahmadi, Sezgi Firat Ozgur and Erhan Kiziltan, 2024). Somatic voice practices implicitly suggest that singers draw upon various forms of knowing to realise a sustainable vocal technique, requiring a system-wide integration of stimuli to organise a motor task such as singing (Jiang and Wu, 2025). However, many somatic vocal approaches still appear to rely on prescriptive language that may or may not align with a singer's subjective experiences (Brown, 2024; Reed, 2022). Reed (2022; p. 2) describes this as a significant limitation in voice pedagogy approaches, because voice teachers tend to rely on their own understanding of "their [own] voice, sensations, and feedback."

Therefore, centring the singer's own subjective experience, rather than positioning it in relation to a voice teacher's subjective experience, led the artefact to prioritise an embodied self-reflective protocols over the physical ones. This means it could provide more space for the singer to engage with embodied cognition, specifically, away from external narratives and models that may not align with their own experience.

Four Aspects of Embodied Cognition

Embodied cognition in singers is still an emerging topic; however, it is central to Resonant Body's approach. A recent systematic review by Jiang and Wu (2025) provides essential elements for undertaking a somatic voice approach. Jiang and Wu (2025; p. 3) describe four aspects of embodied cognition in singing:

1) **Motor-Sensory Integration** recognises that movement and perception are components of a continuous and dynamic feedback loop (Meadows, 2008), which potentially allows the singer to make immediate and unconscious adjustments in learning and performance. Jiang and Wu (2025; p. 3) describe a necessary connection between the primary motor cortex and the auditory processing for singing tasks, and assert it is not limited to localised motor control. Dimon (2024) agrees, stating it is instead embedded within and draws upon the function of the entire sensorimotor system. Howell (2025) further acknowledges the role of the environment, particularly in acoustic perception, in shaping the execution of a vocal task. This necessitates the artefact's multi-modal, exploratory, and iterative process for the user. For example, Resonant Body uses objects to provide the singer with tactile feedback (e.g., a chair, the floor, or a yoga block) to bring awareness to other body parts involved in vocal-motor tasks, such as the pelvic floor during the breathing gesture.

2) **Proprioception:** is the ability to sense the body's spatial position, movement, and force. Halák (2021) describes proprioception as a pre-cognitive event that emerges out of "bodily schemas, rather than conscious cognitive control." This aligns with the Alexander Technique (AT) study by Cacciatore, Johnson, and Cohen (2020), in which indirect execution of a motor task, guided by AT principles of inhibition and directing (via the body schema), becomes the primary force in movement execution. Therefore, using somatic approaches that address the body schema may provide a more effective path for singers to enhance proprioception and understand their vocal-movement patterns.

3) **Neuroplasticity:** It is suggested that vocal performance may induce physiological changes in the brain throughout a singer's development. Specifically, Jiang and Wu (2025; p. 5) note singer-specific physical changes in memory, sensorimotor integration, and emotion processing. These physiological changes align with the use of process-based learning (Traldi,

2022), and may be helpful in developing and evaluating pedagogical tools that align with these changes.

4) **Emotional Processing:** is described as a phenomenon that arises from physiological shifts, such as local muscle tension or changes in breathing patterns, that result in an emotional state. This is well documented in the use of Alba Emoting Technique in actor training, where emotional states are summoned through a bottom-up (physical) rather than top-down (cognitive) approach (Kalawski, 2020). When considering the non-linearity of these pathways, it provides multiple learning and processing approaches that may be more inclusive of the varying needs of each singer.

These four aspects necessitated that the protocols address each, thereby providing a clear scope. Resonant Body and its underpinning theories will be evaluated against these criteria in the following 'Know What' section.

Know How

Resonant Body's collection of physical and reflective practices is grounded in empirically validated theories. It aligns with practitioners' experience, resulting in an embodied, transdisciplinary approach designed to create conditions conducive to enhanced motor learning outcomes for singers. In this section, I will introduce the somatic educational principles of Mingle (2018), that operationalise the aspects described by Jiang and Wu (2025) in the artefact.

Resonant Body as Somatic Learning

Mingle (2018) provides four presuppositions in somatic learning: 1) sensitivity and awareness improve with practice, 2) learning is physical, emotional, and mental, 3) habits are changeable, and 4) students can be taught to self-improve. Resonant Body was designed to enact these into practice through its protocols.

Sensitivity and Awareness Improve with Practice

In relation to Mingle's first presupposition, Resonant Body is a set of tools to increase interoception, proprioception, and kinaesthetic awareness over time. The process is iterative, encouraging the user to engage with each protocol and derive new insights repeatedly. Its exploration timeline primarily draws upon the Nervous System Regulation (NSR) course developed by the Institute of Applied Somatics, which is grounded in Traldi's (2022) BECOMEBECOME framework and provides its structure. Crocco and Meyer's (2021) description of motor learning in singers facilitated a bridge toward voice pedagogy and shaped the design of eight reflective and physical protocols. Specifically, they are initially given over eight weeks, using simple, explicit language, are explored in two cycles, and increase in complexity as awareness

develops, with a focus on movement rather than goal-related instruction. For example, Resonant Body suggests that if a singer experiences limited sensation in the lower ribs during breathing, they begin to explore where sensation is present and gradually expand toward that region (Hanna, 2004). This is to keep the singer's experience centred, rather than a teacher prescribing their own experience. As a result, the body scan exercise is recommended at the beginning and end of each protocol as a primary entry point, supporting Mingle's claim that sensory awareness develops over time through repeated practice. This approach is based on constraint-led exploration, as described by Gary (2023), which provides a singer a space to explore the sensations within a protocol or target action. In my experience, this design choice was also consistent with my current practice, as my students typically train in six- to eight-week blocks before taking a break to integrate their learning.

Learning is Physical, Mental, Emotional

Resonant Body enacts the second presupposition by utilising a multi-modal approach that engages the physical, mental, and emotional experience. For example, practicing constructive rest (see appendix 2) is encouraged at the end of each protocol to facilitate top-down somatic integration. It can be used in multiple ways to highlight a different entry point into somatic learning (Mingle, 2018), in which the exercise serves as a vehicle for providing a sensory experience, thereby allowing a singer to take inventory of habitual or novel sensory information. In parallel, the reflective protocols bring sensory experiences to the cognitive and verbal level, integrating the physical and emotional into mental knowing (Rose-Thema, 2021). By incorporating these domains of learning, the nervous system also regulates (Traldi, 2024). It sharpens perception (Ahmadi, Sezgi Firat Ozgur, and Erhan Kiziltan, 2024), thereby potentially increasing proprioceptive and kinaesthetic awareness in a singer.

Perceptual and Sensory Habits are Changeable

As the protocols increase sensory awareness, habits are predicted to change. This is evident in the pandiaculation exercises, which are iteratively explored within the protocols. Hanna (2004; p. xiii) developed these exercises to address "sensory motor amnesia," which is a loss of proprioceptive and interoceptive sense in a specific area of the body. These pandiaculation exercises essentially reawaken regions of the body by actively engaging the body in a target action rather than passively observing. This employs a bottom-up approach, in contrast to body scan or constructive rest exercises. For example, I reflect on a singer in my studio who may have reduced sensory awareness of tightness in the iliopsoas muscles due to long-term habitual tension from their sedentary office job, which may have led to their anterior pelvic tilt, resulting in limitations in their breathing gesture. Resonant Body addresses this in a supine position, utilising cues that slowly activate the muscle and return it to its resting state, refining perception for sustainable habit change.

Students Can be Taught to Self-Improve

Encouraging self-efficacy and exploration is a central pillar of Resonant Body. While the initial experience of using the artefact is primarily sequential, the singer is encouraged to develop their own exercises and protocols. For example, toward the end of the first iterative cycle, a general protocol structure is provided, in which the singer is encouraged to design new protocol combinations based on their own embodied reflective inquiry. This is to align with their somatic experiences and make changes as it continues to develop. This acknowledges the importance and value of the singer's individual somatic experience and legitimises their standpoint as the foundation for developing knowledge (Orbe, 1998). This necessitates a nonlinear and exploratory approach, which already optimises motor learning outcomes in athletic skill acquisition (Yang *et al.*, 2025). As a result, Resonant Body is not merely a set of prescriptive exercises; rather, it is a living platform for strengthening and fostering independence.

Embodied Trandisciplinary Framework and User-Experience

The artefact implements an embodied transdisciplinary framework, with a structure that centres the user experience and promotes self-efficacy in individual and collective knowledge creation. This is built directly upon Stephankova and Cermak's (2024) methodology for embodied inquiry and Traldi's (2022) BECOMEBECOME framework, which values reflexivity, iterativity, and collaborative knowledge production. A common element in reflective protocols is to 'remain with' the sensory information that the physical protocol facilitated and to transform the experience into practical knowledge. These protocols draw upon Shusterman's (1999) 'somaesthetics,' ensuring that practical knowledge is grounded in felt experience rather than in abstract concepts. Through open-ended, iterative reflective questions drawn from the phenomenological tradition, the singer is encouraged to freely explore language that aligns with their experience, rather than attempting to fit into a prescribed narrative of how singing should feel. This approach realises what transdisciplinary research aims to achieve: the creation of practical and transformative knowledge that is individually relevant, yet contributes to the whole by allowing more voices to participate in the inquiry and also contribute. Consequently, artefact offers a scalable and transformative path toward a more unified and inclusive embodied language in voice pedagogy and performance.

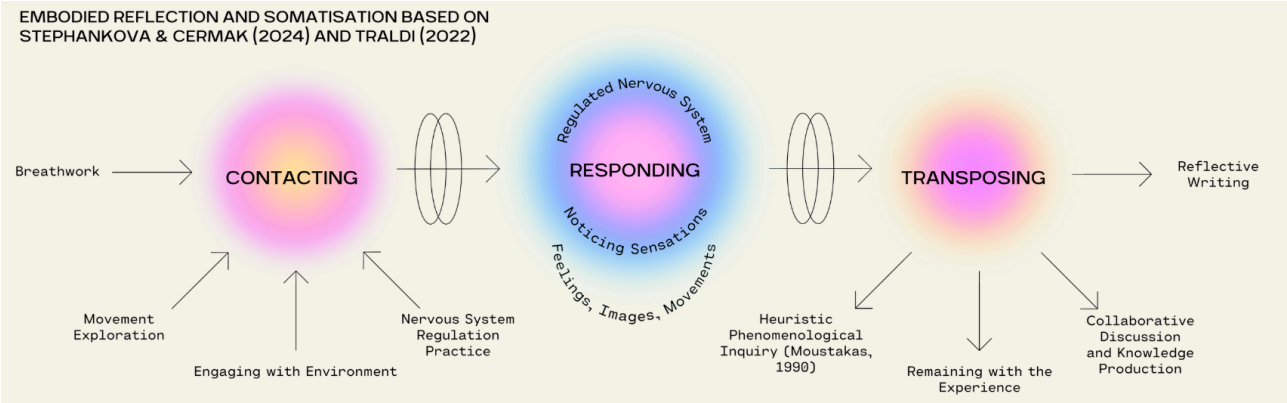

Figure 6: Final Iteration of the Resonant Body Embodied Reflection Framework

Resonant Body supports a constraint-based, embodied, and reflective approach that aligns very well with Jiang and Wu's (2025) embodied cognition mechanisms and Mingle's (2018) somatic learning principles. Through its cyclical, iterative process of exploring, feeling, and reflecting, it provides a vehicle for both independent and collaborative exploration to develop or enhance proprioception and kinaesthetic awareness in singers. How this project continues to grow depends on the insights singers gain from it, because their knowledge shapes its future protocols.

Know What

The primary aim of this project was to establish the foundations of a living, embodied practice that supports singers in developing their somatic awareness to enhance motor learning outcomes. This practice draws on a wide range of disciplines and fields to achieve this and necessitates a transdisciplinary framework to manage its complexity. After designing and creating this initial iteration, this section evaluates how the artefact meets these aims. A systems lens will be applied to determine how the many components work together to create resonances that achieve the project's aims, specifically, by first addressing the state of a singer's nervous system before approaching technical skill development, as well as how well it addresses the singer as a whole system rather than a collection of isolated parts. Within this framework, this section will evaluate Resonant Body's strengths and limitations with respect to its design rationale, anticipated impact, and future development.

Singing is a highly complex motor task, in which voice pedagogy has primarily focused on the behaviour of the structures that facilitate voice production. Still, little attention has been paid to the extent to which honouring a singer's internal experience can enhance their learning process. Thereby, influencing Resonant Body's aim of contributing to motor learning. This aligns with Kastrup's (2024) analytic idealism, which reminds the singer that the perception of their lifeworld is not always consistent with physical reality. In other words, challenges in motor skill acquisition toward a target vocal task are not merely a mechanical problem, because perception of a singer's use of their body may not be in alignment with what is actually happening in the body, which is

also described as misuse of self by F.M. Alexander (Alcantara, 2014). Thus, positioning the artefact within the epistemological gap between quantitative and qualitative voice pedagogy research. For example, the production of a desirable vocal sound may not always reflect healthy or sustainable vocal technique (Howell, 2025). By engaging in an embodied and qualitative process, Resonant Body targets the internal experience. This aligns with Merleau-Ponty's idea that perception is the fundamental motor for engaging with the environment through the body; thus, Resonant Body has aimed to address the root of motor-learning challenges through qualitative changes in perception. In Resonant Body, this primarily takes the form of a practical approach to challenging habitual physical and perceptual-motor patterns before addressing a vocal task, by regulating nervous system responses.

Resonant Body's anticipated pedagogical strengths are its singer-centred and state-before-skill approach. The approach begins with somatic exercises designed to regulate the nervous system, followed by the singer reflecting on their body map, habits, and somatic awareness. An important consideration is that the physical protocols themselves are not always necessary, because somatic practices and mindful movement generally regulate the nervous system (Traldi, 2022). What provides the most value is the iterative and reflective process the singer undergoes, and is why the exercises are designed to evolve. In my studio context, this would be directly useful for my singers, who have underdeveloped proprioceptive and interoceptive senses, which typically create challenges when making subtle changes. For example, the complexity of modifying the vocal track shape as a singer ascends through the passaggio (Bozeman, 2023).

In my experience, a singer with little or no proprioceptive or interoceptive sense may struggle with noticing, for example, tension in the jaw that has become habitual. Merleau-Ponty describes this as a change in the body schema: when a movement or compensation becomes habitual, it eventually recedes from conscious perception (Baldwin, 2004). Resonant Body's protocol would not only provide a space for the body schema to gain flexibility but also a space to integrate insights from the pre-cognitive to the cognitive level. This is achieved through cycling between the reflective and physical protocols. For example, the jaw-release exercise in the first cycle of the protocols provides a stimulus in that area, encouraging exploration and the perception of physical sensations. Following this, the singer engages with the previously discussed reflective protocol, based on Stephankova and Cermak (2024) and Traldi (2022).

Reflecting on Research Questions and Learning Outcomes

RQ1: What best practices can be combined to facilitate embodied reflection in singers that support the development of kinaesthetic and proprioceptive awareness?

The synthesis of the BECOMEBECOME methodology, along with Stephankova and Cermak (2024), becomes the central reflective framework that provides the basis for embodied reflection in this artefact. It supports the development of kinaesthetic and proprioceptive awareness through the bottom-up regulation of the nervous system, as discussed previously.

RQ2: What best practices can be combined to facilitate the development of physical practices that enhance embodied reflection in singers?

Best physical practices have been evaluated through the literature search methodology, as well as being scored against the aspects of embodied cognition described by Jiang and Wu (2025), the nature of somatic learning as defined by Mingle (2018), its NSR properties (Traldi, 2022), and its alignment with my own professional practice. These insights have been synthesised and have been used in the development of the initial artefact.

Expected learning outcomes were met. A foundational understanding of process-based inquiry and trandisciplinary somatic voice research was achieved by careful study of the BECOMEBECOME methodology, and through reflection of my own voice pedagogy practice. This artefact is my first formal attempt to synthesise this knowledge for singers and voice practitioners, with practical application in mind. Theory and practice are well balanced, as theory is clearly evident throughout the artefact. Furthermore, subsequent frameworks were developed and layered on top of one another, supporting my decision-making throughout the design process. This was evident in the challenge of maintaining coherence between Resonant Body's physical and reflective protocols when integrating these components into a single practice.

Reflective Conclusion

Acknowledging the complexity of developing a transdisciplinary artefact as a solo practitioner-researcher provided an insight that if I want to continue working in this way, I must collaborate. The scope and scale of this project quickly expanded to a degree that I felt was no longer appropriate for this module. While I have asserted that this project's aims, learning outcomes, and objectives have been met, this artefact has provided a valuable lesson in observing more restraint in my project design. Another key insight was realising the depth required to realise the artefact's intended vision. Thus, this reflective conclusion will focus on evaluating my decision-making and project management, to synthesise insights that may support me in future research and practice.

This artefact presents an initial formulation of a transdisciplinary, user-centred approach to somatic voice pedagogy. Moreover, it serves as a framework for redefining the evidence used in my teaching practice, following Ragan (2021), by centring more of the embodied first-person experiences in the learning process. In other words, Resonant Body is a free and open somatic inquiry into the singing body that singers can use as a means of understanding the use of their entire being to produce sound. That means learning to cultivate a strong kinaesthetic awareness, which will support the acquisition of singer-specific vocal tasks. This was achieved by developing an accessible, embodied, reflective framework that can be integrated into curated physical protocols, which will be further developed collaboratively as the artefact evolves. The project began as a way to support my students with limited kinaesthetic awareness, but has since expanded to encompass broader perspectives on somatic approaches in voice pedagogy and initial explorations of transdisciplinary and community-driven voice training and inquiry.

Artefact Evolution

Two major components comprise the artefact: reflective practice and physical practice, each with its own substantial level of complexity. This is especially evident when synthesising knowledge and practices across and between disciplines. Weaving it all together as a manifesto may have been a project in itself. Through the literature search, it became clear to me that connecting disparate communities of practice (CoPs) (Cronin and George, 2021) to uncover knowledge and practice gaps needed to be the primary driver for the artefact. As a result, considerable emphasis was placed on the theoretical foundations and reflective framework, with the expectation that the physical practices would be further developed in a community setting with academic and non-academic practitioners in a subsequent module. Thus, aligning closer to a trandisciplinary approach and justifying this shift from the original design.

I suspect that NSR, somatic, and embodied approaches will become more integrated into the voice studio, as voice pedagogy research on embodied cognition and systems thinking develops in the coming years. When considering the current social and political climate, there has been a rise in mental health issues in musicians (Gross and Musgrave, 2020), which can be successfully addressed through somatic approaches when cognitive therapies are ineffective (Camilo Sánchez Sánchez, 2023). As a result, the development of somatic community-based approaches for voice pedagogy, like Resonant Body, are also justified.

Through this project, I gained an appreciation for a transdisciplinary approach to voice training, but I have come to realise that both artefact components warrant greater attention. Looking back, the physical practices are merely a proof of concept for the approach I have envisioned. It is essential to assert the iterative nature of this artefact, and not to mistake the simplicity of its current physical practices as underdeveloped. The rise in various somatic practices (Nicholson *et al.*, 2025), can offer Resonant Body further inspiration to evolve and develop by integrating new knowledge and collectively synthesising what is useful and what is not.

Future Directions

While the artefact is grounded in scholarly evidence and presents a coherent theoretical ground, it is essential to consider that it has not yet been tested on participants. Currently, I can only hypothesize about its potential efficacy and impact on my early career and pre-professional singers. The following steps involve engaging in participatory action research (e.g., utilising collaborative workshops, focus groups, interviews, surveys, and reflective participant journals), as the theoretical foundations have already been established. This means that participant testing and iterative artefact development would occur in parallel, which I anticipate will yield further insights at both theoretical and practical levels. Somatic movement practices have often developed in this collaborative and reflective manner and have also uncovered new areas of somatic voice inquiry. For example, Bonnie Bainbridge Cohen, who is the developer of Body-Mind-Centring, utilised a community approach to synthesise her years of practical knowledge as a movement practitioner and clinical expertise as a therapist (Bainbridge Cohen, Nelson and Stark Smith, 2012). In conclusion, this artefact provides a container for body-based inquiry into the singing body, and its development remains open and flexible to the needs of my professional practice and my voice community.

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